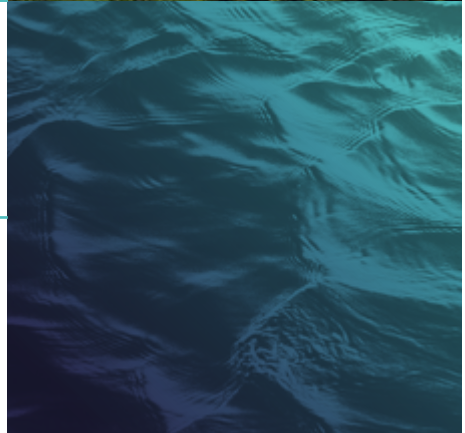
SHANNON ESTUARY ECONOMIC TASKFORCE REPORT



JULY 2023

Contents

Glossary

Acronym	Definition
AA	Appropriate Assessment
ABP	An Bord Pleanála
CCC	Clare County Council
DAFM	Department of Agriculture, Food and the Marine
DECC	Department of the Environment, Climate and Communications
DETE	Department of Enterprise, Trade and Employment
DFHERIS	Department of Further and Higher Education, Research, Innovation and Science
DHLGH	Department of Housing, Local Government and Heritage
DMAP	Designated Marine Area Plan
DOT	Department of Transport
EI	Enterprise Ireland
ESB	Electricity Supply Board
EU	European Union
GW	Gigawatt
IDA	Industrial Development Agency
IROPI	Imperative Reasons of Overriding Public Interest
KCC	Kerry County Council
LCCC	Limerick City and County Council
LCOE	Levelised Cost of Electricity
LNG	Liquefied Natural Gas
MAC	Marine Area Consent
MARA	Maritime Area Regulatory Authority
MW	Megawatt
OREDP	Offshore Renewable Energy Development Plan
ORESS	Offshore Renewable Electricity Support Scheme
SEA	Strategic Environmental Assessment
SEETF	Shannon Estuary Economic Taskforce
SFPC	Shannon Foynes Port Company
SIFP	Strategic Integrated Framework Plan
SOEF	Shaping Our Electricity Future
TCC	Tipperary County Council
TWh	Terrawatt-hour
WEI	Wind Energy Ireland

Foreword

Foreword

The Programme for Government 2020 committed to supporting the Shannon Estuary region through the establishment of an Economic Taskforce to evaluate the economic development potential of the Shannon Estuary area, and to determine how this potential can be realised in both an economically and environmentally sustainable way. The independent 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 practical action plan to realise it.

The objective of this Taskforce is to propose practical recommendations for action on key underdeveloped areas of opportunity, as opposed to providing a reference list of initiatives for which actions are already underway, although there may be some potential for overlap. We have worked with public and private sector stakeholders to propose such actions for implementation, with recommendations on how to deliver those in a timely and effective way.

The region has benefitted from a significant increase in investment and employment by existing companies and new in the last decade, principally in the environs of Limerick-Shannon. On establishment, the Taskforce was acutely aware that some parts of all 4 counties[1] in the Shannon Estuary area have not enjoyed the investment and economic growth experienced elsewhere and have seen a population decline of its younger generation as a result.

With that in mind, the Taskforce sets out the following overarching principles:

- identify the unique natural advantages that the Estuary region possesses;
- prioritise focus on deploying that uniqueness to significantly contribute to national and EU policy objectives;
- identify any policy and infrastructural deficits that inhibit the sustainability of current employment levels, and that are needed to realise the new opportunities identified.

1 Counties Clare, Kerry, Limerick, Tipperary.

The work of this Taskforce was reinforced by two significant crises i.e. climate change and the Ukraine war. We recognise Ireland's responsibilities with regard to these, both at a national and EU level. We believe that the Shannon Estuary region can play a significant part in energy self-sufficiency and decarbonisation, for both Ireland and Europe, and in so doing create enormous new economic opportunities not previously possible.

An Taoiseach, in his Dáil speech of 17 December 2022, proposed that his 'Fourth Ambition' of energy security and decarbonisation can be the 'Shannon Scheme 2.0' of our time. We believe that our recommendations for a 'Shannon Scheme 2.0 – Ireland's Atlantic Green Digital Corridor', a net zero technology hinterland of the entire Wild Atlantic Way, presents an enormous opportunity for the State over the decades of the century ahead. If we do this well, we can rebalance investment and population growth in Ireland by providing new career opportunities and enhanced quality of life along the western half of Ireland.

The Shannon Estuary Economic Taskforce sincerely thanks all who have engaged with and supported our work to date, from those who submitted views as part of our initial stakeholder consultations, right through to An Taoiseach Leo Varadkar TD, the Minister for Enterprise, Trade and Employment Simon Coveney TD along with other Ministers and their officials.

As Chair, I would also like to thank most sincerely each of the members of this Taskforce, including the Secretariat, who all have given very generously of their personal time and expertise, all motivated by their strong belief in these opportunities.

We hope that you find our recommendations helpful.

On behalf of the Shannon Estuary Economic Taskforce,

Barry O'Sullivan, Chair
July 2023

The Shannon Estuary Economic Taskforce comprises of:

Luuk van Der Wielen (UL), Pat Keating (Shannon Foynes Port Company), Seamus Hoyne (TUS), Mary Considine (The Shannon Airport Group), Dee Ryan (Limerick Chamber), Sean Hegarty (ESB), Siobhan Dolan Clancy (SDC Consulting), Brendan O'Donnell (MTU), Eamonn Murphy (ICBE), and Barry O'Sullivan (Chair).

The Taskforce was supported on a rotating basis by one of the Local Authority Chief Executives of the four counties: Moira Murrell (Kerry County Council), Joe MacGrath (Tipperary County Council), Pat Dowling (Clare County Council), Pat Daly (Limerick City and County Council).

The Taskforce is also supported by a Secretariat comprising of Paraic Rattigan (Mid-West Regional Enterprise Action Plan), Colm Forde (DETE), John Watters (DETE), and Jonathan Hoare (South-West Enterprise Action Plan) in the initial stages.

Members of the Shannon Estuary Economic Taskforce and Secretariat with then Tánaiste, Leo Varadkar TD, December 2022

1

Executive Summary

The Programme for Government 2020 committed to supporting the Shannon Estuary region through the establishment of an Economic Taskforce to evaluate the economic development potential of the Shannon Estuary area, and to determine how this potential can be realised in both an economically and environmentally sustainable way.

Having completed our work, this Taskforce concludes that due to a confluence of natural resources, necessity, and timing, we present the single greatest opportunity for sustainable economic growth in Ireland's history – the development of one of the world's largest renewable energy hubs, built primarily around the harnessing of global scale offshore wind energy from the Shannon Estuary. The timeliness of this opportunity is striking, as we come with a solution that meets challenges related to climate change, energy security, and energy demand.

The Shannon Estuary is, in an international context, uniquely primed to deliver this, through natural assets that comprise:

- over 500km^2 of deep sheltered water facing out into the vast Atlantic Ocean (Ireland's marine territory amounts to more than 10 times our land mass);
- proximity to some of the world's best wind resources, primarily off the Atlantic seaboard;
- natural sheltered waters sufficiently deep to facilitate floating offshore wind installation at scale;
- extensive land suitable for industrial development.

We believe that the realisation of this opportunity, through adoption of recommendations set out in this report, can transform the relationship between economic growth and our environment from the destructive to constructive, where both can now co-exist for mutual gain and prosperity and at a scale of international significance.

1.1 Stakeholder Engagement

Our plan has been developed from the bottom up, informed by inputs from across the region, nationally and internationally. It is shaped by engagements with our local communities; industry experts across the energy, transport, and tourism sectors; elected officials; and government representatives. We sincerely thank everyone for their contributions, insight, and support.

1.2 Our Solution

Shannon Scheme 2.0

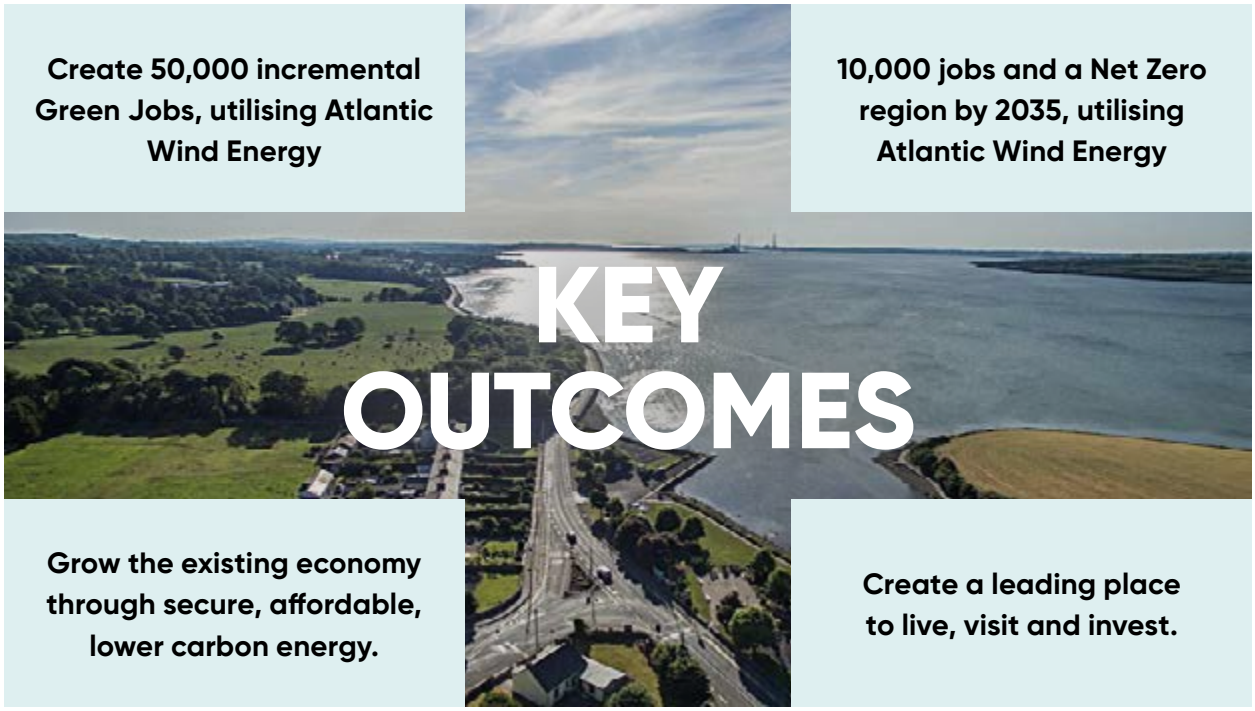
Ireland's Atlantic Green Digital Corridor

The Shannon Estuary region can create 50,000 high quality, green jobs through the harvesting and use of wind energy from the Atlantic, and become a net carbon neutral region by 2035 in the process:

- using the infinite supply of Atlantic wind energy, and through investment and promotion of research and innovation, we can create new opportunities and attract new industries that were not possible previously;
- through priority planning designation, we can lead the way in harnessing Atlantic wind, to provide Ireland and the EU with secure, green, affordable energy;
- by accelerating the delivery of strategic infrastructure, and creating a robust and competitive pathway to decarbonisation, we can protect the economic progress made to date, and build a strong foundation for the future;
- through investment in places, and new and enhanced tourism offerings, we can make the region a vibrant place to live, visit, and invest;
- by accelerating the harvesting of our Atlantic energy resource, we can create an Atlantic Green Digital Corridor, starting out from the Estuary region and spanning the entire Wild Atlantic Way, providing opportunities, careers, and quality of life at an unprecedented scale for decades to come;
- by delivering a sustainable and integrated transport and connectivity network, and a national logistics hub that connects the region to the rest of Ireland and beyond, we can build the bedrock for sustainable economic development and demographic growth in the region, while also helping to address national challenges around balanced regional development, congestion, and decarbonisation.

Create 50,000 incremental Green Jobs, utilising Atlantic Wind Energy

10,000 jobs and a Net Zero region by 2035, utilising Atlantic Wind Energy



KEY OUTCOMES

Grow the existing economy through secure, affordable, lower carbon energy.

Create a leading place to live, visit and invest.

1.3 Key Decisions Needed Now for Progress

This report contains many detailed actions to deliver on our clear ambition.
Below we summarise the key decisions now required to move forward.

50,000 Green Jobs by 2050

- Create a National Industrial Strategy for offshore wind.
- Create 'shovel ready' sites to attract industries to use green power.
- Invest in R&D to increase local value-add from floating wind.

A Net Zero region by 2035, using Atlantic Wind

- Utilise EU and national policies to prioritise offshore renewable energy projects and enabling infrastructure in the Estuary region.
- Implement our plan to deliver floating offshore energy at scale by 2032.
- Create a National Floating Offshore Wind Development Agency.

Grow the Existing Employment Base

- Create and deploy a National Energy Strategy to address energy security, cost competitiveness and decarbonisation, all together.
- Rapidly scale biomethane and other onshore renewables.
- Accelerate critical infrastructure.

A Vibrant Place to Live

- Invest in the Shannon Estuary as a 'low carbon' tourism destination, maximising the showcase potential of the Ryder Cup.
- Invest in high quality sustainable transportation, logistics and digital infrastructure.
- Review the National Spatial Strategy for the region.

1.4 Implementation

A significant challenge to the timely delivery of major infrastructure in Ireland has been an inability to garner sufficient public support for developments that will ultimately be of major societal and community benefit. Some of our key recommendations will require infrastructure development at scale. While these are supported by EU and Irish government policy frameworks, the Taskforce strongly endorses that in-depth engagement is undertaken with communities to listen to their concerns, address them where possible, and clearly explain the social and economic benefits that will result from these projects.

In order for this unrivalled opportunity for our State and its people to be realised, the Taskforce recommends:

- The establishment of a National Floating Offshore Wind Development Agency to deliver this opportunity. This would build on the successful models of EI and IDA in attracting international technology investment and developing Irish innovation and entrepreneurship. The purpose of this new entity would primarily be to attract capital required for harvesting our resource. A small, but senior regional project management team, guided by a local steering group of existing established leaders is also required.
- The provision of funding to enable us to undertake the technical studies needed to inform/guide the critical next steps in the future development of the Estuary.
- The assignment of responsibility to existing government departments and agencies to implement the other remaining actions and propose that progress is reported twice yearly by the Department of Enterprise, Trade and Employment.

2

Overview of Recommendations

The Shannon Estuary region can create 50,000 high quality jobs by 2050 and become net carbon neutral by 2035 in the process:

- by utilising all available EU and national policies to prioritise renewable energy projects and enabling infrastructure, we can lead the way in harnessing Atlantic wind, to provide Ireland and the EU with secure, green, affordable energy;
- using that infinite supply of green energy, we can create new opportunities and attract new industries that were not possible previously;
- by investing appropriately in strategic infrastructure, and creating a robust and competitive pathway to decarbonisation, we can protect the economic progress made to date, and build a strong foundation for the future.

2.1 The Opportunity

The European Commission has, as of March 2023, issued a number of 'Green Deal' policies (Fit for 55, REPowerEU, Net Zero Industry Act, Chips Act etc.) that provide a framework of actions to deliver on the three objectives of achieving energy security-of-supply while minimising carbon emissions, expanding our renewable energy supply, and becoming more self-sufficient in the strategic technologies needed to ensure that the transformation is sustainable.

Specifics include a reduction of carbon emissions by 55% and a 40% self-sufficiency in eight net zero strategic technology areas by 2030, while becoming net carbon neutral by 2050. These policies promote the creation of net zero industrial areas for delivery of these objectives.

Our vision is that the Shannon Estuary region can lead our national contribution to these European goals. To do so, we request that renewable energy projects and enabling infrastructure in the wider Shannon Estuary region be prioritised utilising all available EU and national policies and directives, to create an 'Atlantic Green Digital Corridor' inland from the Wild Atlantic Way, with a target to become net zero by 2035. This Corridor will significantly contribute to our EU 'Green Deal' objectives, which in turn will create 50,000 incremental jobs by 2050 in industries now designated as strategic for the transition to net zero.

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 and Europe's energy futures.

Ireland's Atlantic Green Digital Corridor

Initially centred on the Shannon Estuary, but expanding out along the entire West of Ireland:

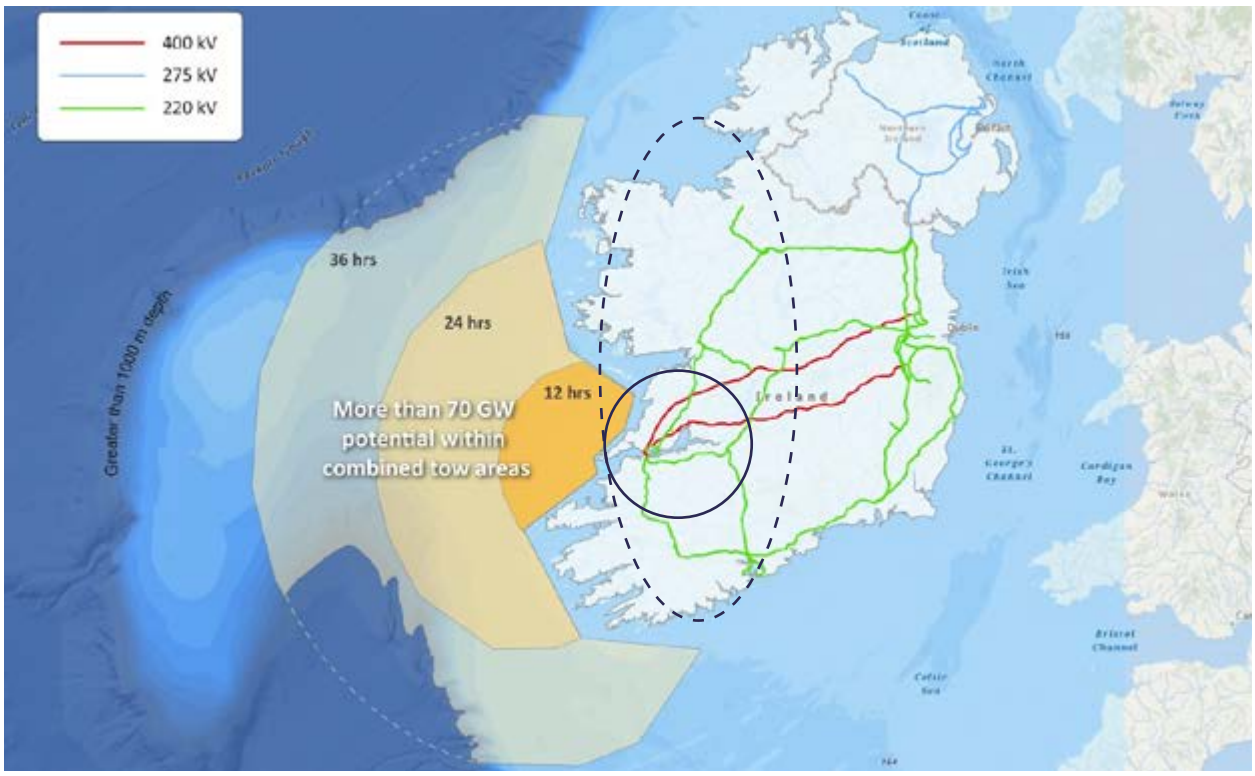


Fig. 1: This map shows the 70GW (70,000MW) of wind energy accessible from Foynes Port and the proposed location of the first phase of the Atlantic Green Digital Corridor that leverages the existing electrical transmission grid (and other infrastructure). (Source: Shannon Foynes Port Company[2])

2.2 Harvesting our Atlantic Wind

The European Commission's 'Green Deal' seeks to accelerate the decarbonisation of the EU energy supply while becoming as self-sufficient as possible through that process. The Taskforce notes the Irish Climate Action Plan 2023 and the Policy on Offshore Wind of 11 March 2023 in that regard, which also includes a commitment to have 2 GW of floating offshore wind (FLOW) in development by 2030.

We believe that the Shannon Estuary region can make a significant contribution to this national and EU objective. Analysis by Bechtel, a global engineering company, has indicated that wind from the Atlantic can now provide 70,000 MW of energy, over 10 times current Irish peak demand, with, of course, an infinite lifetime. As the technology evolves further, we should expect that potential capacity to increase faster than our ability to harvest it.

2 Vision 2041 Strategic Review, Shannon Foynes Port Company, 2022.

Today, floating offshore wind is more expensive than other forms, so it becomes essential to provide significant scale to reduce the unit cost. The wind industry's view is that only the Shannon Estuary can provide such a scale of deployment in Ireland. In November 2022, Minister Ryan launched Shannon Foynes Port Company's Vision 2041 Strategic Review, which contains a detailed roadmap on how to develop that capacity in the Estuary.

This Taskforce has engaged extensively with the Department of Environment, Climate, and Communications (DECC), the floating offshore wind industry, and other stakeholders on how to progress this opportunity, noting the specific recommendations from the European Commission[3,4] on how to accelerate such projects. The universal feedback from wind developers, unfortunately, is that Ireland is now several years behind other countries in Europe in developing floating offshore wind and despite recent progress has much to do to streamline and accelerate permitting processes, as agreed at the EU level.

With 70,000 MW available to harvest, and the technology now being deployed elsewhere around the globe, the investment required by developers is of the order of €3 – 5 billion per 1,000 MW[5] to make that happen. However, some major European players have already exited their partnerships in Ireland, and we have found a level of despondency among the remaining wind developers. Recent news of replacement investors has been encouraging but it is critical now to deliver progress to retain this interest.

We therefore ask the Government to consider the opportunity presented by floating offshore wind to be a key economic development pillar for Ireland for the century ahead, and not just as a potential future tool for domestic decarbonisation, as appears to be the case today.

While floating offshore wind can certainly contribute to the national decarbonisation programme post 2030, the bigger opportunity by far is the export of energy and products made using it, into the EU and beyond. This enormous economic opportunity is firstly about developing offshore wind farms and bringing green power onshore. In parallel, it is about creating incremental demand for that energy, through the creation and attraction of new industries, while also expanding electrical interconnection to Europe.

3 State aid: Commission approves amendments to German scheme to support offshore wind energy generation, European Commission, 2022.

4 Net-Zero Industry Act: Making the EU the home of clean technologies manufacturing and green jobs, European Commission, 2023

5 2021 Cost of Wind Energy Review, NREL, 2021

As proposed in the EU Green Deal policy, we request the formation of a one stop shop, a National Floating Offshore Wind Development Agency, consisting of a small staff of experienced people who can engage both commercially and technically with potential wind developers and the State system to bring that green power onshore. As is the case today, the responsibility to support new industries lies with EI, to attract FDI with IDA, and electrical interconnection overseas with Eirgrid. All four Agencies, and others must work very closely together to deliver this economic opportunity.

As illustrated in appendix 12.2, there is significant policy at international, national, and regional level to enable and support the Shannon Estuary as a major receiving node for offshore wind electricity generated off the west coast of Ireland. Significant investment on behalf of the State in Foynes Port and Moneypoint, in developing the Atlantic's offshore grid, in other physical and digital infrastructure, in the purchase and development of significant land banks, and in the provision of skills will be required to realise this enormous economic opportunity. We ask that these now be expedited as projects of overriding public interest.

Following our own extensive engagement with developers who have interest in wind projects off the coast of Kerry/Clare, we propose a programme of key actions on a critical path to ensure that electricity comes onshore in 2032. We also offer a series of recommendations to enable that, within the framework of a 'plan-led' approach.

We believe that the implementation of these actions, to this proposed timeline, will encourage international investors, whose technology and capital we need, to reconsider Ireland as a credible location for floating offshore wind investments.

2.3 Adding Value to our Offshore Wind Energy Harvest for the Benefit of All

2.3.1 Strategic Site Planning

The third pillar of the EU Green Deal policies is to enhance the security of key raw materials and technologies needed for the continued economic development of the EU. The Net Zero Industry Act[6] is intended to guide actions to manufacture, within the Union, strategic net-zero products and industrial components for ensuring Europe's green transition. These technology areas have been initially identified as solar power, batteries/storage, wind, electrolysers and fuel cells, heat pumps, biomethane, electricity grids, and carbon capture and storage (CCS). The policy targets a benchmark of manufacturing at least 40% of annual EU deployment needs by 2030. The EU Chips Act[7] also targets 20% of the global market for computer chips to be manufactured in the European Union by the end of the decade.

6 Net-Zero Industry Act: Making the EU the home of clean technologies manufacturing and green jobs, European Commision, 2023.

7 European Chips Act, European Commission, 2022.

With perhaps the exception of CCS above, the Taskforce believes that the wider Estuary region can now become a significant manufacturing location for many of these, and indeed other products, such as hydrogen and other industrial feedstocks, green fertiliser, sustainable aviation and marine fuels, green steel and aluminium, and green data storage.

By leveraging our already extensive high voltage electricity and gas grids, availability of water, and the strong manufacturing capability in the region, a step change in industrial development is achievable.

The Estuary already has zoned sites suitable for industries that require deep water access. Some 1,250 hectares (3,000 acres) of land, across 9 sites, has been identified in the 2013 Shannon Estuary Strategic Integrated Framework Plan (SIFP)[8] as Strategic Development Locations (SDLs) and zoned in the relevant County Development Plans to provide statutory support.

The wider region between the greater Limerick, Shannon, and Galway hinterlands can be suitable for high tech industries such as chip manufacturing. The towns across the region, from Listowel to Roscrea, are ideal for supporting industries, e.g. green data centres, all powered by green energy from Atlantic wind and leveraging the existing adjacent high voltage grid. We have identified over 2,950 hectares (7,300 acres) of zoned land for industry in the wider region for these purposes (Appendix 12.3). Our Local Authorities are all committed to working closely with IDA and EI to attract such green industries.

We recommend that significant land banks be purchased by the State or its Agencies, and infrastructure provided to make them 'ready now' for industries which can be attracted here to value-add this clean energy. We request funding to estimate the cost to purchase and develop those sites already zoned, plus the funding to identify at least as much more land for additional development.

This 'Atlantic Green Digital Corridor' can be centred initially on the Estuary region of North Kerry, Tipperary, Limerick, and Clare. It can subsequently be expanded outward to create a corridor from Donegal to Cork, inland of the Wild Atlantic Way, when the necessary infrastructure is put in place to enable that.

8 Strategic Integrated Framework Plan for the Shannon Estuary, SIFP STeering Group, 2013

2.3.2 The Importance of Investment in Research, Development, Education and Skills

This Taskforce strongly believes that we are at the beginning of a new industrial revolution and much has yet to be learned and invented. A lesson from the deployment of over €5 billion of onshore wind in Ireland over the last 15 years is that if we are not early adopters, then the economic benefits captured in Ireland are significantly reduced.

Through Research and Development, early in the technology lifecycle, we see a huge opportunity to develop innovation, grow our national technical capability, and enable locally grown companies to compete in these technologies that are now designated strategic by the EU. We ask that an R&D / Innovation requirements clause be included in the tenders for offshore wind energy contracts to foster this.

Furthermore, we note the desire by political leaders for collaboration between the US (Inflation Reduction Act) and the EU (Green Deal) decarbonisation programmes. We propose that the Estuary region, situated as it is on the edge of one the world's most important wind resources, just 6 hours from Boston and 2 hours from Berlin, is the ideal place for such international partnerships on research and co-development and we seek funding to investigate and develop that opportunity.

The EU Net Zero Industry Act proposal outlines the creation of specialised European skills academies to focus on strategic net-zero technologies. We are fortunate to have excellent collaboration between employers and the education and training institutions in the Estuary region. This needs to be a priority for all skill types in our region, and funded so that Ireland becomes recognised as a centre of such talent.

2.4 Tourism, Placemaking and Quality of Life

This Taskforce believes that the Shannon Estuary region is an excellent place to live, albeit a region with current challenges such as healthcare and housing that are not the focus of this report. Both, however, will need to be systematically addressed if the region is to cater for the significant population influx that is foreseen.

For tourism, we recognise the excellent work of Fáilte Ireland, and with some notable exceptions such as the Cliffs of Moher and others, we believe that this remains a region largely awaiting discovery by many who want a relaxing holiday. The Taskforce notes the progress in improving the public realm in Limerick City and further encourages efforts to increase the attractiveness of the regional capital as a destination for business and leisure travel. We welcome Fáilte Ireland's strategic initiative to develop 'Decarbonised Zones' as a differentiator and believe that this region is well placed to achieve that with our proposed 2035 Net-Zero target. We have a number of recommendations for leisure and business tourism in that regard, ones that can be implemented prior to the hugely valuable opportunity that the 2027 Ryder Cup will provide to the region, and indeed the country.

As a longer-term example, the development of green marine and aviation fuel supplies from offshore wind could provide an opportunity to become a major green cruise holiday start/finish point from Shannon Airport, supported by sustainable transport infrastructure around the region, such as green rail, and we now request funding to investigate the cruise destination opportunity further.

2.5 Retaining Employment Gains by Enabling Secure, Affordable Decarbonisation of Industry

In the Shannon Estuary region, we depend on the export of price sensitive food, manufactured goods, and services; our producers now need to decarbonise in a way that they can continue to compete globally. Most of the investment decisions for industries in our region are made abroad.

Today, economic output is closely linked to carbon emissions, but over time, the development of more renewable energy should increasingly decouple that link. In the meantime, the decarbonisation path forward has to be managed strategically. To enable retention of current employment levels, we need to ensure that we have secure, reliable energy supplies of sufficient capacity, with a clear pathway to achieve our national 2030 decarbonisation targets, while achieving cost competitiveness. The imperative now is to create and deliver a balanced programme to address all 3 together, in this decade.

For electricity, it is clear from Eirgrid and other commentators that the supply system has been under pressure for some time and is now a limit to economic growth[9]. The Climate Action Plan 2023 has targeted the vast majority of future electricity supply capacity to come from intermittent and unpredictable sources such as solar and wind, coupled with a declared need for 'demand side management of up to 20% by 2025 and 30% by 2030'. The policy declares that *'Large Energy Users (LEUs) will be expected to make a higher proportional contribution to the target'.*

Given that this policy is building on a supply system that is already unfit for purpose, we ask for a commitment on energy security of supply for the employers in our region who need to keep their complex industrial processes running 24/7, and for those who need to expand over the coming years. We ask that clarity be provided for both generation and transmission capacity in the region on a six-monthly basis until the situation is resolved.

In June 2022, the EU Energy Commissioner publicly noted that Ireland's electricity cost is significantly above the EU average. As many of our region's industries compete in global markets that are price sensitive, we request that the Government commits to creating the conditions that enable Ireland's industrial electricity costs to return to the European average.

9 Ireland's Competitiveness Challenge 2022, National Competitiveness Council, 2022.

The 2023 Climate Action Plan has set legally binding ceilings for carbon emissions. Within that annual 'carbon quota' that must be significantly reduced by 2030, we need to achieve 3 things:

- enable businesses to carry on their current operations, including their growth since the baseline year of 2018;
- provide 'headroom' for them to grow their operations from now to 2030, and beyond; create 'headroom' to attract new industries into the region.

For businesses in our region, we ask that they are supported with appropriate technical advice and access to affordable, secure energy at the lowest possible carbon intensity to achieve these objectives.

In the case of natural gas, the Taskforce recognises that this is considered a green transition fuel by the EU since 2021 and its use is encouraged *'to allow us to accelerate the shift from more polluting activities, such as coal generation, towards a climate neutral future, mostly based on renewable sources'*[10]. In addition to providing a new energy supply that is reliable, cost competitive, and incremental for our industries in the region to both decarbonise and grow, the Taskforce remains of the view, expressed in our interim report, that an LNG import/storage facility and electricity generation would be a significant strategic investment in the North Kerry/West Limerick region. Most importantly, it would greatly assist efforts to attract other large capital investments there. We understand that such investments would be capable of using and distributing hydrogen when energy from Atlantic wind becomes available at a later stage, as promoted by EU 'Green Deal' policies.

Many of the largest employers in our region have a challenge to economically reduce emissions from high temperature heating for their manufacturing processes. The EU has long championed the use of biomethane across Europe as a preferred low carbon fuel and the REPowerEU policy of May 2022 targets a doubling of the already extensive production in mainland Europe for heating. The Taskforce strongly supports this policy as the technology is well proven, renewable and, most importantly, predictable, making it one of the most suitable solutions for decarbonisation of our industries, especially for those with high temperature heating needs. It also represents an important incremental income source for rural Ireland, and it will reduce pollution risk and displace gas imports. In the longer term, it can become a source of biogenic carbon that, combined with hydrogen from offshore wind, can provide the basis for manufacturing other products.

10 Taxonomy Complementary Climate Delegated Act, European Commission, 2022

Irish Government policy until very recently had not pursued the development of a significant biomethane industry, despite having one of the best natural environments for its production, and the risk of the lack of this decarbonisation pathway for industries here. Denmark, a country with a similarly strong agricultural base, already has a third of the gas in its grid coming from locally produced biomethane. In July 2022, the Department of Environment, Climate, and Communications published a target of 5.7 TWh, 10% of its national gas demand, to come from biomethane by 2030.

The wider Shannon Estuary region is an ideal lead area for this well-proven technology, given our significant industrial base that requires high temperature heating, our extensive capacity to produce biomethane, and the significant gas grid that is already in place here. As a result, we have initiated a group of local industries, representing large users from different sectors that have agreed now to seek formal expressions of interest from potential biomethane suppliers in the region, and have collectively funded a respected consultancy firm to prepare the framework to do so. We request that the Government now progresses this initiative, per REPowerEU policy, deploying best practice support and permitting structures from other EU countries to enable its success. Once successfully piloted in this region, it can be extended countrywide.

It is clear that industries in the region will have significant challenges to identify and implement their own individual programmes to achieve their overall 2030 decarbonisation targets. Leveraging the one stop shop principle encouraged in EU 'Green Deal' policies, we propose appointing one existing agency in the region to support industries on this, and another existing agency to work with all stakeholders on implementing the biomethane pilot.

2.6 The Need for Investment in Infrastructure

The Taskforce identifies the need for significant investment in the Shannon Estuary region's transport, connectivity, digital and other critical infrastructures as a matter of priority. The region has benefitted from several billion euro of private investment over the last decade, which has served to address the unemployment crisis of a decade ago.

However, investment in public infrastructure has been minimal in that period, a fact evidenced in the EU Regional Competitiveness Index for 2022[11], which rates the infrastructure in Ireland's southern region at just 50% of the European average. Parts of the Estuary region that are poorly served with infrastructure have seen no significant new industries in decades and consequently the migration of young people from there.

11 EU Regional Competitiveness Index 2.0 – 2022 edition

To address this deficit, the Taskforce recommends that infrastructure masterplanning in the Shannon Estuary region optimises the movement of people, goods, and data in an integrated way. A sustainable transport and data infrastructure, serving future population and business needs, connecting the region to the rest of Ireland, Europe and beyond, will be the bedrock for sustainable economic development in the age of low carbon energy and artificial intelligence. The Taskforce notes a number of projects planned for the Shannon Estuary region by the various transport bodies and identifies the need for their coordinated and accelerated delivery. This is not only essential to support the future economic development and population growth of the region, and the significant economic benefit which can be gained from being a lead region in delivering the State's offshore wind targets of 37 GW by 2050 but will also serve to enhance the quality of life for the current workforce and population in the region.

Key road investments that are overdue include connecting the region's capital, Ireland's third largest city, to the second largest, Cork, by the M20 motorway, and to Europe by an improved N24 to Rosslare. We welcome the Government's commitment to prioritising the completion of the Limerick to Foynes Road Scheme, which now needs to be completed as expeditiously as possible.

Within the region, bypasses of Newcastle West and Abbeyfeale on the N21 to Tralee, and the completion of the full Limerick Northern Distributor Road in Limerick, as originally proposed in the Southern Regional Spatial and Economic Strategy, are all core needs. While the latter is the subject of some recent debate, the Taskforce believes that it is essential to enable the economic development of the north of Limerick City and southeast Clare.

In addition to the above, road improvements along both sides of the Estuary, from Ennis to Kilrush, and Foynes to Listowel, are needed to take account of current and emerging needs in the region, such as serving the ESB's plans at Moneypoint and the need for cycle lanes, as well as to enable the attraction of new industries to the area.

The Taskforce recognises the potential of rail in the region and welcomes the investment to reopen the line to Foynes. We support efforts to connect Shannon Airport and Adare by passenger rail. We also support SFPC plans to develop container import/export facilities at Foynes and plans for the deep-water port on Foynes Island, as well Irish Rail's plans for a freight terminal at Limerick Junction, all of which can contribute to achieving Ireland's decarbonisation targets for transport to reduce congestion, particularly within the M50. To draw these plans together with other national and regional level freight and logistics strategies, the Taskforce recommends that a sustainable national logistics hub is developed in the Estuary region, and we detail this later in the report.

We also believe that the Estuary can become a low carbon international freight and logistics hub, leveraging the potential of energy from Atlantic wind and our location as the front door to Europe. Shannon Airport already has a one of the longest 24/7 commercial runways in the EU. The western Estuary has the deep water and land suitable to create a global transhipment hub for container freight, linking the EU, Asia and the east coast of the US. The provision of cost effective, sustainable aviation and marine fuels from the harvesting of Atlantic wind energy will be key. We request funding to complete a study on this potential.

Shannon Airport is a critical hub in the region for international business and visitor connectivity. The Taskforce identifies the need for an expanded network of routes connecting to strategically important business hubs, as well as improved transport connectivity to and from the airport, as being critical to support the existing and expanded industrial and population bases that are projected for the region. In addition, Shannon is the ideal location to develop and test the technology associated with sustainable aviation and the Taskforce recommends that sustainable aviation demonstrator projects be developed and funded as part of a Living Lab at Shannon Airport. In recognition of the region's strong aviation sector, it is further recommended that the opportunity for the production of sustainable aviation fuels (SAFs) in the Shannon Estuary region is explored as a potential route to market for FLOW as well as providing locally produced affordable green fuel for the growing aviation sector.

At present, the economic potential of the region is limited by a lack of digital capacity and international connectivity, while such infrastructure has greatly enhanced the economy in Dublin over the past decade. The Taskforce recommends that a digital masterplan be developed for the region, taking a holistic approach and incorporating data centres powered by renewable energy, 5G roll-out, a terrestrial data network of adequate capacity, and direct data connectivity to the EU and US.

Significant investment in regional and international electricity interconnection will also be essential to enable an Atlantic Green Digital Corridor. It is essential that Moneypoint and Tarbert are designated as hybrid connection points for Atlantic wind. The Taskforce requests that clarity on these requirements be provided in detail in Eirgrid's updated Shaping Our Electricity Future 1.1 roadmap.

In addition, the Taskforce requests that Regional Spatial and Economic Strategies (RSES) for housing, water, wastewater, and other infrastructure be updated to reflect the opportunities that Atlantic offshore wind presents, and that funding is provided to implement these as and when required.

2.7 Recommendations on Implementation

We recommend that the deployment of all of the agreed actions from this report be monitored on a 6-monthly basis by the Department of Enterprise, Trade and Employment. Many of the recommendations offered in this report can be considered and implemented by the relevant local or national agency or authority. However, for two initiatives – floating offshore wind and decarbonisation of the existing industrial base – we have specific recommendations for government consideration.

2.7.1 Floating Offshore Wind

We are greatly encouraged by the Taoiseach's declared 'Fourth Ambition' in his Dáil address of 17 December 2022, but given the fact that we are already well behind other countries in floating wind, we recommend a 'whole of Government at pace' approach to realise what is primarily an economic and industrial development opportunity for Ireland, albeit one that will assist our national decarbonisation efforts in years to come.

We therefore request that an appropriate Senior Officials Group, under the direction of an Assistant Secretary General in the Office of An Taoiseach, provide regular oversight to ensure that a 'whole of Government at pace' approach, requested by this Taskforce and EU Green policy, is implemented with the ambition, focus, and pace of the original Shannon Scheme. We ask that a group at this level works together until at least the first of the energy from floating offshore wind comes onshore.

We recommend a dedicated National Floating Offshore Wind Development Agency is formed, composed of singularly focused and appropriately qualified staff, who can credibly engage with international developers, at both commercial and technical levels. The use of a dedicated development agency model is successfully deployed today by EI and IDA for indigenous and overseas industries respectively.

We propose that the IDA and EI retain responsibility for attracting new industries and creating new businesses to use this green energy and add value. Similarly, for Eirgrid on international interconnection. It will be essential that all Government Agencies work very closely together towards this enormous national opportunity.

As ultimately well over €100 billion of private investment and technology needs to be attracted, we recommend that the National Floating Offshore Wind Development Agency is highly customer focused, and located in the Mid-West region, close to customers and to where the floating wind assemblies for all Irish waters can be manufactured. A Mid-West location is also central to other potential floating offshore wind areas, and easily accessible from Dublin.

Due to the complexity and duration involved, we also foresee a need for a Local Deployment Steering Group, composed of established senior leaders from local agencies and authorities such as the local authorities, ports, airport, regional enterprise plan lead, research and education institutions, and others as required, that have responsibility on the ground to enable these investments. This steering group should be supported by a small but senior project management team who can work closely and credibly with the various national Agencies and the potential offshore wind developers. This team can be housed in an already established Atlantic Green Digital DAC, formed by the local county councils under the Mid-West Enterprise Plan and can project manage the delivery of additional studies requested in this report. The Shannon Estuary region offers to pilot such a local structure for potential later deployment in the other proposed regions for offshore wind, when required.

2.7.2 Decarbonisation of the Existing Industrial Base

To support industries in creating and implementing programmes to achieve their own 2030 carbon emission reduction targets, we propose amalgamating the Limerick/ Clare and Tipperary Energy Agencies and providing them with increased resources to do this work in the wider region. This is an approach that is used successfully in Europe.

For the decarbonisation of industrial heat by biomethane opportunity, we recognise the urgency of catching up with our European neighbours so that existing investment by local industries is protected and further can be attracted within the Climate Action Plan emissions ceiling. We propose that the work we have started should be progressed by the Irish Bioeconomy Foundation, based at the National BioEconomy Campus in Lisheen Co. Tipperary, in partnership with Government Departments such as DECC, DAFM and DETE. We request the resources and funding to enable this.

The specific actions recommended by the Taskforce, with proposed owners and timelines, will follow in each upcoming section and in the appendix.

A summary of those key actions and the reasons behind them now follows before the detailed commentary is presented for your consideration.

3

Summary of Key Recommendations

3.1 The Opportunity

Key Recommendations	Why
Renewable energy projects and enabling infrastructure in the wider Shannon Estuary to be prioritised utilising all available EU and national policies and directives, to create an 'Atlantic Green Digital Corridor', inland of the 'Wild Atlantic Way', with a target to be carbon neutral by 2035. This designation must provide planning certainty of response, within the timelines identified, for projects that meet the criteria outlined in those policies. This Atlantic Green Digital Corridor can initially be centred on the Estuary region, as the floating wind assemblies can be manufactured there, but ultimately be extended out from Cork to Donegal as power comes onshore and infrastructure is provided.	Opportunity of the century for Ireland's economic development, while also contributing to overall EU objectives.

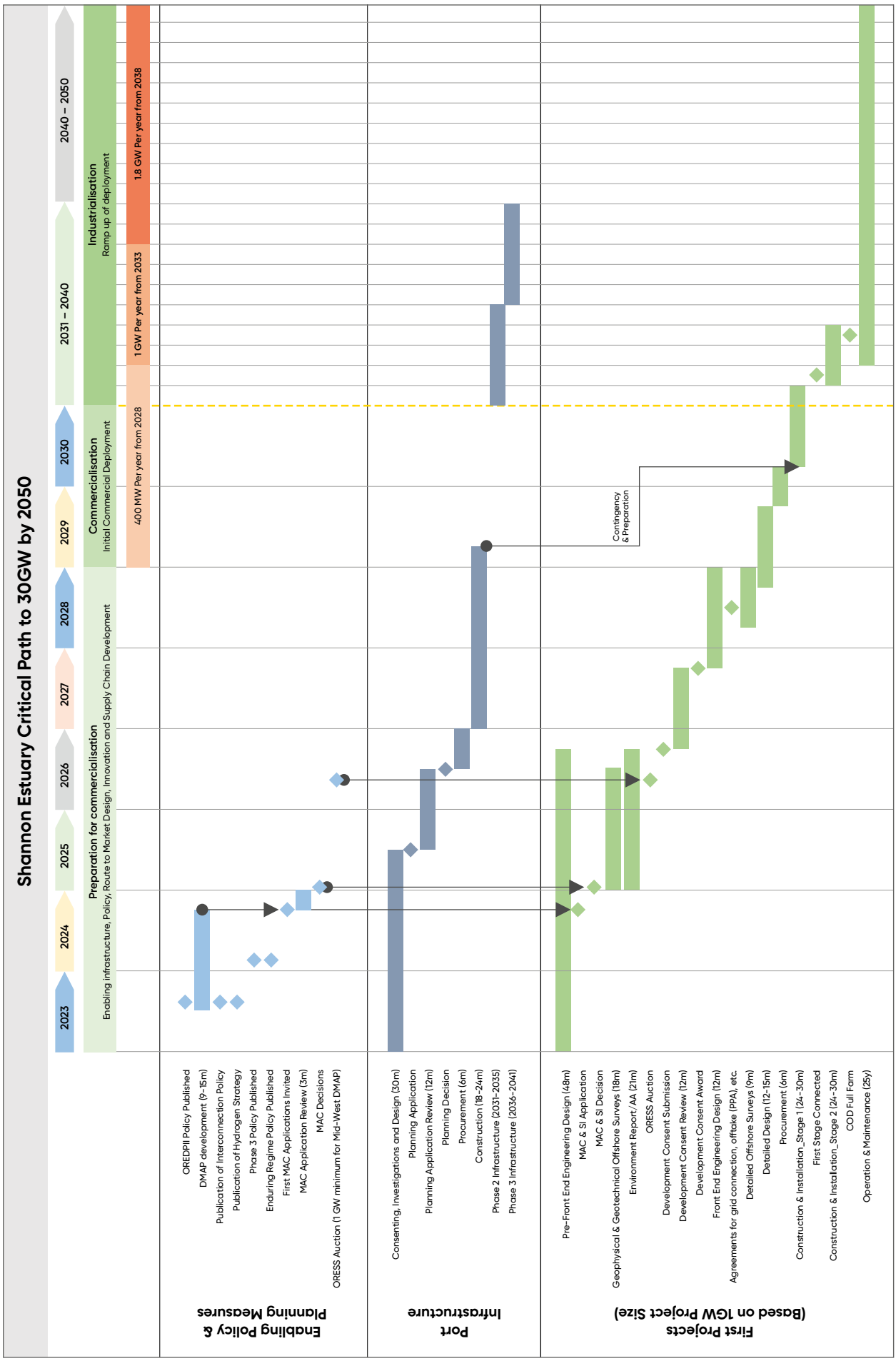
3.2 Harvesting our Atlantic Wind

Key Recommendations	Why
Support, via management and resources across government, our proposed Critical Path to deliver Atlantic Wind, identified through consultation with the major wind developers that Ireland seeks to attract, to deliver power from floating offshore wind by 2032.	FLOW developers have exited or scaled down, due to better opportunities elsewhere. A credible plan is required.
Adopt policies that consider offshore wind as primarily an economic development opportunity, albeit one that can significantly contribute to Green Deal objectives for both Ireland and the wider EU. Per EU policy on creating a one stop shop to expedite progress on Green Deal objectives, create and resource a National Floating Wind Development Agency to deliver government targets from Atlantic wind. This agency will be responsible for working in partnership with all stakeholders to bring this energy onshore and beyond. It must work with IDA and EI to maximise the value-add for the Irish economy. To ensure customer focus, we recommend that this agency is based in the Mid-West – where manufacturing, assembly, and storage can be located, central to other proposed Atlantic FLOW areas, and with easy access to Dublin.	This opportunity, denoted as Phase Three in current policy, needs to be progressed in parallel with Phase Two, whose primary focus is the 2030 decarbonisation target. The approach taken (since 2004) with offshore wind developers is not working as well as it needs to, and it is unsuitable for the scale of floating offshore wind. A dedicated agency approach has already been proven elsewhere (IDA, EI). An exclusively focused, experienced team who can engage with potential investors at both a technical and commercial level is needed.

Expedite infrastructure development needed to enable an offshore wind industry (ports, grid, roads, and housing etc.) Funding, and planning designation (IROPI) for estuary projects at Foynes, Moneypoint, etc. as well as enabling infrastructure such as roads, rail and grid.	Ireland is already 5 years behind. International investors see better opportunities elsewhere despite the quality of our wind.
Ensure that the feedback from wind developers on the OREDP II consultation at Foynes for the proposed area off Kerry/Clare is fully taken on board. Commitment to hybrid grid connections at Moneypoint and Tarbert in Eirgrid's SOEF 1.1.	To ensure viability of the area off Clare and Kerry for investment in FLOW.
Increase interconnection capacity to the EU and UK, beyond that already planned. Enable Private Wire transmission networks, off- and onshore.	To enable viability of FLOW at the appropriate scale to reduce unit cost.
Support the development of Irish R&D in technologies for offshore wind by including clauses mandating an amount of R&D in auction tenders.	Increase the economic benefit of international investment by capturing more value in Ireland through greater local knowledge and technology.
Fund a feasibility study into the creation of an international R&D collaboration centre for EU Green Deal and US Inflation Reduction Act decarbonisation programmes.	Ireland, and specifically the Shannon Estuary region, is an ideal location for such a centre, that in turn would benefit Irish capability in these areas.

3.2.1 Floating Offshore Wind Critical Path Action Plan

At the request of DECC on 13 March 2023, post publication of their 'Accelerating Ireland's Offshore Energy Programme' policy statement of 10 March, SEETF engaged with a sample (4) of the major wind developers who have already worked on the west coast, to determine the critical path of actions needed to rebuild confidence in Ireland as a location for floating offshore wind development. This Critical Path Action Plan was created out of those discussions and identifies the key milestones that need to be met, and the main interdependencies that exist across policy, enabling infrastructure, and offshore project deployment at-scale. We recommend that the Government now adopt this pathway to delivery.


Shannon Estuary Critical Path to 30GW by 2050
2023
2024
2025
2026
2027
2028
2029
2030
2031 – 2040
2040 – 2050
Preparation for commercialisation
Enabling infrastructure, Policy, Route to Market Design, Innovation and Supply Chain Development
Commercialisation
Initial Commercial Deployment
Industrialisation
Ramp up of deployment
400 MW Per year from 2028
1 GW Per year from 2033
1.8 GW Per year from 2038
Enabling Policy & Planning Measures
OREDPII Policy Published
DMAP development (9-15m)
Publication of Interconnection Policy
Publication of Hydrogen Strategy
Phase 3 Policy Published
Enduring Regime Policy Published
First MAC Applications Invited
MAC Application Review (3m)
MAC Decisions
ORESS Auction (1 GW minimum for Mid-West DMAP)
Port Infrastructure
Consenting, Investigations and Design (30m)
Planning Application
Planning Application Review (12m)
Planning Decision
Procurement (6m)
Construction (18-24m)
Phase 2 Infrastructure (2031-2035)
Phase 3 Infrastructure (2036-2041)
First Projects (Based on 1GW Project Size)
Contingency & Preparation
Pre-Front End Engineering Design (48m)
MAC & SI Application
MAC & SI Decision
Geophysical & Geotechnical Offshore Surveys (18m)
Environment Report/AA (21m)
ORESS Auction
Development Consent Submission
Development Consent Review (12m)
Development Consent Award
Front End Engineering Design (12m)
Agreements for grid connection, offtake (PPA), etc.
Detailed Offshore Surveys (9m)
Detailed Design (12-15m)
Procurement (6m)
Construction & Installation_Stage 1 (24-30m)
First Stage Connected
Construction & Installation_Stage 2 (24-30m)
COD Full Farm
Operation & Maintenance (25y)

3.3 Adding Value to our Offshore Wind Energy Harvest for the Benefit of All

Key Recommendations	Why
The Shannon Estuary region already has significant amounts of land zoned industrial, both along the Estuary and inland. SEETF seeks funding to: • review these sites and the infrastructure needed to get them 'shovel ready', where not already known, and present that to DETE for consideration. • enable Agencies of Government to purchase these sites and carry out that work. • identify new sites and the infrastructure needed to get them ready for the next 2 decades (under the guidance of Shannon Integrated Framework Plan Steering Committee)	To attract investment in wind energy generation, developers need to see ready markets for power. IDA and EI will require 'ready to go' sites to attract new industrial development.
Resource IDA and EI appropriately to support new businesses and attract new industries to the Atlantic Green Digital Corridor. Many of the eight strategic technologies identified in the EU Net Zero Industry Act, and others not previously possible (e.g. hydrogen, methanol, ammonia, sustainable aviation fuel, green fertiliser, green data centres etc.) can now be created in or attracted to the region.	These Agencies will require incremental technical and commercial resources to achieve this.
Local authorities to consider collective planning designation for the Shannon Estuary region (potential SDZ or similar) to provide for streamlined and coordinated planning procedures that can meet the industrial and societal needs of the region.	To ensure that the region captures the maximum benefit from the Atlantic wind opportunity.

3.4 Tourism, Placemaking and Quality of Life

Key Recommendations	Why
Support the deployment of a recommended list of projects to enable the region to maximise the value of the 2027 Ryder Cup.	Create long term benefits for the region as a low carbon/ slow tourism destination of choice.
Provide funding for a study on establishing the Estuary as start and finish location for the international cruise ship industry (port and airport).	To enhance the current tourist industry in the region.
Provide funding for a study on building a conference centre for the Atlantic seaboard, close to Shannon Airport, leveraging on the ambition to have a net zero Atlantic Green Digital Corridor by 2035.	Enhance the wider region as a location for business tourism.

3.5 Retaining Employment Gains by Enabling Secure, Affordable Decarbonisation of Industry

Key Recommendations	Why
Provide clarity on the energy supply security and decarbonisation programme (both electricity and gas) in the Estuary region for existing industrial activity. • Provide a rolling 7-year forecast, showing the capacity available for economic growth in the region, with respect to electricity generation, natural gas security of supply (LNG) and biomethane generation, plus the transmission capacity for both, at a 6-monthly frequency. • Provide clarity on the status of risk mitigation measures for secure supply and expected annual emissions from the planned fuel mix.	Uncertainty on ability to operate and grow existing industries and attract new businesses, from the perspective of both security of supply and legally binding emissions targets.
Provide clarity on the impact of the 2023 Climate Action Plan for LEUs in the region: • 20% demand side management by 2025, up to 30% by 2030 with 'LEUs expected to take a disproportionate share'; • provide commitment that their operations (and consequent employment) will not be impacted by lack of electricity or gas.	Significant uncertainty on ability to operate existing capital-intensive manufacturing plants in the region and attract new investments in the medium term.

Commit to a government policy of maintaining Irish industrial electricity and gas prices at no greater than the EU average: • publish a detailed roadmap of measures that return prices to the average, with annual updates on progress.	The region is dependent on exports of price sensitive products and commodities.
Provide cost competitive biomethane for industries required to decarbonise high temperature heating by 2030: • continue the work started by this Taskforce as a pilot*, with a dedicated Biomethane Development Unit, to manage delivery and with government support that is competitive with other EU countries. (*6 major employers in the region have already provided funding for initial work to develop an industry to supply them.)	Economic risk to current employment, as this is widely available in Europe. Economic opportunity for rural areas.
Support the establishment of a Regional Energy Agency, to assist business, agriculture sector, and communities in the wider region to assess, develop, and deploy a 2030 decarbonisation programme. We recommend that this programme is assigned to an existing agency in the region.	The rapid scaling of industry decarbonisation solutions needs to be supported at local level to aggregate knowledge and resources. Proven approach in the EU.

3.6 The Need for Investment in Infrastructure

Key Recommendations	Why
Reflect the ambition and potential of Atlantic Wind in Regional Spatial Strategy and County Development Plans	To enable housing and other infrastructure to be provided.

Develop an Integrated Sustainable Transport Planning framework for the region to include the following: • Funding for immediate priority projects as identified in this report. • Delivery of: » Limerick to Foynes Road Scheme (including Adare bypass); » Foynes Rail Freight Line; » Limerick Northern Distributor Road; » N19 Shannon Airport Access Road Improvement Scheme; » M20 Limerick to Cork; » N68 Ennis to Kilrush/Moneypoint; » Foynes to Listowel/Ballylongford road upgrade; » N24 Limerick to Waterford upgrade; » N21 Newcastle West and Abbeyfeale bypasses; » Connection of Shannon Airport to the rail network; » Foynes deep-water port on Foynes Island. • Government support for an expanded network of routes connecting Shannon Airport to strategically important business hubs, as well as improved transport connectivity to and from the airport. • Establish a cross-departmental working group under the Green Hydrogen Strategy implementation structures to develop a National SAF Strategy, in consultation with industry. • National level SAF research project based at the Shannon Estuary to enable learning in terms of optimisation of technology, infrastructure, supply chain and production scaling to be achieved. • RD&I funding to be provided for sustainable aviation demonstrator projects as a Living Lab at Shannon Airport, which, in partnership with international collaborative programmes, will lead to the commercialisation of net-zero aviation technology.	Current transport infrastructure insufficient for today's economic needs, significant investment needed across the region to enable future growth and attract investment to supply and use Atlantic wind energy.
Undertake a feasibility study and develop a concept proposal for the development of a National Logistics Hub in the Shannon Estuary, as an input into the preparation of a "Regional Freight Strategy" for the Limerick/Shannon region proposed in the Limerick Shannon Metropolitan Area Transport Strategy, and in line with Action 23 for the development of strategies for sustainable freight distribution in the recently published Road Haulage Strategy.	Increased cargo operations at Shannon Airport and container freight distribution by rail and road from Foynes could reduce national transport challenges of congestion, cost, and emissions.

Funding and policy direction under the frame of *The Digital Ireland Framework* to be provided from central Government to develop a digital masterplan for the region bringing together expertise from the Local Authorities and expert stakeholders.	The region is limited by insufficient data infrastructure.
Funding requested to commission a feasibility study for a Global Net Zero Transhipment Hub at a suitable location in the Shannon Estuary that will leverage the availability of maritime efuel, sheltered deep water, landbanks, our location of global maritime importance, and the potential for freight customs clearance into the US. Funding for such a study should be sought in conjunction with the forthcoming National Ports Policy Review.	Opportunity to leverage our international location and provide post-Brexit capacity for the EU.

3.7 Recommendations on Implementation

Key Recommendations	Why
Adopt a 'whole of Government at pace' approach to the enormous economic opportunity that is offshore wind, by assigning responsibility of delivery to the Senior Officials Group, under the direction of an Assistant Secretary General at the Department of An Taoiseach. Report to the Taoiseach and appropriate Ministers on a 6-monthly basis.	To ensure effectiveness of all government departments and agencies in delivering the FLOW programme plan proposed by SEETF, at an internationally competitive speed.
Create a National Floating Offshore Wind Development Agency, staffed with appropriately qualified people who can engage both at commercial and technical levels, with both potential developers and the Government system, to achieve the targets set in the Climate Action Plan.	One stop shop, as per EU Green Deal policy. Proven approach with EI and IDA. Current approach not successful.
Creation of a local steering group of senior leaders (County CEOs, port and airport CEOs, enterprise action plan lead, and others as required), supported by a small team of senior project managers, to ensure effectiveness of local systems to ensure delivery of the national targets for offshore wind. Incremental funding for project managers will be needed.	Effective local coordination and delivery will be key to success.

Creation of a Biomethane Development Unit, under the existing Irish Bioeconomy Foundation, based at Lisheen, Co. Tipperary, to manage a pilot to deliver the 35% decarbonisation target for high grade industrial heat users in the Estuary region.	Create a biomethane pilot that addresses the decarbonisation need for local industry and is scalable nationally. Without this solution, industries may be forced to relocate production.
Merge the energy agencies in the region to form a single entity that is resourced appropriately to provide support on decarbonisation efforts by industry and agriculture as required.	Proven approach in Europe. Significant work needed to achieve 2030 targets.
Provide oversight and reporting of the deployment of other SEETF recommendations on a 6-monthly basis through the Department of Enterprise, Trade and Employment.	To provide visibility on progress to all stakeholders.

4

The Significance of the Shannon Estuary

There are several reasons for the unique role of the Shannon Estuary in this unparalleled period of economic transition, most of which derive from its geographic location centrally on Ireland's Atlantic seaboard. It is a unique and internationally significant resource as it:

- has Ireland's and one of Europe's deepest watercourses and one of the deepest, most sheltered estuaries in the world occupying an area of 500 km^2, with channel depths up to 32 metres and numerous areas of safe, deep anchorage;
- is located at the doorstep of Ireland's Atlantic Wind resource with up to 70 GW of potential within 36-hour wet-tow time, along with hundreds of acres of "wet storage" within;
- is home to a Tier 1 port, with Ten-T designation on Atlantic and North Sea-Med Corridors, with six main terminal facilities and significant deep-water quayside, handling over 1,000 ships per year;
- is home to Shannon International Airport, with a 3,200 metre CAT II runway, 24-hour unrestricted operation and no noise restrictions, serving routes across Europe and North America;
- has level estuarial land banks zoned for industry, ideally suitable for large scale industrial sites and energy parks;
- is already home to world leading employers such as Kerry Group, Dell Technologies, Jaguar Land Rover, Johnson & Johnson, Liebherr, EI Electronics, Analog Devices, Stryker, Regeneron, Lilly, Dairymaster, and many others;
- has a completed SIFP – an interjurisdictional land and marine based framework to guide future development and management of the Estuary;
- has 1.5 GW of existing electrical transmission capacity connecting Moneypoint and Tarbert power stations to the national grid;
- is well served on both North and South shores by Ireland's Existing Natural Gas Grid;
- is strategically located within an hour's drive of Galway City to the North, and 90 minutes to Cork City to the South, and is soon to be serviced by the new Limerick to Foynes road, as well as reinstatement of the Limerick to Foynes cargo rail link (with potential future upgrade to passenger);
- can access over 1.2 million people within 90 minutes, alongside a steady talent pipeline from local higher education institutions with 42,000 students complementing the Education and Training Boards to create an integrated ecosystem of human capital;
- contains world class R&D facilities at the University of Limerick, Technological University of the Shannon, and Munster Technological University, coupled with private and public applied research centres, including Digital Manufacturing Ireland.

Fig 2a: Existing Shannon Estuary Terminal Map (Source: Shannon Foynes Port Company)

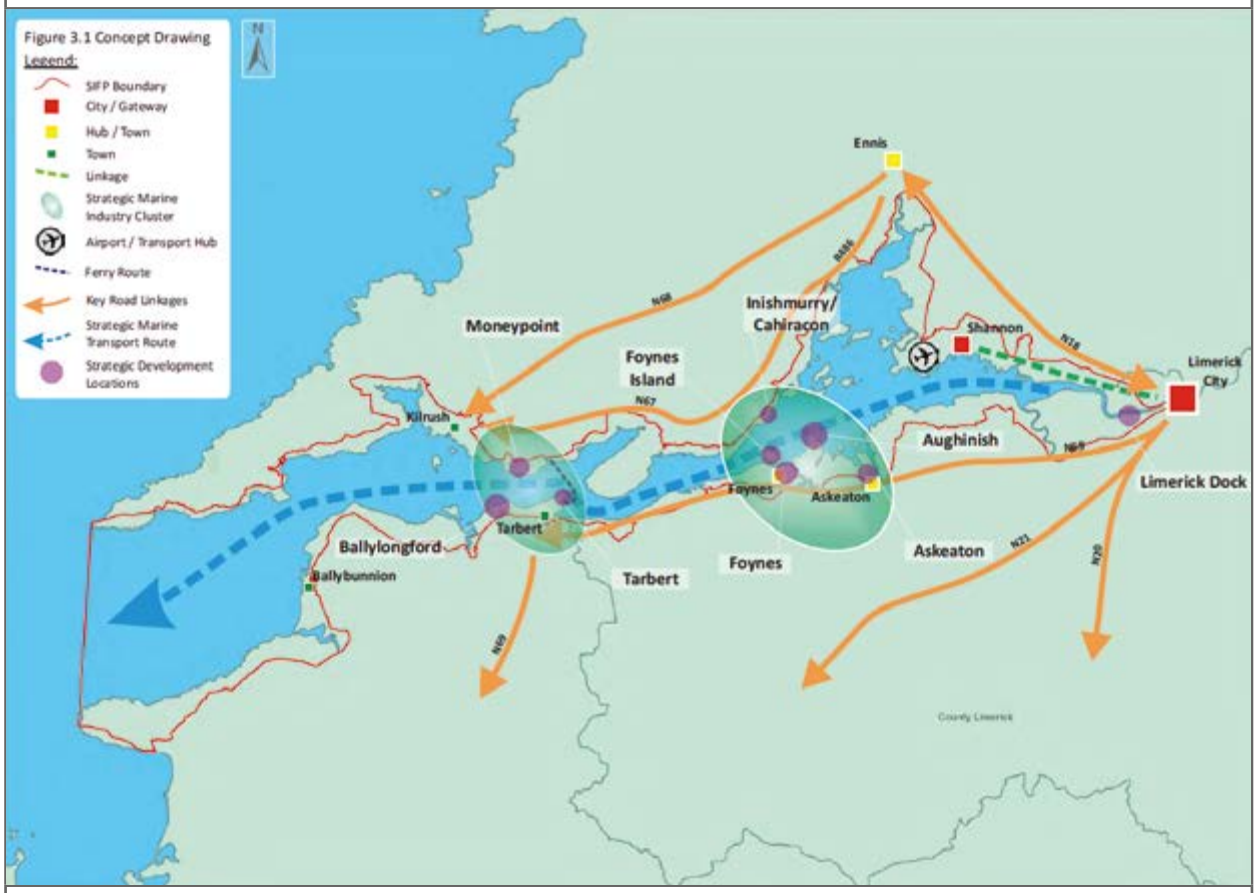


Fig 2b: Integrated View of Shannon Estuary Ecosystem (Source: Shannon Estuary Integrated Framework Plan)

5

Sectoral Ambitions




The Taskforce agreed at an early stage to establish subgroups to examine potential and make recommendations across four focus areas, and with an underlying emphasis on developing the necessary talent and skills required to realise the full benefits of these economic opportunities.

The rationale for the chosen focus areas are as follows:

- **Offshore Wind Energy** – a sector in which the Shannon Estuary region has significant natural advantages and one which is crucial to Ireland's economic and environmental future. Developing an integrated industrial base and technology innovation in parallel will maximise economic returns, while enabling the continued development of the human capital of the region. The development of this sector has been recognised as the single biggest economic development opportunity for the region in many generations.
- **Onshore Energy** – accelerating the deployment of existing zero-carbon technologies to support current and new business to meet their emissions targets, and to ensure increased energy security for Ireland by reducing reliance on imported fossil fuels.
- **Transport, Logistics and Connectivity** – the ability to move people, goods and data will be crucial to the economic development of the region and underpins all other economic opportunities.
- **Tourism** – a major existing business sector for the region which has been built over many years on the region's natural assets coupled with a large number of cultural, historic and sporting attractions.

These areas will now be explored in detail, with tangible, impactful and time-bound actions to aid development presented for each.

6

Offshore Wind Energy

With its proximity to a vast offshore wind resource, a deep-water port, the plentiful availability of wet storage, 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 solution to the security and sustainability challenges facing Europe's energy system. With upwards of 70 GW of offshore wind capacity within a viable distance – we can now become a clean energy powerhouse for Europe at a time of global adversity in the energy sector.

Floating offshore wind will be the most likely technology of choice to harness this wind resource, located out in the Atlantic's deeper waters. This involves large turbines (15 MW+), mounted on floating substructures, and anchored via moorings to the ocean floor. Floating offshore wind technology is currently being supported and progressed 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' tender. With rapid cost reduction seen in offshore wind, the offshore wind sector is increasingly confident over the role floating offshore wind can play, and Ireland has a competitive resource suitable for rapid growth.

Despite the rapid emergence of the technology and Ireland's natural offshore wind advantages, Ireland's ability to benefit from this offshore wind resource should not be taken for granted. A number of significant policy, infrastructure and regulatory barriers exist that require urgent action to entice major market players (i.e. developers and international Tier 1 firms) to invest in Ireland and to de-risk projects by adding more certainty to project costs, supporting local supply chains, and improving development and delivery timeframes. The following key measures must be addressed:

- clarity on long-term Atlantic offshore energy policy to build investor confidence and underpin business case for ports and supply chain;
- measures to accelerate the construction of critical enabling infrastructure such as ports and onshore and offshore grid;
- clarity on route to market e.g. industrialisation strategy, hydrogen strategy, domestic grid strategy and interconnection strategy;
- recognition of Ireland's resource in a European context;
- adequate resourcing of planning and consenting bodies;
- increased investment in relevant education, innovation, and R&D;
- the development of an offshore wind industrialisation policy to maximise societal benefits.

Fig. 3: Average Wind Speed across Europe (Source: Global Wind Atlas)

6.1 Policy and Ambition

6.1.1 Logic/Rationale

Ireland needs clear and consistent government support to harness our vast Atlantic energy resources. While much progress has been made in recent years, the pathway to delivering our long-term targets remains unclear. The new Maritime Area Planning Act 2021 (MAP Act), the establishment of the Maritime Area Regulatory Authority (MARA), and the establishment of 2040 and 2050 commitments (although non-binding) are all positive developments. However, Ireland now needs a credible long-term delivery strategy to make it an attractive location for major offshore wind players to invest in, to underpin investment in grid and port infrastructure, to attract valuable supply chain elements, and to ensure the opportunity for economic transformation is not lost.

Current Government policy intends to deliver offshore wind in distinct phases. The first phases ('Phase One' and 'Phase Two') aim to deliver 5 GW by 2030, with fixed-bottom projects being heavily prioritised, primarily in near-to-shore, shallow waters on the east and south-east coast. The March 2023 Policy Statement on the Framework for Phase Two Offshore Wind[12] outlined offshore wind targets for 2030, 2040 and 2050.

Year	2030	2040	2050
Offshore Wind Target	5 GW (+2 GW*)	20 GW	37 GW
Average Annual Deployment Rate	1 GW**	1.5 GW	1.7 GW

Table 1: Ireland Offshore Wind Targets (*2GW non-grid connected to be 'in development', ** assumes deployment commences in 2025)

12 Policy Statement on the Framework for Phase Two Offshore Wind, Department of the Environment, Climate and Communications, 2023

The March 2023 policy statement also introduced a new phase 'Phase Three' to enable a further 2 GW of floating offshore wind for additional non-grid use to be in development by 2030. It is understood that all phases are under simultaneous development by DECC, including the Future Framework for offshore renewable energy (i.e. post-Phase Two and Phase Three).

DMAPs: Phase One has followed a developer-led approach, with developers selecting preferred locations offshore. However, Phase Two and all subsequent phases will follow a plan-led approach, where projects will only proceed if they are located in Designated Maritime Area Plan areas (DMAPs). DMAPs will be selected based on geographical, technical, and strategic criteria and act as a management plan for a specific area of marine waters to develop multi-activity area plans or to promote the use of specific activities, to include ORE. DMAPs will form part of the National Marine Planning Framework (NMPF) and become a binding consideration for marine decision makers and marine plan makers.

The Draft Offshore Renewable Energy Development Plan II (OREDP II) document identifies initial Broad Areas of Interest (BAI) from within which DMAPs may be created for post-2030 deployment. Following review by the Taskforce, and discussions with stakeholders, the BAI for the 'Mid-West (Shannon/Foynes area)' is deemed by the Taskforce to be far too small, meaning that the majority of projects currently in development fall outside the area. These projects have already carried out extensive studies to identify the most suitable site locations based on criteria such as wind conditions, distance to shore, water depth, visual impact, etc. However, unless the BAI/DMAP area is increased, the potential pipeline of west coast projects will be at risk.

Industry is confident that deeper waters can be used for FLOW and believe water depths far in excess of 100 metres (up to 200 metres and beyond[13]) should be considered for the BAI and the resulting DMAP area. To ensure our 2040 targets are met, the existing projects off the Mid-West should all be fully encompassed by any future Mid-West DMAP area.

Maritime Area Consents: The first step for offshore wind projects within the Irish planning system is to apply for a Maritime Area Consent (MAC). Once a MAC has been granted, projects can apply for development permission or enter pre-planning discussion with An Bord Pleanála (ABP), discuss grid connections with Eirgrid, carry out the necessary survey work to support technical design and environmental assessments, and enter future auctions. To date in Ireland, only the 7 Phase One projects have been awarded MACs (all in December 2022). Floating wind projects in the Atlantic (totalling over 5 GW) currently lack clarity on if or when they can expect to be allowed to apply for a MAC, and this is proving a real impediment to attracting the required investment.

13 Oceans Unlocked – A Floating Wind Future, COWI, 2021

Current Status of Phase One and Phase Two: In order to expedite delivery, Ireland's Phase One of Offshore Development has followed a developer-led approach with 7 projects receiving MACs in December 2022. These projects participated in the first auction for offshore wind (ORESS 1), which has procured 3.1 GW of capacity at an average price of €86.05/MWh[14].

Phase Two will aim to make up the shortfall to 5 GW with ORESS 2 to launch by the end of 2023. Significantly, this phase will mark a transition towards a plan-led system, whereby the auction process will procure offshore wind capacity only within designated areas known as Designated Maritime Area Plans (DMAPS), as established by the MAP Act. Currently, these DMAPs have yet to be defined, meaning that developer-led projects can no longer apply for MACs and could indeed be excluded from this phase.

Current Status of Phase Three and the Future Framework: Phase Three and the Future Framework (previously referred to as 'The Enduring Regime') are the crucial policy stages to enable the scaling of Offshore Wind Energy in the Atlantic. The March 2023 policy statement has indicated that Phase Three will support 2 GW of floating offshore wind for additional non-grid use to be in development by 2030. However, the remaining details of Phase Three and details on the Future Framework are currently in development. The March 2023 policy statement indicates that Q1 2024 will see the publication of a Future Framework for Offshore Wind policy, together with a Phase Three policy.

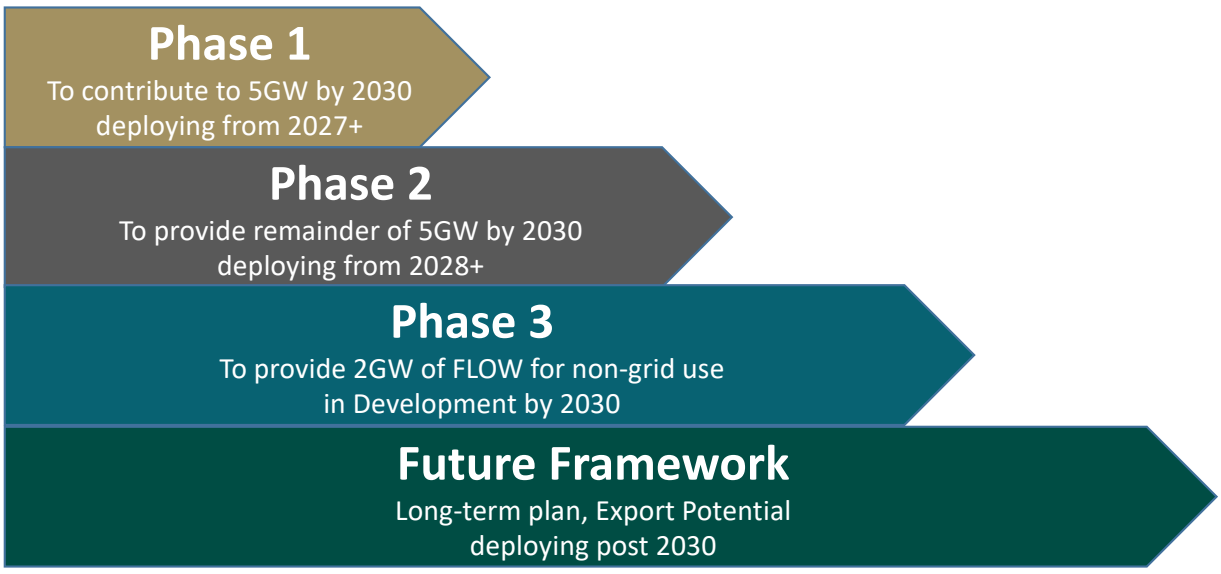


Fig. 4: Proposed Phasing of Offshore Wind Development in Ireland (Source: Department of Environment, Climate, and Communications)

14 Minister Ryan welcomes hugely positive provisional results of first offshore wind auction, DECC, 2023.

Without clarity on timelines, targets or routes to market, major market players (i.e. developers and international Tier 1 firms) lack the certainty that Ireland supports a long-term, investible offshore wind industry, which in turn results in missed opportunities for major investment, delays in the development of key enabling infrastructure such as ports and grid and the increased likelihood that targets will be missed. Clear market signals and increased support are urgently required to address this uncertainty. Given the long lead-in times for major infrastructure projects, the development of Phase Three and indeed the Future Framework must happen in parallel with Phase Two.

European Policy: The Shannon Estuary can have a major role to play in the harnessing of the Atlantic Offshore Wind resource and should be recognised in national and European policy for the unique role it can play in Ireland's and indeed Europe's energy future.

The ambition of the REPowerEU Plan is to phase out Europe's dependency on fossil fuels through energy savings, diversification of energy supplies, and accelerated roll-out of renewable energy to replace fossil fuels in homes, industry and power generation. Major initiatives in REPowerEU include a recommendation to tackle slow and complex permitting for major renewable projects, and a targeted amendment to the Renewable Energy Directive to recognise renewable energy as an overriding public interest.

Ireland has not indicated how it plans to respond to REPowerEU in relation to the designation of 'go-to areas' for renewables. In particular, REPowerEU requires that Member States map the areas necessary for national contributions towards the 2030 renewable energy target by June 2024, and adopt a plan or plans designating 'Go-to Areas' for renewables by June 2025[15]. Given the scale of the Atlantic resource, and the potential for sustainable industrial transformation and energy export, we recommend that areas in and around the Shannon Estuary region be designated as a REPowerEU Go-To Areas where appropriate with alternative priority planning designations applied if necessary.

A major concern raised by industry on a recurring basis is that FLOW policy is devised without all stakeholders' input being fully assessed. In order to address this perceived shortcoming, the Shannon Estuary Economic Taskforce recommends that industry representatives are given a more participative role in informing the drafting of FLOW policy. This could be achieved by for example inclusion of industry representatives on the various associated Government taskforces as well as inclusion in the implementation structures recommended by this Taskforce.

15 REPowerEU: Council agrees on accelerated permitting rules for renewables, Council of the EU, 2022.

6.1.2 Impact/Outcome

As part of their Vision 2041 Strategic Review[16], Shannon Foynes Port Company along with international engineering consultants Bechtel have identified over 70 GW of offshore wind potential within a 36-hr wet-tow from the Shannon Estuary. Based on this resource potential, our vision is for the Shannon Estuary to be the lead location for Atlantic offshore wind with the delivery of 2 GW of green energy capacity commenced by 2030 and with up to 30 GW installed by 2050, satisfying both the domestic demand of our future economy alongside increasing green energy export to Europe, where demand for green energy is anticipated to far outweigh supply.

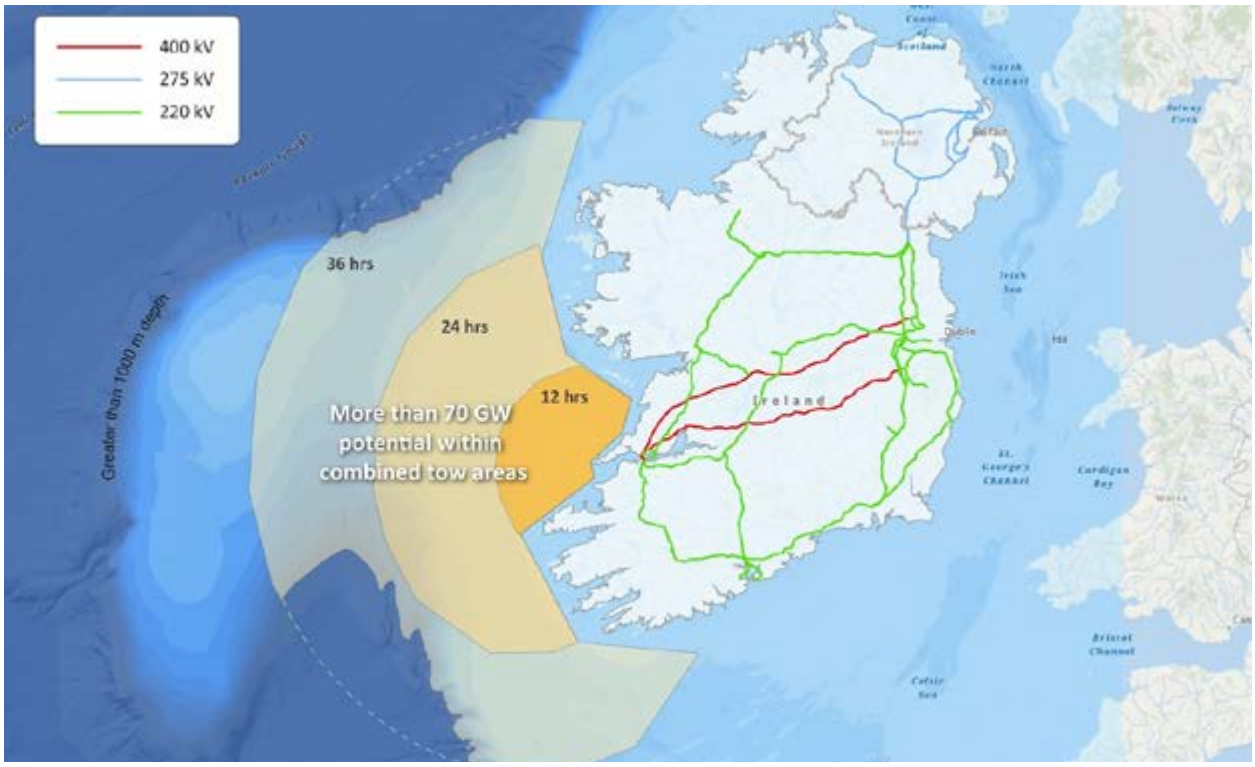


Fig. 5: The 70GW of offshore wind energy accessible from the Shannon Estuary (Source: Shannon Foynes Port Company[17])

16 Vision 2041 Strategic Review, Shannon Foynes Port Company, 2022
17 Vision 2041 Strategic Review, Shannon Foynes Port Company, 2022

The 2050 scenario of 30 GW of floating offshore wind could attract direct investments of €90-120 billion[18] if integrated with current and new downstream industrial and domestic usage. Combining the 30 GW by 2050 target with a number of applicable economic reports[19,20,21] indicates that upwards of 30,000 jobs would be directly supported through the design, construction, and operation and maintenance of this pipeline up to 2050. The potential for significantly more jobs and economic value could over time be harnessed through increasing Ireland's share of the supply chain. However, Ireland is in a global competition to attract the supply chain and the presence of the resource (wind energy) alone, without the supporting policy or enabling infrastructure means there is a clear risk that the resource will not be developed efficiently, effectively, or worse still not at all.

Recent leasing rounds in the UK, Scotland, the United States and others have highlighted the scale of private investment potential for offshore wind. Suitably designed leasing rounds can deliver a balance between price to end-users, windfalls to the Exchequer from seabed licensing, not to mention future revenues from taxation, high value-add industry, and economic growth. Future economic growth will depend on secure, cost-effective supplies of green energy, the presence of which in Ireland can enable 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, etc.

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 the Shannon Estuary is the obvious location for this scaling to begin. With this in mind, we have identified a number of significant policy, infrastructure, and regulatory enablers that must now be addressed without delay.

18 2021 Cost of Wind Energy Review, NREL, 2021

19 Growth of Onshore to Offshore Wind – Atlantic Region Wind Energy and Supply-Chain Feasibility Study, Dublin Offshore, 2022

20 Vision 2041 Strategic Review, prepared by Bechtel Corporation for Shannon Foynes Port Company, 2022

21 Skills for Zero Carbon, Department of Enterprise, Trade and Employment, 2021

6.1.3 Asks/Key Actions

Action	Owner	Due Date
Policy to recognise Atlantic offshore wind as an economic development opportunity of scale that is strategic to the EU.		
• Through a combination of a Green Industrial Policy and a Phase Three/Future Framework for Offshore Wind Policy, we recommend that clarity be provided on how Ireland will facilitate both the harvesting of Atlantic wind energy and the use of it in Ireland and Europe, as soon as possible.	Whole of Government	Q1, 2024
• Assign an Assistant Secretary General at Department of An Taoiseach (or National Plan Delivery) to oversee a 'whole of Government' approach, via the Senior Officials Group, to accelerate progress on floating offshore wind to a sustained pace similar to other EU countries.	Whole of Government	Q1, 2024
• Create an Economic Development Agency for Floating Offshore Wind whose focus is engaging with developers and government to meet and exceed 2040 and 2050 targets, at cost-competitive rates. Base that Agency close to customers, in the Mid-West, close to manufacturing on the Estuary, central to all 3 offshore wind areas and Dublin.	DETE	Q2, 2024
• Publish the 'Phase Three'/'Future Framework' for Offshore Wind policy that delivers the critical path actions proposed by SEETF for the Climate Action Plan of 2 GW and provides clarity on the roadmap post 2030. To include the following: » Clarification that Phase Three floating wind projects can progress in parallel with Phase Two projects. » The publication of a proposed schedule for FLOW auctions subject to continued industry engagement and market sounding. » Delivery of first auction dedicated to floating wind in the Atlantic, with minimum 1 GW allocation for Mid-West DMAP area. » Mandates on the following for floating wind energy contracts: • increasing local manufacturing content over time; • clear R&D criteria, with local content and partnerships. » Direction on long-term routes to market such as domestic grid, hybrid connections, interconnection, power-to-x, etc.	DECC	Q1, 2024

• The current offshore wind delivery taskforce should be co-chaired by DETE, and with greatly increased industry representation (either as members or as part of an advisory council). The UK's Offshore Industry Council model, the Catapult Centre partnership and other international examples should be explored for best practice examples of how the public and private sector can work together to deliver.	DECC	Q3, 2023
Completion of DMAP and acceleration of MAC Applications		
• DMAP for 'Mid-West (Shannon/Foynes area)' to be commenced to encompass existing projects in development and an extension of the maximum depth to 100m+ (up to 200m). DMAP should be completed within a 12-month period.	DECC	Q3, 2023
• OREDP II and future plans to recognise the Estuary advantages of proximity to offshore wind resource, suitable grid connections, wet storage, port facilities, zoned industrial land, etc.	DECC	Q3, 2023
• MAC applications open for projects within the Mid-West DMAP, with maximum 90-day processing time as per the Maritime Area Planning Act 2021.	MARA	Q3, 2024
Policy support for offshore renewable energy projects and enabling infrastructure		
Renewable energy projects, enabling infrastructure and green industrial development in the wider Shannon Estuary Region to be prioritised utilising all available EU and national policies and directives with suitable projects identified as being of 'overriding public interest'. • These projects can occur within designated Net Zero Industrial Parks. These Parks will enable the manufacture of the eight strategic technologies in the EU Net Zero Industry Act, plus other applications for green energy, under the requirements set out in that Act, e.g. certainty of planning decision timeframes etc. • We propose an 'Atlantic Green Digital Corridor', centred on the Shannon Estuary region, which can eventually be extended from Donegal to Cork, inland of the Wild Atlantic Way.	Whole of Government	Q2, 2025

6.2 Potential Routes to Market for Green Energy

6.2.1 Logic/Rationale

The global renewable energy market will exceed $1 Trillion for the first time in 2023 and is expected to surpass $2 trillion by 2030[22], with almost all industrial sectors now accelerating towards zero emissions energy sources. For example, heavy manufacturing companies, tech firms and data centres are striking renewable-energy deals to help power their operations and manufacturing, as well as making direct investments in wind and solar projects.

Elsewhere, and of interest to existing industries in the Estuary region, leaders in the shipping industry are investing in renewables to enable the production of hydrogen and ammonia as zero-emission fuel sources; steel and metal manufacturers are considering green hydrogen to decarbonise their production, and the aviation sector is investing in SAF and hydrogen. Globally, private-equity players and institutional investors are making renewable energy a central component of their investment strategy and are keeping a close eye on new technologies and progressive countries.

Secure, reliable access to green energy will be a crucial part of future supply chains across almost all industries. Ireland is one of the few developed countries that can, in due course, have a renewable energy resource in excess of our forecasted domestic demand. The establishment of a forward-looking route-to-market strategy to accelerate the Atlantic offshore resource is therefore a critical enabler to unlock investment required to deliver a stream of large scale projects and the infrastructure that enables them to be constructed.

6.2.2 Impact/Outcome

The key elements of Ireland's route to market strategy should include, but not be limited to, the following key pathways.

6.2.2.1 Domestic Electricity Grid

Eirgrid's national strategy 'Shaping our Electricity Future' (SOEF) primarily contains short-term (pre-2030) solutions aimed at connecting pre-2030 generation (renewable and non-renewable) and addressing system capacity issues at areas of high demand (i.e. Dublin). Ireland is lacking a progressive and integrated long-term grid masterplan to harness our Atlantic energy resource and achieve balanced regional development. Ireland's current peak electricity demand is approximately 6 GW[23], but by 2050 we will need approximately 25 GW[24] of renewable energy capacity due to the electrification of transport, heating, industry, etc. Given the long lead in times for delivery of grid infrastructure it is imperative that a 2050 or net-zero all-island grid strategy is established and worked towards.

22 Renewable energy market size worldwide in 2021, with a forecast for 2022 to 2030
23 All-Island Generation Capacity Statement 2022-2031, Eirgrid, 2022
24 Our Climate Neutral Future Zero by 50, MaREI and Wind Energy Ireland, 2021

The Department of Environment, Climate, and Communications (DECC) have committed to develop a policy to enable hybrid grid connections, comprising a single connection point for both onshore thermal generation plants and offshore wind farms to the onshore transmission system. Situated at the western end of Ireland's two 400-kV cross-country transmission lines and with high-voltage substations on both its north and south shores, the Shannon Estuary is well-positioned to serve as the 'go to' destination for connecting west coast offshore wind power to domestic demand in the near term. With over 1.5 GW of transmission capacity already in place at Moneypoint and Tarbert, the Shannon Estuary should be a focal point on our future electricity generation strategy, with immediate inclusion on the SOEF 1.1.

6.2.2.2 Interconnection

Interconnection allows countries to import or export electricity at times of high demand or excess supply, and has grown rapidly in recent years as the challenge of optimising renewable energy generation has been embraced. Ireland is already connected to the UK via the 500 MW East-West interconnector and is currently developing both the 500 MW Greenlink interconnector between Wexford and Pembrokeshire in Wales and the 700 MW Celtic Interconnector between Cork and La Martyre in France, while the 500 MW Moyle interconnector runs from Northern Ireland to Scotland.

The EU has set an interconnection target of at least 15% by 2030 to encourage EU countries to interconnect their installed electricity production capacity. HVDC technology is continuing to improve, with projects like the North Sea Link[25] (1400 MW, 720 km) the world's longest subsea interconnector, entering operation in October 2021.

Many observers, including emerging technology leaders like Irish firm Supernode, foresee a future European Supergrid, with Ireland playing a prominent role given our potential for large-scale generation beyond domestic demand. A European Supergrid powered by renewable energy will benefit all European consumers as well as the climate, and would create an efficient route to market for Atlantic offshore wind.

The Shannon Foynes Port Company's Vision 2041 Strategic Review has already identified grid cable corridors, in consultation with Eirgrid, running through the Shannon Estuary to leverage existing onshore grid infrastructure (up to 1.5 GW) and minimise the need for new greenfield infrastructure onshore. These cable corridors should be referenced in the upcoming Electricity Interconnection strategy, and approval of these cable corridors should be prioritised by Eirgrid.

25 North Sea Link, website

6.2.2.3 Power to X (i.e. Production of Green Hydrogen/Ammonia/eFuels)

The global green fuel industry is expected to develop rapidly in the coming years. Net zero compatible fuels such as green hydrogen, ammonia or electrofuels are expected to provide solutions to the storage/intermittency issue associated with renewables such as wind and solar, and also to provide solutions to those transportation sectors where electricity or on-board battery electric propulsion is not seen as being viable (i.e. aviation, shipping and long-distance road haulage). The Shannon Estuary and wider region can be at the forefront of the green hydrogen industry in Ireland based around the abundance of offshore wind potential off Ireland's west coast in the Atlantic. Given the scale of the offshore energy resource, green hydrogen and green hydrogen derived products have the potential to act as storage for excess energy during times of oversupply, easing pressure on the grid and driving decarbonisation across other industries such as transport.

The global market for trading green energy is already well underway. Major industrial neighbours such as Germany recognise that they will not be able to produce enough renewable electricity to meet domestic demand and are looking to other countries that have (or could have) an abundance of renewable energy capacity that could be used to produce green hydrogen to satisfy domestic demand. Already, Germany has signed a number of cooperation agreements to accelerate the commercial development and uptake of green hydrogen with Canada and India. In May 2023 Ireland encouragingly signed a joint declaration with Germany to cooperate on green hydrogen production.

Other fuels of the future can be derived from green electricity/hydrogen – with methanol and ammonia considered the most promising candidates for future usage such as in the shipping industry.

Central to the establishment of a renewable fuel ecosystem on the Shannon Estuary is the development of gigawatt-scale fuel production facilities. ESB's Green Atlantic @ Moneypoint plans include investment in a green hydrogen and zero carbon fuels production, storage and dispatchable generation facility to be delivered in the early part of the next decade. SFPC's Vision 2041 Strategic Review has further identified the Ballylongford/Tarbert landbank as one of Europe's prime locations for a 4 GW electrolyser facility, considering the availability of land, the proximity to the offshore wind and the potential cable landfall location, the access to water for hydrogen electrolysis and cooling, deep water for ship exports, and the proximity to existing electrical and gas grid.

6.2.2.4 Storage Solutions

Storage and flexibility will be key components of a future energy system which is dominated by renewables. The Taskforce notes the proposed 360 MW pumped storage project in Silvermines (included on the European Commission's fifth list of energy Projects of Common Interest (PCIs)[26]) and the development of battery storage projects nationally to minimise the reliance on fossil fuel-derived electricity during reduced wind.

6.2.2.5 Private Wire and strategic industrial development

Updated legislation to align with EU directives is required immediately to enable the market to invest in non-grid routes to market – e.g. hydrogen production and private wires. Private wires are private localised electricity grids which allow energy users to connect directly to the source of electricity generation, bypassing the national grid. In many countries, the use of private wires is established; however, current legislation in Ireland is restrictive and ties the demand of LEUs to the national grid. With increased sources of renewable electricity private wires could offer a potential solution to the strain that large users place on the grid.

6.2.3 Asks/Key Actions

Action	Owner	Due Date
Domestic Electricity Grid, Hybrid Connections and Private Wire		
• Develop a Green Industrial Strategy that supports and contributes to the requirements of the EU 'Green Deal' through leveraging Ireland's inherent advantages.	DETE	Q2, 2024
• Eirgrid to provide clarity on the domestic and interconnection grid infrastructure planned to enable the 37 GW by 2050 offshore wind targets, and the estimated budget required to deliver these.	Eirgrid, DECC	Q3, 2023
• Hybrid grid connection policy statement alongside update of Eirgrid's SOEF to acknowledge the role of existing transmission infrastructure at Tarbert and Moneypoint.	Eirgrid, DECC	Q3, 2023
• Update of Eirgrid's SOEF to approve the identified cable corridors identified in the SFPC Vision 2041 Strategic Review.	Eirgrid, DECC	Q4, 2024
• Provide delivery of 'Private Wire' legislation to enable onshore 'non-grid' use of the 2GW target for Floating Offshore Wind.	DECC	Q2, 2024
• Provide permitting for developers to build networks from offshore turbines to land as part of the initial project construction.	DECC	Q3, 2023
• Provide clarity on the design criteria and eventual ownership of offshore grid.	Eirgrid, DECC	Q3, 2023

26 Fifth List of Energy Projects of Common Interest, European Commission, 2021

Power to X		
• Publication of National Hydrogen Strategy to: » recognise the key role of the Shannon Estuary both for hydrogen production but also for establishment of new hydrogen-based industry; » support for the development of a green hydrogen manufacturing facility in the Shannon Estuary in line with the development of 2 GW+ of floating offshore wind in Phase Three; » identify optimal economic business case for alternative fuels – hydrogen, methane, methanol, ammonia, SAF etc.	DECC	Q3, 2023
• Publication of National Energy Storage Strategy to include support for large-scale battery storage and pumped storage projects such as Silvermines Hydro.	DECC	Q3, 2023
Interconnection		
Electricity Interconnection Policy to: » give consideration to future electricity interconnectors (HV or Supergrid) from the Shannon Estuary to Europe; » support the establishment of a cable-corridor into the Estuary; » provide direction on a longer term (post-2030) route to market for green energy, including non-land transmission from the west coast; » support new technologies to be trialled (Supernode, etc.) to enhance market connection to large centres of use in Europe.	DECC	Q3, 2023

6.3 Enabling Infrastructure

6.3.1 Logic/Rationale

The National Ports Study from September 2022, produced by Gavin & Doherty Geosolutions for Wind Energy Ireland[27], highlights a clear risk to the development of offshore wind in Ireland, with only a single port on the island of Ireland, Belfast Harbour, being ready for use for the construction of offshore wind farms. However, a number of ports, including Shannon Foynes Port Company and Moneypoint, have plans underway to develop the major port infrastructure required to maximise the offshore wind opportunity for the island.

27 National Ports Study, GDG For Wind Energy Ireland, September 2022

Nationally, and as demonstrated by SFPC's Vision 2041 Strategic Review prepared by Bechtel, the Shannon Estuary is best placed to facilitate the delivery chain for floating offshore wind due to its proximity to the resource and its unique ability to accommodate its fundamental building blocks, namely:

- floating offshore wind turbine integration;
- substructure assembly;
- wet storage
- wind farm operations and maintenance.

The Estuary will be equally well suited to the delivery of fixed-bottom wind projects should this demand emerge.

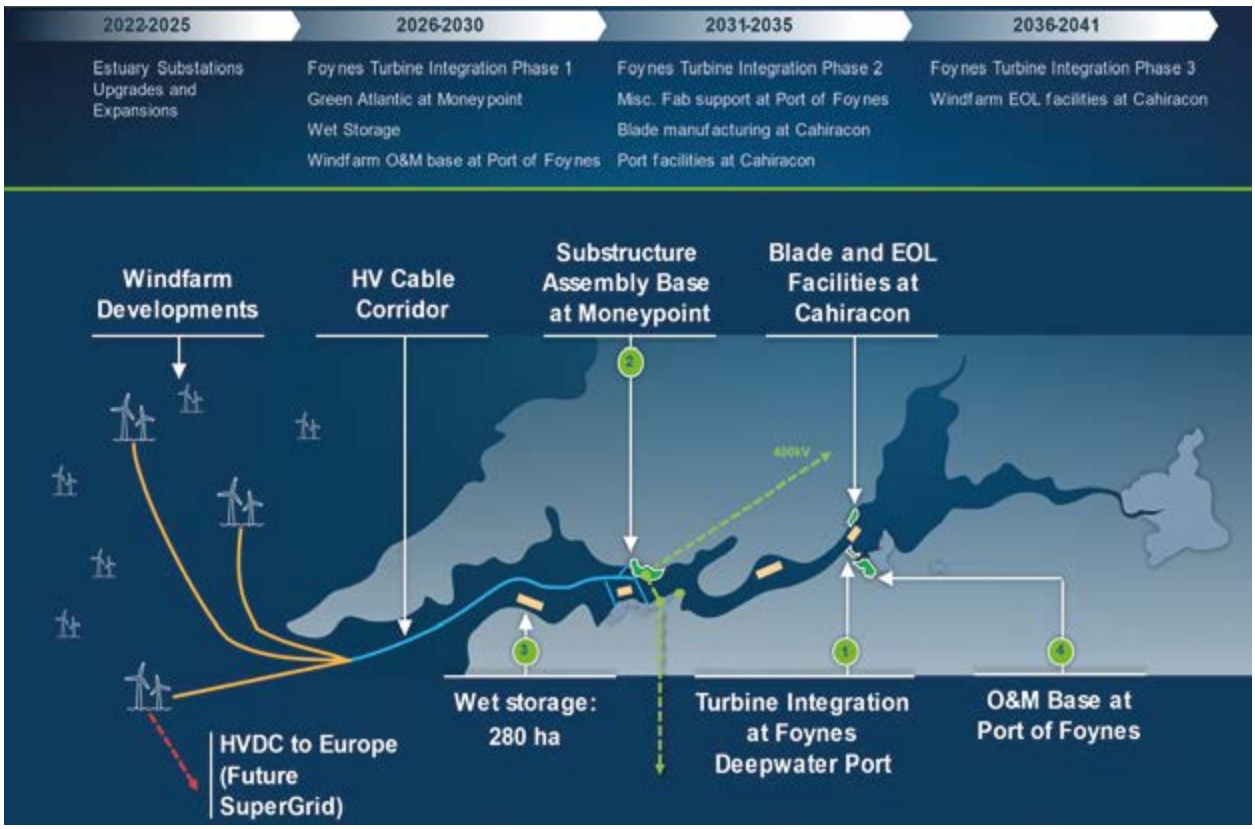


Fig. 6: Shannon Estuary Infrastructure to Enable FLOW at Scale (Source: Shannon Foynes Port Company[28])

28 Vision 2041 Strategic Review, Shannon Foynes Port Company, 2022

6.3.1.1 Uniquely Suited to Deliver

The European Commission recognises that offshore wind has the greatest scale-up potential and has stated that Europe will need up to 450 GW of offshore wind by 2050. This poses both an immense challenge to existing ports as well as a generational opportunity for the establishment of purpose-built port infrastructure that will support the emerging delivery chain.

For the west coast of Ireland to play its part and host such purpose-built infrastructure, there are four elements that are crucial to enabling the delivery of floating offshore wind at scale, and as demonstrated below, the Shannon Estuary is uniquely positioned to host key delivery chain activities on its shores.

- **Proximity to the resource.** The design and installation methods for floating offshore wind turbines require that certain assembly activities take place relatively close to the wind farm. Given its central location along the west coast, the Shannon Estuary is best positioned to serve as a key delivery and operations base for floating offshore wind.
- **Deep water facilities.** Because a floating offshore wind turbine is completely assembled at port before wet-towing to the wind farm, the port facilities require very deep water alongside. As one of the deepest and most sheltered estuaries in the world, and unique to Ireland, the Shannon Estuary hosts multiple jetties (existing and planned) with over 15 metre water depth alongside. The combined plans of Shannon Foynes Port Company and the ESB at Moneypoint have the capability to accommodate the manufacture of substructures alongside the assembly and staging of large wind projects at the industrial scale required.
- **Wet storage.** The final activities in the floating offshore wind delivery chain require buffer storage in water (or 'wet storage'). The Shannon Estuary's unparalleled potential for deep water wet storage – totalling in the hundreds of hectares – offers a crucial risk mitigating solution towards realising the full potential of Atlantic offshore wind.
- **Strong grid connections.** Situated at the end of Ireland's main 400 kV cross-country transmission lines and with major high-voltage substations on its shores, the Shannon Estuary is best-positioned to serve as a major receiving node for Atlantic offshore wind generated electricity.

Significant investment will be required to realise the ambition of the proposed port developments. This action has been echoed by Wind Energy Ireland in their April 2023 report *'We can build them: Supporting Irish ports to build offshore wind farms'*[29]. For the earlier stage developments, Government-led funding or investment supports such as a sovereign debt model involving state guarantees, low interest loan schemes or access to investment vehicles such as ISIF (Ireland Strategic Investment Fund) and EIB (European Investment Bank) could be critical to the delivery of the development plans considered. As the sector matures, infrastructure funding could transition from a sovereign to a project finance model.

Timely consenting and planning phases of the infrastructure proposed will be of critical importance to the timely delivery of operational port facilities. Given the national importance of the climate targets, we request that the Minister for Housing, Local Government and Heritage instruct MARA to prioritise MAC applications from key port locations seeking to accommodate the ORE industry in line with direction from EU and Government on Prioritisation of Renewable Energy Maritime Plans and Projects as a response to the energy crisis. Under the MAP Act 2021, these port projects require a MAC to formally engage with ABP.

6.3.2 Impact/Outcome

SFPC's Vision 2041 Strategic Review identifies a targeted FLOW construction throughput from the estuary of approximately 400 MW per year, with phased expansions increasing this figure to 1,800 MW per year by 2050, supporting the delivery of up to 30 GW. The prompt delivery of early-stage projects is crucial to enable the unlocking of the estimated €90-120 billion of private sector investment expected by 2050.

6.3.2.1 Delivering from the Shannon Estuary

This assessment recommends the establishment of four core facilities on the Shannon Estuary to support the delivery of floating offshore wind at scale:

1. turbine integration and pre-commissioning at Foynes deep-water port;
2. substructure assembly at Moneypoint;
3. wet storage at various locations within the Estuary;
4. O&M base within the Estuary.

The establishment of these core facilities lays the groundwork for the potential development of additional delivery chain capabilities over the longer term, such as turbine blade manufacturing, blade recycling and miscellaneous steel fabrication.

29 We can build them: Supporting Irish ports to build offshore wind farms, GDG for Wind Energy Ireland, 2023

6.3.2.2 Estuary Transmission Infrastructure

Given the existing well-connected substation facilities on its shores, the Shannon Estuary is poised to be a hub for connecting Atlantic offshore wind into the national grid. Multiple high voltage submarine cables will be required for 10+ GW of Atlantic offshore wind power to reach the Estuary's shores. Therefore, initial cable deployments must be planned with future expansion in mind. Owing to its water depth and overall width, the Estuary is ideally suited to host a submarine 'cable corridor' that reserves a route for multiple cables.

In addition to streamlining and offering greater certainty to the windfarm development process, a designated 'cable corridor' that connects to the grid through the existing transmission infrastructure offers significant opportunities for green industrial development along the Shannon Estuary.

6.3.3 Asks/Key Actions

Action	Owner	Due Date
• Financial and permitting supports (as per EU Green Deal policy) for the proposed developments at Foynes and Moneypoint to enable the efficient production of floating wind turbines at scale, with facilities completed by Q4 2028. This should include Government funding support for the construction of Foynes Island.	DoT, MARA	Q4, 2023
• MARA (once operational) should provide MACs for Foynes Island and Moneypoint projects once applications are made in accordance with the MAP Act 2021 and relevant policy directions. Future applications for wet storage should also be prioritised. SFPC has commenced pre-planning discussions in accordance with its Vision 2041 Strategic Review and is awaiting the opportunity to apply for a MAC.	MARA	Q3, 2023
• Financing: Revised National Ports Policy to consider a sovereign debt model (or alternative funding mechanisms or debt models) for prescribed port enabling FLOW infrastructure on the Shannon Estuary.	SFPC, DoT, DoF	Q2, 2025
• The Shannon Foynes Port Company's Vision 2041 Strategic Review identified grid cable corridors, in consultation with Eirgrid, running through the Shannon Estuary to leverage existing onshore grid infrastructure and minimise the need for new greenfield infrastructure. The approval of these cable corridors should be prioritised by Eirgrid.	Eirgrid	Q4, 2024
• Confirmation from Eirgrid/DECC as to whether they propose to provide a grid node or nodes in the water for the Mid-West DMAP area to facilitate the delivery of Phase Three projects.	Eirgrid	Q4, 2023

Fig. 7: Proposed Green Atlantic at Moneypoint (Source: ESB)

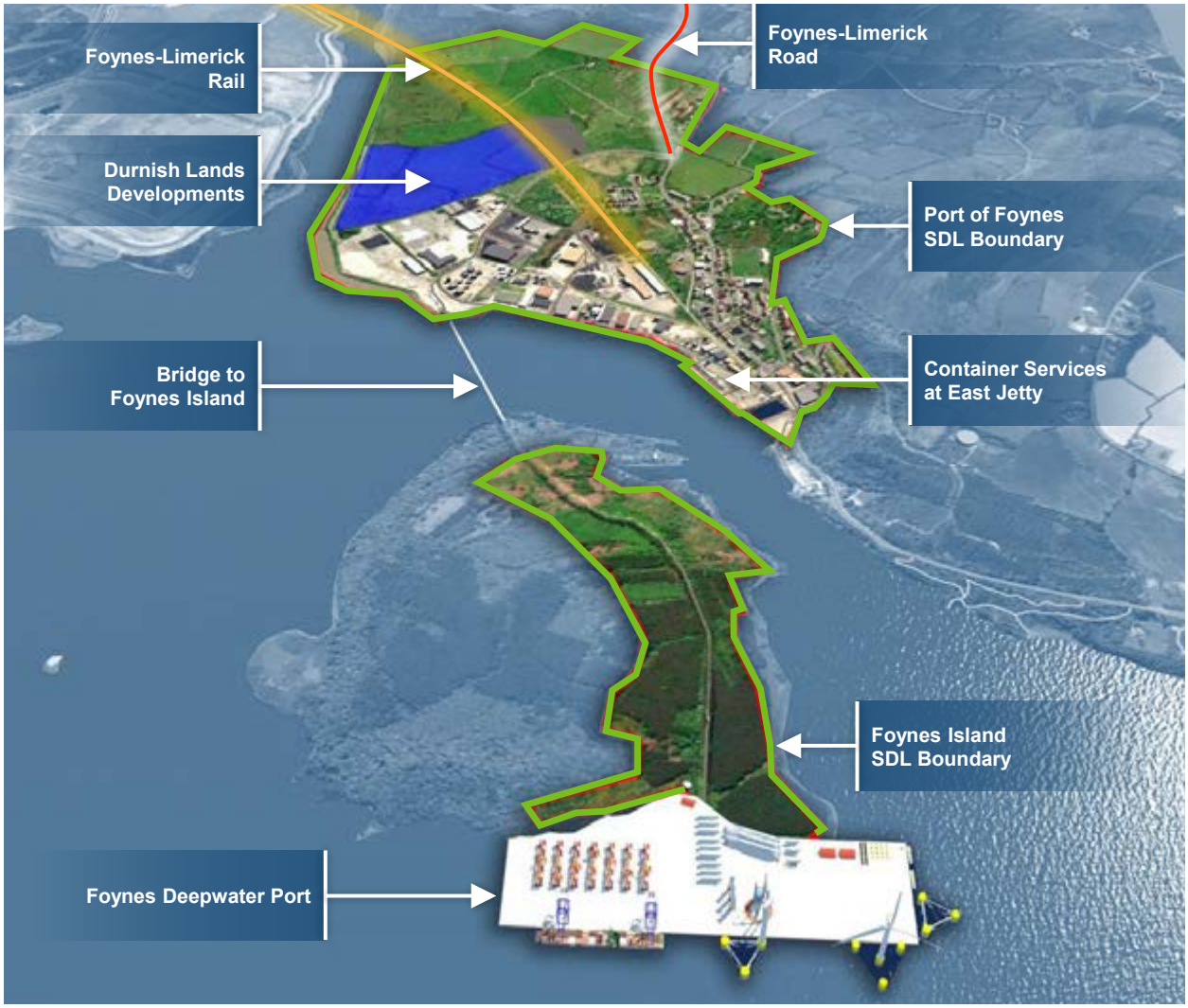


Fig. 8: Proposed Foynes Island Deepwater Terminal and associated infrastructure (Source: Shannon Foynes Port Company[30])

30 Vision 2041 Strategic Review, Shannon Foynes Port Company, 2022

6.4 National and Regional Planning Systems

6.4.1 Logic/Rationale

Delayed planning decisions have been identified by Wind Energy Ireland (WEI) as the most significant obstacle to renewable energy development in Ireland. As we begin an unprecedented period of energy transition, extra resources must now be deployed to the planning system.

There is a statutory period of 18 weeks for planning applications for wind farms to be decided by ABP. However, WEI suggests it is not uncommon currently for this process to take more than 12 months for onshore projects, with offshore projects expected to be similarly delayed within the planning process with foreshore licences already proving slow and difficult to obtain (some projects have indicated wait times of over 2 years and counting). Increased resources to deal with the volume and complexity of applications is regularly cited as a key action to reduce delays in the system.

The Shannon Estuary region has already been identified as one of three initial broad areas of interest for DMAP development in the Draft version of OREDP II. Given the strategic significance of the Shannon Estuary it is crucial that the Shannon Estuary proceeds as an early DMAP area, with FLOW as a core accepted activity, and that the size and location of the DMAP area is sufficient to attract industry at scale.

New port infrastructure projects in the Shannon Estuary and Atlantic offshore wind developments will also have to apply for planning permission from ABP under the provisions inserted into the Planning and Development Acts by the Maritime Area Planning Act 2021. Government ambitions to increase the number of onshore and offshore renewable projects in the coming decade will be dependent on the prioritisation of renewable energy planning applications as well as those applications submitted for the enabling infrastructure.

To reinforce the importance of accelerated planning decisions, we note the urgency being shown by many of our European colleagues to ensure climate targets are met and energy security is preserved. Germany in particular has been vocal about the need to streamline procedures and eliminate red tape, as highlighted in Chancellor Scholz's recently announced Roadmap to Climate Neutrality by 2045[31].

31 German Chancellor Scholz Lays Out Roadmap to Climate Neutrality by 2045, World Economic Forum, 2023

6.4.1.1 Environmental Considerations

The natural estuary and coastal zone environment of the Shannon Estuary is made up of a wide range of different habitat types which support many natural species, many of which are protected under National and EU legislative framework including the 'Birds Directive' and the 'Habitats Directive' ('Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora'[32] and 'Directive 2009/147/EC on the conservation of wild birds[33]).

Management of the natural environment of the Shannon Estuary is an integral consideration in facilitating the maritime economy given the economic importance of estuaries which can provide critical access to trade and movement of freight throughout Europe.

Policy guidance heretofore reflects a balanced approach that seeks to reconcile nature protection in estuaries and the need to increase the carrying capacity and strategic function of ports in order to meet European transport and trade requirements. For example, the EU's Integrated Maritime Policy seeks to enhance the sustainable development and growth of the European maritime economy and to better protect the marine environment in an integrated approach through effective maritime spatial planning.

The Habitats Directive does not preclude further development in estuary or coastal zones within or around designated Natura 2000 sites. Instead, it sets out a procedural safeguard (as part of the development consent process) to ensure that developments are done in a way that is compatible with the protection of habitats and species which are of conservation interest. The Directive allows development to advance within or around designated Natura 2000 areas where, through 'Appropriate Assessment', the project poses no significant adverse effect to the integrity of conservation features of those designated sites, or alternatively, where the project is of overriding public interest and in the absence of alternative solutions. This mechanism, which is set out in 'Article 6' of the Directive, has and will continue to play an important role in the ecological management and economic development of European estuaries including the Shannon estuary for maritime and port related development.

The Habitats Directive (and Irish legislation) does provide for limited circumstances where, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless proceed for imperative reasons of overriding public interest (Article 6(4)). This is referred to as IROPI (Imperative Reasons of Overriding Public Interest) and remains rarely used in Ireland although it is more common in other Member States[34].

32 River Shannon and River Fergus Estuaries SPA, website, 2023
33 River Shannon and River Fergus Estuaries SPA, website, 2023
34 OPR Practice Note PN01 - Appropriate Assessment Screening for Development Management, Office of the Planning regulator, 2021

6.4.1.2 Alignment with National, Regional and Local Policy

Statutory and policy requirements at national level to mitigate climate change and increase renewable energy generation are informed by higher level international and European legislation. This policy context contributes directly to establishing a clear and urgent need to leverage the opportunities of the Shannon Estuary and the energy potential of the west coast of Ireland. The growth of the offshore renewable energy sector presents an opportunity for the Shannon Estuary in respect of new infrastructure and supply chain opportunities. As illustrated in appendix 12.2, there is significant policy at international, national, and regional level to enable and support the Shannon Estuary as a major receiving node for offshore wind electricity generated off the west coast of Ireland.

6.4.1.3 The Shannon Estuary Integrated Framework

The port infrastructure projects under development along the Shannon Estuary are inter alia underpinned by a Strategic Integrated Framework Plan (SIFP), the first joint land and marine based strategic plan in the country, which was jointly commissioned by leading partners Clare County Council, Kerry County Council, Limerick City and County Councils, the Shannon Airport Group, and Shannon Foynes Port Company in 2013.

The SIFP identifies 9 Strategic Development Locations (SDLs) on the Estuary, and crucially environmental issues have been at the forefront of the SIFP, with SEA and AA processes both carried out. These assessments have identified mitigation measures, which seek to reduce any adverse effect on the sensitive environment. Now, with increased interest in the development of the Estuary for offshore wind, it is important that the SIFP steering group is re-established and resourced to support the appropriate development of the SDLs and newly identified land banks in the vicinity of the estuary.

6.4.2 Impact/Outcome

Once operational the Maritime Area Regulatory Authority (MARA) will manage the occupation of the maritime area and enforce the provisions of the new regime and will take responsibility for awarding future Marine Area Consent (MACs), the first step for offshore wind projects within the Irish planning system. It is expected that MARA will be established by Q3 in 2023, but the adequacy of resourcing and capability/expertise to deliver remain a concern within the industry.

It is recognised that government departments and state agencies are undertaking a significant amount of work to establish the offshore wind sector in Ireland and increase its offshore wind capacity to 7GW+ by 2030. It should be noted that in many cases the same agencies and sometimes the same staff are involved in advising both onshore and offshore renewables leading to resourcing issues and the resulting significant delays noted by industry. Therefore, adequate resourcing and ringfencing of expertise within these organisations will be key to ensuring that Ireland's offshore renewables targets can be met.

Government commitment to a streamlined consenting and planning system, with adequate resources made available, will ensure delays to decision making periods do not detrimentally impact project programmes and completion dates for port facilities. The Government's efforts to overhaul the planning system are welcome in this respect[35]. A simplified and timely planning process will be key to meeting 2030 goals and providing investor confidence.

Increased levels of resourcing for the Department for Housing, Local Government and Heritage and ABP would help to alleviate the delays which have been seen previously. This action aligns with the National Competitiveness Council's recommendation (4.2.iii) to ensure proper resourcing of planning authorities to meet infrastructure targets[36].

6.4.3 Asks/Key Actions

Action	Owner	Due Date
Establishment of MARA and clear timelines for MAC processing		
• Prompt commencement of operations of the Maritime Area Regulatory Authority.	DHLGH	Q3, 2023
• Commitment to deliver on 90-day statutory timeframe to determine a valid MAC application.	MARA	Q3, 2023
Increased resourcing of An Bord Pleanála and MARA, and commitment to improve timeframes for decisions		
• Government commitment to a streamlined consenting and planning system to provide clarity and reduce risk for Atlantic FLOW projects.	Whole of Government	Q4, 2023
• Increased resourcing of state agencies such as MARA and An Bord Pleanála to deliver critical infrastructure projects, such as those planned for the Shannon Estuary and offshore, in a more efficient and timely manner.	DPENDPDR, DHLGH	Q4, 2023
• We recommend the introduction and strict enforcement of realistic mandatory timelines for development consent decisions to provide greater certainty to major projects (without resulting in an increased number of rejections).	DHLGH, ABP	Q4, 2023

35 Draft Planning and Development Bill 2022, Dept. of Housing, Local Government and Heritage, 2022

36 Ireland's Competitiveness Challenge 2022, National Competitiveness Council, 2022

Priority Planning Designation – with associated enabling investigations and works carried out		
• FLOW projects, including enabling infrastructure such as grid and port infrastructure, should be considered for designation as IROPI by the Government in accordance with the EU Habitats Directive. Until such time as IROPI designation is provided, we recommend the prioritisation of renewable projects and supporting infrastructure at all stages of the planning process as per European Directives. The required environmental investigations including AA and SEA should also be prioritised.	DHLGH, and Dept of Taoiseach	Q1, 2024
Re-establishment of Shannon Estuary Integrated Framework Planning Working Group		
• Re-establishment and resourcing of the Shannon Estuary Strategic Integrated Framework Plan Steering Committee to recommence preparatory planning and environmental activities for current and potential new SDLs, with adequate support and centrally resourced.	SIFP Lead Partners, DHLGH	Q3, 2023

6.5 Strategic Land Planning

6.5.1 Logic/Rationale

This report recommends that the Shannon Estuary is an optimal location for large-scale offshore wind energy production, including operations and maintenance of offshore wind farms.

In addition to the provision of port and ancillary facilities, its location and available landbank for use by heavy energy offtake users, both existing and new, ideally places the region to become a key centre for a green energy industry. For example, large scale green hydrogen production and consumption is proposed in the Shannon Estuary – including a large site electrolyser in North Kerry as part of the Shannon Foynes Port Company Vision 2041 Masterplan[37], as well as under the *Green Atlantic at Moneypoint*[38] transformation of the Moneypoint electricity campus, and at the proposed *Shannon Technology and Energy Park*[39], which could be future-proofed for green hydrogen.

This report recommends that the Shannon Estuary be prioritised using EU and national policies and directives for renewable energy development, which will lead to heavy energy offtake industries such as energy parks/technology cluster, logistics hub, research and innovation hub, industrial scale battery storage, green energy production. This would help to position Ireland as a leader in European programmes of strategic interest such as efuels, battery technology, and chip manufacturing.

37 Vision 2041 Strategic Review, Shannon Foynes Port Company, 2022
38 Green Atlantic at Moneypoint, ESB, 2023
39 Shannon Technology & Energy Park (STEP), Proposed Power Plant & Terminal – Planning Submission, 2023

A common theme emerging during stakeholder consultations is the merit in the Shannon Estuary being prioritised for the development of floating offshore wind energy at scale, with a Strategic Development Zone (SDZ), or equivalent status.

As noted in section 6.4.1.3, the SIFP initially focused on 9 SDLs for marine-related industry and large-scale industrial development around the Estuary. At the time that framework was developed, the scale of infrastructure and related housing and utilities planning requirements to support the development of an offshore wind industry at scale was not yet clear.

Given the region's radically increased level of ambition built around the development of FLOW, further integrated strategic land planning is required, building on the excellent work within the 2013 SIFP.

6.5.2 Impact/Outcome

Strategic land planning will, over time, result in a detailed analysis of strategic land zoning and infrastructure development for the Estuary using various offshore wind deployment scenarios as presented in external reports (Shannon Foynes Port Company Vision 2041 Review, Green Atlantic at Moneypoint etc.), as well as analyses commissioned on behalf of the Taskforce. This evidence base will inform the development of an investment strategy for multiple port site development and co-located industrial zones as part of a large-scale Green Energy hub.

The Taskforce proposes that special planning designations be considered for the Estuary area to support specific zoning designations, and pre-planning processes such as environmental assessments and climate adaptation studies. A collective planning designation would form the basis for prioritising infrastructural investment in transport (people and logistics), digital, housing, education and utilities. This would also send a clear signal to both the offshore wind sector and high-energy users of Ireland's ambitions in relation to offshore wind, while also encouraging the location of ancillary industries in the region by streamlining the planning regime.

The Taskforce is recommending an engineering study and mapping of the entire Estuary, which will identify existing strategic industrial sites in the region which are already zoned. The study will estimate costs for the infrastructure required to have them 'ready now' for various industries to utilise Atlantic Wind, both on the water and inland, and this will also inform the infrastructure masterplanning recommended in this report. Secondly, the study will identify new sites that are suitable for those industries which will require such clean energy, both on the water and inland. This can include specific industrial requirements such as deep-water access, proximity to large population centres, large amounts of land, proximity to high voltage grid, etc.

6.5.3 Asks/Key Actions

Action	Owner	Due Date
• The Shannon Estuary region, leading out on the creation of a national 'Atlantic Green Digital Corridor' already has significant amounts of land zoned industrial, both along the Estuary and inland. SEETF seeks funding to: » identify these sites and the infrastructure needed to get them 'shovel ready'; » enable Agencies of Government to purchase these sites and carry out that work; » identify new sites and the infrastructure needed to get them ready for the next 2 decades (under the guidance of Shannon Integrated Framework Plan Steering Committee).	DETE	Q2, 2024
• Local Authorities to consider collective planning designation for the Shannon Estuary region (potential SDZ or similar) to provide for streamlined and coordinated planning procedures that can meet the industrial and societal needs of the region.	KCC, CCC, TCC, LCCC	Q4, 2024

6.6 Research, Development and Innovation, Education and Enterprise Supports

The Shannon Estuary Economic Taskforce fully supports the Irish (and European) ambition to transition towards being fully green and digital[40], and seeks to accelerate implementation. The level of acceleration will depend heavily on technological innovation and radical systems change, to complement streamlined planning, the development of enabling infrastructure and other strategic measures.

As indicated, SEETF anticipates the scale of the Atlantic wind resource requiring the development of a wind energy supply chain at scale alongside the development of matching flexible industrial demand onshore and routes to market that target a balanced portfolio of value added and/or mandated products. The future industrial development should be balanced with societal needs and be complemented with an intelligent and profitable export agenda. To achieve this, we anticipate research across three pillars, developed over time and which will require dedicated RD&I roadmaps and investments:

1. supporting the commercialisation of FLOW during the short and medium term;
2. supporting the green and digital routes to market during the medium and long term;
3. societal and community developments in the medium and short term.

40 White Paper on Enterprise 2022-2030, Department of Enterprise, Trade and Employment, 2022

Note that while the economic development will be realised over a longer time scale, the corresponding RD&I investments need upfront investment to align and prepare for the future.

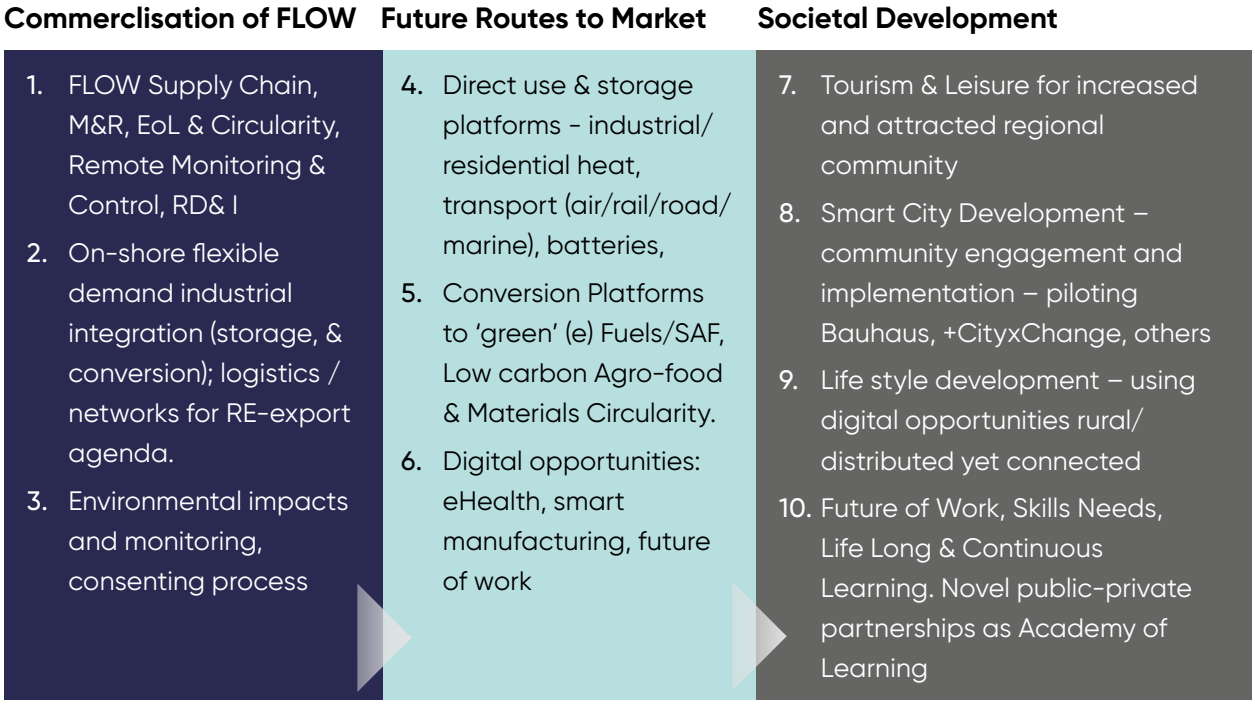


Fig. 9: SEETF - Broad regional economic development harnessing Atlantic FLOW potential – Shannon 2.0

6.6.1 Short- to Medium-Term Development (Towards 2035)

Development and innovation in energy technologies generally requires approximately a decade from concept to tested and commercial system, with significant learning effects on cost reduction and system efficiency and integration while installed capacity increases.

In line with the ambition presented in Shannon Foynes Port Company's Vision 2041 Review[41], consecutive phases of scaling for FLOW will be required to achieve a target 30 GW installed nominal capacity by 2050. Initially, the estuary will be capable of deploying 400 MW per annum, but from 2033 onwards it is hoped to be in a position to deploy up to 1 GW per annum by increasing port capacity, new facilities and improved efficiency. This roadmap expects approximately 80%+ of the required CAPEX spend to occur after 2033, giving Ireland just over a decade of development time, to learn from early commercial projects. These early projects will obviously deploy with state-of-the-art components that have been developed and tested in other jurisdictions, deployed at scale in the Atlantic environment and requiring assembly, testing/commissioning, transport and installation to their respective commercial sites, resulting in a renewable energy project at unprecedented scale.

41 Vision 2041 Strategic Review, Shannon Foynes Port Company, 2022

While learnings from other jurisdictions will apply, this phase must be used to accelerate Irish industrial and academic learning, ideally in international co-development with leading industrial and academic partners from Denmark, Norway, the Netherlands, the UK, and others. We also believe that this learning must be done in partnerships that build a knowledge system that combines model-based description, optimisation and prediction of all elements of (1) offshore wind energy supply chain, (2) onshore flexible industrial and societal demand while integrating (3) an analysis of key environmental and societal impacts. The latter will streamline and enable the social licence required for this transformational programme while facilitating monitoring and future consenting processes.

The Taskforce recommends building partnerships in international co-development programmes and collaborating in European (Horizon) and other national RD&I funded projects that can complement and focus our efforts to those areas that can make the biggest impact. Furthermore, we believe that an opportunity exists at present, in both industry and academia, for the US and the EU to collaborate on their respective Inflation Reduction Act and REPowerEU programmes. We propose that the Estuary region is an ideal location for that: six hours from Boston and two from Berlin and on the edge of one of the world's largest wind resources. By increasing the amount of IP, the Irish economy can reap a wider and deeper benefit from the green energy programme.

6.6.1.1 The Shannon Estuary Living Lab

Development of the Atlantic FLOW supply chain presents a transformational renewable energy system at unprecedented scale. To accelerate learning effects; optimise the system, minimise costs, footprint and environmental impacts; and optimise robustness and economic impacts, the first developmental phases must be embraced as a living ORE lab at realistic scale. Living labs are ecosystems of open innovation, which often operate in a specific context, integrating concurrent research and innovation processes within a public-private partnership. Here, living lab is effectively a route for RD&I to be trialled and tested on or alongside active projects. That requires RD&I investments beyond the direct commercial and technical investments.

SEETF recommends the establishment of a floating offshore wind farm living lab off the west coast. This would be used as an (inter)national proof of concept and learn how floating offshore wind platforms can be installed and operated in Atlantic conditions. This would also support the de-risking of O&M costs for the specific requirements of Atlantic FLOW and help to develop the supply chain in the Shannon Estuary region. Moreover, it will send a strong signal to industry of Ireland's intentions in relation to offshore wind deployment and build investor confidence.

A similar living lab concept has recently been announced off the Grimsby coast to test robotics and autonomous solutions to support necessary inspections, maintenance and repair in the offshore wind industry[42]. The project will see the development of a 5G Testbed which will allow technology providers to test and demonstrate their equipment in real world conditions. The delivery of major offshore projects off Ireland's west coast should be leveraged in a similar way through living labs to support continuous innovation, development and indigenous intellectual property.

42 Offshore wind 'living lab' planned for English coast, renews.biz, 2023

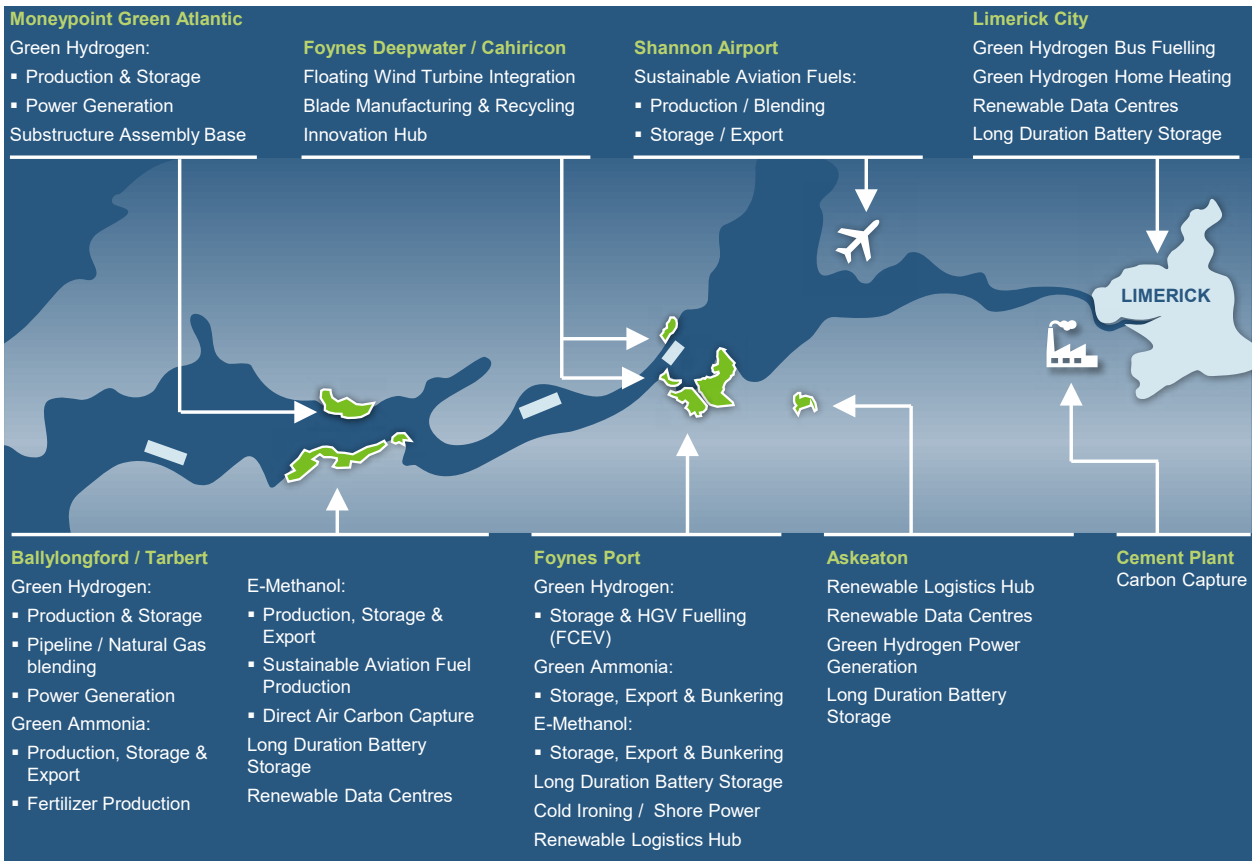


Fig 10: Shannon Estuary Green Industrial Ecosystem (Source: Shannon Foynes Port Company[43])

6.6.2 Medium- to Long-Term Development (2035-2050)

The availability of abundant renewable energy (i.e. post 2035) will open up new possibilities for Irish innovations, startups and new industrial developments to reduce cost and increase competitiveness. This scale will also help to develop more economically attractive and significant routes to market to capture larger macro-economic benefits by developing a balanced, high added value portfolio of domestic uses alongside a carefully designed export agenda.

In the short- to medium-term most FLOW developments will, due to Ireland's limited offshore energy and onshore industrial tradition, be based on technology developed and manufactured elsewhere. This leads to a significant fraction of the required direct investments to be spent internationally, with only an estimated 35-38% of the direct CAPEX retained in the Irish economy. This results in a combined direct, indirect and induced economic (GVA) effect of about 75% of the direct investments, which while acceptable in early stages leaves a large amount of value uncaptured.

43 Vision 2041 Strategic Review, Shannon Foynes Port Company, 2022

One strategy to counter this leakage of investment is to mandate minimum local content to stimulate supply chain investment such as the manufacturing of wind supply chain components within Ireland, which happens in other jurisdictions[44], but this can impact project delivery while local supply chains are being developed. Another strategy is to target RD&I investments in differentiating elements of the wind supply chain, and in the integration of onshore flexible demand. A rough breakdown of the capital investment in the FLOW supply chain shows the relative contributions as per Figure 11.

While the wind turbine itself represents a large fraction of project CAPEX, opportunities to develop new technology in the other elements of the FLOW supply chain may provide opportunities to substantially increase direct investment share in Ireland. Based on a number of recent, current and planned RD&I projects within Ireland, it is expected that blade and turbine innovations can be foreseen in the coming decade. Increased competitiveness through RD&I across the FLOW supply chain will build bigger segments of the FLOW supply chain and knowledge base in Ireland.

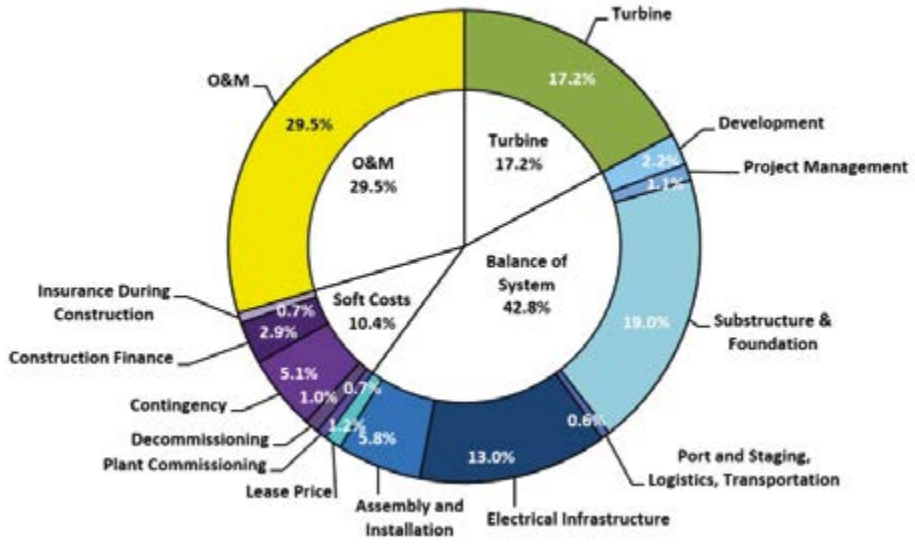


Fig 11: Component Level LCOE Contribution for floating offshore reference project operating for 25 years (Source: National Renewable Energy Laboratory[45])

Investments in relevant RD&I are typically a small percentage (2-5%) of the expected commercial investments of €90-120 billion for the projected 30 GW scenario. RD&I investments totalling over €2 billion are therefore merited. We anticipate this RD&I Investment starting in 2023/24 using a balanced mix of public sector (via DFHERIS, DECC, DETE, etc.), private sector, and a variety of European sources.

44 Vestas Setting Up Assembly Plant for Flagship Offshore Wind Turbine in Poland
45 2019 Cost of Wind Energy Review, National Renewable Energy Laboratory

6.6.2.1 RD&I supporting Future Routes to Market

Abundant offshore renewable energy is the key to decarbonising existing and emerging industries in Ireland. Agriculture (37.5% of Ireland's GHG emissions[46]), transport (17.7%), energy (16.7%), and manufacturing (7.5%) are key sectors from which Ireland's GDP[47] and exports[48] would benefit most from the green energy transition. The universities in the region (UL, TUS, MTU) already have strong research programmes across a variety of relevant areas such as advanced food and nutrition, bioeconomy, engineering, technology, software, material science and pharmaceuticals.

- **Agriculture/food** – Ireland has robust export markets for dairy (€5 billion) and meat (€2.5 billion) production; however, current conventional agri-food production systems are challenged by their inherent GHG emissions. Innovations in this space can potentially extend and grow this sector's contribution to the Irish economy[49,50] at a reduced GHG footprint.
- **Transport** – Ireland is an island nation with a strong export focus. Decarbonised transport systems are therefore crucial to support economic continuity and future growth. Aviation, marine and long-haul freight are difficult to decarbonise, and have EU-mandated (REFUEL, RED) targets with strict requirements on the biogenic origin of any carbon in their future fuels (biogas, agro-forestry residue or DAC).
- **Circular and Biogenic Materials** – the Shannon Estuary region has a significant number of high tech/high added value industries in the (bio)pharma, biomedical devices and micro-electronics domain, food, as well as commodity materials manufacturers (Aluminium and Cement), and plastics recyclers. Several industries have located global R&D centres in the region and will be focusing on the circularity of materials and the decarbonisation of supply chains. Circularity will also be a key innovation in the FLOW space with solutions needed for maintenance, repair and end-of-life usage of turbines (nacelles and blades).
- **Digital** – Currently over 50% of Irish service exports relate to ICT, finance and insurance, and other digital services[51]. The availability of abundant decarbonised power will help to grow and also create new digital industries. Ireland's future digital sector will include a broad range of areas such as data transport, storage and handling, supporting a wide range of service sectors such as ICT, finance and insurance, digital manufacturing, eHealth solutions, Internet-of-Things, smart city solutions, etc.

46 Ireland's Provisional Greenhouse Gas Emissions, 2022, EPA
47 Economic Outlay of Ireland, website, 2019
48 Harvard Atlas of Economic Complexity
49 The Bio Revolution: Innovations transforming economies, societies, and our lives, 2020, McKInsey
50 Rethinking Food and Agriculture 2020-2030
51 Ireland - ICT Service Exports, Trading Economics, website

6.6.3 Skills

Skills within the energy sector have emerged as a key theme during all aspects of engagement with the SEETF. This issue is particularly relevant to both onshore and offshore development, and demands and shortages are profound across all aspects of the energy sector. The future demands for the offshore wind industry market are significant and a major mobilisation effort is required regionally and nationally to address re-skilling, upskilling and new skill development.

At a national level, the Offshore Wind Delivery Taskforce has identified the importance of skill development and through its Workstream 8 (skills and workforce) includes actions to support and promote research, innovation, science and technology in offshore wind in Ireland, as well as engagement with international RD&I activity[52].

The education providers in the Shannon Estuary region are already collaborating extensively to consider approaches to programme development, delivery and scaling across the region and address all levels from operative to professionals. The Mid-West Renewables Education and Training Cluster was established in 2022 to facilitate this collaboration and it completed an information gathering exercise amongst its members to identify educational offerings available in the region.

Members include the Mid-West Regional Skills Forum, Future Mobility Campus Ireland, Irish Centre for Business Excellence, Limerick and Clare Education and Training Board, Munster Technological University, Technological University of the Shannon, University of Limerick, Wind Energy Ireland, Local Authorities, and a number of Skillnets and industry representatives. Representatives such as Kerry Education and Training Board, South-West Regional Skills Forum and South West Regional Enterprise Plan will be invited to participate going forward.

While the cluster is focused on exploring and promoting the opportunities in offshore wind energy, data has been collected on all educational offerings in the areas of sustainability and renewable energy. This macro approach was adopted to demonstrate both capacity and capability in the region and help concentrate future efforts to establish courses catering to offshore wind energy. The information captured in the exercise includes undergraduate and postgraduate programmes, fulltime and part-time offerings, micro-credentials and short-courses, and vocational upskilling opportunities. Over 230 education and training offerings have been identified in the region with initial estimates indicating over 3,000 graduates from the relevant programmes. 21 offerings were directly related to the offshore wind energy industry. As an example of the skills offerings in the region it can be noted that Kerry College in Tralee is home to Ireland's Wind Turbine Maintenance Technician Apprenticeship[53].

52 Offshore Wind Delivery Taskforce, DECC, 2023

53 Wind Turbine Maintenance Technician Apprenticeship, Kerry College, 2022

The SEETF proposes that the MW Regional Education and Training Cluster should be formalised and additional resources be provided to coordinate and drive education and training provision in the region. A dedicated Sustainable Energy Skills Coordinator should be appointed to work directly with the existing Regional Skills Forum Manager. Additional (and ring-fenced) funding should be provided to enable programme development and delivery in key sectors via existing funding routes (ETBs, Skillnet, HEA, etc.). This should include international collaboration with European and international education and training providers as well as industry. Critically, the Taskforce notes that skills are required at all levels from operative to apprentice through to design and research. Furthermore, broader expertise in environmental, economic, financial and social disciplines is required to maximise the economic and social opportunities in the region.

6.6.3.1 Clare Maritime Economic Zone

The Clare Maritime Economic Zone (Clare MEZ) project in Kilrush is an initiative by Clare County Council to provide a world-class educational and training centre specialising in maritime safety training. The project is a key action in the Mid-West Regional Enterprise Plan to 2024 and will deliver new job creation opportunities for the region. The training facility is to be designed, built and equipped to enable it to satisfy the requirements to achieve accreditation by international training bodies.

These include OPITO (Oil and Gas), IMO STCW (Maritime) and GWO (Global Wind Organisation) while also being suitable for training numerous other emergency and rescue scenarios. The facility will be the only facility in Ireland solely dedicated to the STCW, OPITO and GWO standards. The project has to date received funding through the Regional Enterprise Development fund (REDF) and the Rural Regeneration and Development Fund (RRDF).

Kilrush Maritime Training Centre has the potential to provide world class training to an international audience which will assist in meeting the skills shortage identified to meet the needs of the emerging offshore renewable energy sector.

6.6.4 Impact/Outcome

Without investment in skills and knowledge within the region, the capacity will not exist to deliver on the ambitious short-, medium- and long-term targets. A dedicated resource which would work with all education and training providers, mapping needs and supporting programme development in response to critical demands, will speed up programme provision and also enhance progression and development pathways.

Piloting a Sustainable Energy Skills Coordinator within the SEETF region and linking it directly to the RSF Managers will enable the model to be tested and eventually rolled out nationally. The Sustainable Energy Skills Coordinator would also lead the development of a SEETF Skills Hub through which programmes would be coordinated and promoted, maximising impact.

6.6.5 Asks/Key Actions

Action	Owner	Due Date
Stimulate R&D Activity		
• The industrial strategy for offshore wind to make recommendations about mandating innovation/research and development criteria within offshore wind projects.	DETE	Q1, 2024
• The industrial strategy for offshore wind to make recommendations about the phasing of requirements for local supply chain for future projects in line with best international practice.	DETE	Q1, 2024
• Fund a Feasibility Study to build a US–EU Collaboration Ecosystem in the Estuary region: » digital technologies; » material science and manufacturing technologies.	DFHERIS	Q4, 2023
• Develop RD&I zones in close proximity to industrial activity. These zones should consider: wind turbine blade innovation, substructure manufacturing, platform assembly, transport through the Estuary, onshore flexible demand integration for efuels, and sustainable materials manufacturing to complement offshore windfarm locations.	DETE/ DFHERIS	Ongoing
Grow the Local Supply Chain		
• Accelerate knowledge building by identifying companies within the region that are already active or wish to engage in the international offshore wind sector, and promote their growth, e.g. through Enterprise Ireland's Gael Offshore Network[54] and equivalent (European and strategic investors).	DETE	Q4, 2023
• Promote and grow the sector regionally by developing an offshore wind supply chain cluster in the region bringing together developers, supply chain, ports, academia, and the public sector.	DETE	Q4, 2023
• Develop a start-up/scaleup accelerator for floating offshore wind development and renewable energy-related activities, such as the development of green hydrogen, digital services for offshore wind, autonomous O&M activities, etc.	DETE	Q4, 2024

54 Gael Offshore Network, Enterprise Ireland

Skills Development		
• Allocate funding to a dedicated Sustainability Coordinator to work with the Regional Skills Forum, Education and Training Providers and others to scale provision regionally.	DETE	Q1, 2024
• Following completion of detailed assessment of skills and workforce required allocate funding as required via key stakeholders (ETBs, SOLAS, HEIs, FEIs, Greentech Skillnet, Industry) for dedicated programme provision in relation to onshore and offshore renewable energy development.	DFHERIS	Q1, 2024
• Leverage existing onshore wind turbine expertise at Kerry ETB to develop new programmes and increase the local talent base for offshore projects.	KETB	Q4, 2024
• Establish a Maritime Training Centre of Excellence in Kilrush by 2025, with funding supported by government through existing funding routes.	CCC	Q4, 2024
• Create a real-time talent market profile for the region. This interactive online tool (dashboard or similar) can be used by industry, investment agencies and education and training providers to track the regional talent pipeline and to drive regional investment. This can act as a pilot for other regions.	DFHERIS, Local Education Providers	Q4, 2024

7

Onshore Renewable Energy

The economy of the Shannon Estuary region has grown significantly through building a strong dependence on the sale of food and manufactured goods to customers around the world. As investment decisions in relation to foreign direct investment (FDI) are almost always made outside of Ireland, it is vital for the region to remain competitive vif it is to secure continued investment and support new opportunities.

This Taskforce fully supports the ambitions set out in Ireland's Climate Action Plan and the EU Green Deal. We believe that the successful and earliest possible adoption of these policies can be a significant competitive advantage and the Taskforce has set the ambition to become a net zero region by no later than 2035. Decoupling economic output from carbon emissions requires us to scale the application of existing and proven technologies as we also develop large scale reliable and low-cost renewable energy. Through a successful transition, we believe that existing businesses can be retained, new businesses can be formed and attracted, new products created and new customers served, in the food, manufactured goods, services and tourism sectors with the consequent economic benefits for the region.

The Taskforce urges the Government to continue progress on ensuring secure energy supply regionally and nationally to maintain current economic activity and facilitate growth. Coupled with this, the development of energy infrastructure (in particular grid networks) must be a priority.

The national sectoral emission targets set ambitious challenges across all sectors[55] which are extremely challenging. There is a need to gain momentum very quickly if these ambitions are to be achieved. The region itself over the coming years will see significant contribution to national targets as electricity generation from coal and heavy fuel oil is eliminated.

Therefore, the adoption of lower and fully decarbonised fuel sources as quickly as possible, coupled with energy efficiency/conservation improvements, in an internationally cost competitive way, is key to our economic success. We welcome the Climate Action Plan targets on biomethane, onshore wind, solar, energy efficiency and new low carbon generation i.e. natural gas in that regard, and now seek to accelerate implementation of these in our region to become net zero by 2035.

Ensuring secure supply is critical to the economic activity in the region. As we maximise penetration of variable energy sources such as wind and solar, there is a necessity to also develop predictable energy supply from resources such as biomethane, bioenergy and hydro combined with cost effective energy storage and grid flexibility.

55 Sectoral Emissions Ceilings, DECC, 2022

These are proven existing onshore technologies that can be delivered at scale and within a relatively short time frame, resulting in stabilised energy costs, improved security of supply and environmental benefits. There is a specific need to scale up activity in the short to medium term, in parallel with developments in relation to offshore (which will deliver in the medium to longer term).

The Taskforce is highlighting the urgent need to expedite projects regionally that contributed to decarbonisation but also cost competitiveness. To achieve net zero by 2035 in the Shannon Estuary region, we recommend the expansion of some existing regional agencies to assist agriculture, industry, enterprise and tourism in their decarbonisation efforts in the years ahead. Furthermore, we propose new innovative pilot initiatives which can be scaled for rollout nationally.

Critical issues for the region will include the development of our energy infrastructure (electricity, gas and heat grids). Eirgrid's 'Shaping our Electricity Future'[56] identifies existing supply and demand requirements nationally and regionally. Key points of note include the following.

- There are only 4 projects listed within the region in terms of grid upgrade. While this limited investment indicates that current grid capacity in the region meets short-term demand there is concern that future growth (demand and/or supply) may be limited by the grid. There is an urgent need to review this in the context of the scale of both onshore and offshore supply/demand plans.
- The significant industrial loads within the region are highlighted in the SOEF report with forecasted growth also included for data centre loads. The supply of secure green electricity will be critical to match this demand growth.
- The future projections for onshore renewable development highlight that onshore wind will continue to play a major part in future energy supply. Large scale photo voltaic (PV) will see considerable growth to 2030.
- The SOEF report makes specific reference to the proposed pumped storage project. *'The large-scale Silvermines hydro project (ENTSOE TYNDP project 1025), which has also been deemed a PCI project by the European Union, has not been included in our analysis. Eirgrid will continue to monitor development of this PCI project and it may be included in future studies when appropriate.'* The Taskforce notes the significant potential for this project and also the need for clear policy direction in relation to Long Duration Energy Storage to facilitate large scale renewable penetration on the grid.

The Taskforce requests that the updated Shaping Our Electricity Future report (due June 2023) be followed by a detailed regional plan highlighting the key zones where future project development can occur, thus providing certainty to project developers.

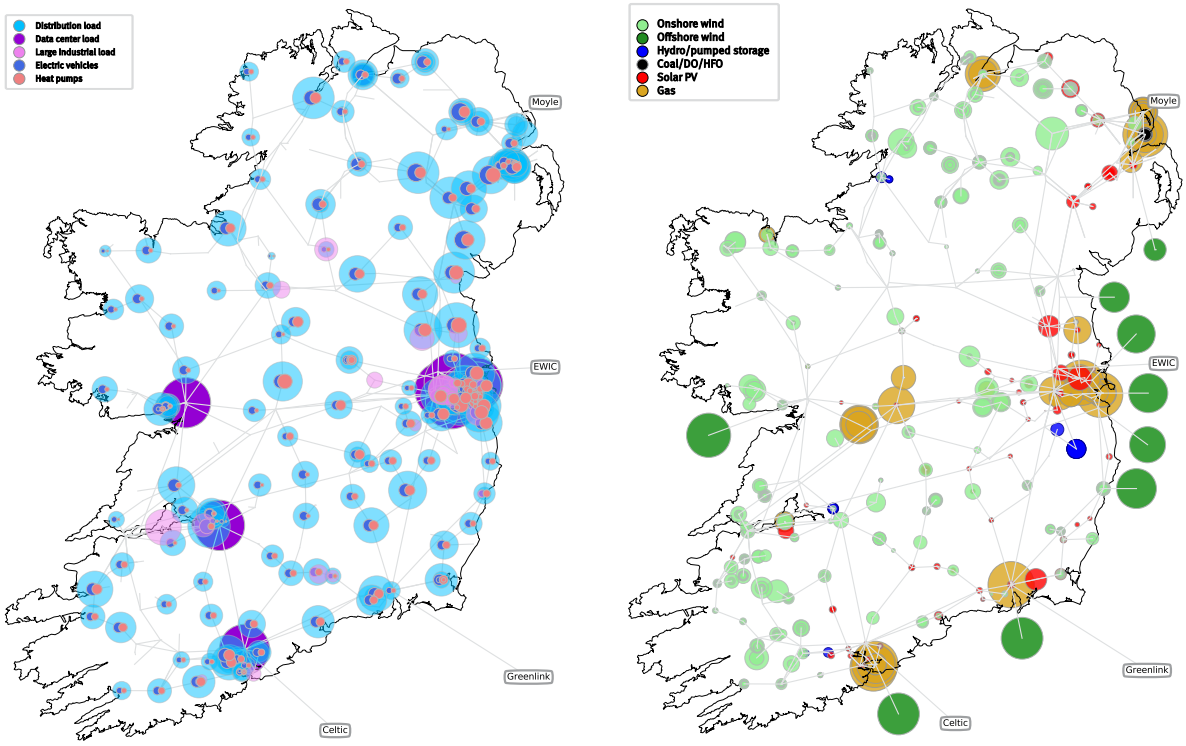
56 Shaping Our Electricity Future, Eirgrid, 2022

The region is already playing a large part in Ireland's onshore wind, with over 30% of national installed capacity located here as per Table 71.

County	Kerry	Clare	Limerick	Tipperary	Total
Installed Capacity (MW)	610	246	197	401	1454
% of National Installed Capacity	13%	5%	4%	9%	32%

Table 71: Installed Wind Capacity by County57

The Climate Action Plan indicates up to 9 GW onshore wind (up from 5.5 GW), 8 GW onshore solar, alongside offshore wind of 5 GW (+2 GW for green hydrogen) will be required nationally to meet the target of 80% renewable electricity by 2030. Projections for future renewable electricity generation by Eirgrid provide a strong indication of the continued role of onshore renewables right across the region. At a local level the recently updated county development plans all indicate support for the sustainable development of the renewable energy sector, although it is acknowledged that the plans advocate for a balance to be struck between the provision of renewable energy developments and the preservation and conservation of the natural and built environment.



A. Demand Spatial Distribution

B. Generation Spatial Distribution

Fig. 12: Future Demand and Supply projections to 2030 (Source: Eirgrid – Shaping our Electricity Future)

57 2021 Figures from TSO Installed Capacity Report by Eirgrid, and DSO Installed Capacity Report by ESB

The Taskforce acknowledges a Government commitment to supporting growth of district heating, and decarbonisation of heat. Within the context of heat supply, there has been some progress in decarbonisation of buildings and growing R&D capacity in the region[58]. However, large-scale decarbonisation of heating in buildings, enterprise and industry has been limited. Current regional gas demand is estimated to be over 6 TWh annually. There has been only very limited progress on district heating and similar to other regions there are a number of actors servicing the residential, commercial and industrial markets and deep market adaptation of sustainable heating technologies has been limited.

The Taskforce welcomes the progress that has been made in the region on community energy systems[59] and there are a number of Sustainable Energy Communities in the region[60]. While noting that there is an existing community wind farm and future community PV projects planned along with a single agricultural based biogas plant, communities face many barriers (expertise, funding, grid access, etc.) in translating their ambitions into reality. Local Authorities in the region have shown leadership with their focus on decarbonisation of public buildings. Initiatives such as +CityxChange[61] in Limerick, MTU Green Campus[62], Greener Clare[63], and the Sustainable Energy Centre of Excellence in Nenagh[64] demonstrate that there is a willingness to lead within the region.

The following areas were considered when prioritising the focus areas for the onshore energy group.

- **Electricity:** There is considerable existing and planned development for onshore wind and large scale PV in the region. From consultation with the industry the limiting factors for further development relate primarily to grid capacity and planning.
- **Built Environment – Residential:** There is already a significant National Retrofit programme along with considerable advances in building regulations for new buildings. There was limited added value the Taskforce could bring to this area. However, the Taskforce urges continued investment in this sector and the scaling up of one stop shops and social housing renovation measures.
- **Built Environment – Commercial:** There is significant fragmentation in this sector and ambitious targets to achieve. Critical challenges exist in relation to technical expertise and financing the investments. This sector has potential for action.

58 Cityxchange, website ; TUS, website
59 The Loop Head Energy Project - An updated, website
60 Sustainable Energy Communities Programme, SEAI, website
61 Cityxchange, website
62 Munster Technological University, website
63 Greener Clare, Clare County Councils
64 Centre of Excellence for Sustainable Energy Gets The Green Light, Tipperary Energy Agency, website

- **Industry:** Given the industrial base within the region, and the significant success in the growth of both FDI and indigenous industry in the region in the past number of years, supporting this sector to address the challenging sectoral ceiling targets emerged as a priority.
- **Agriculture:** Aligned with its strong industrial base, the region is complemented with a strong agricultural sector. The sector is undergoing considerable change and the opportunities for the sector are significant.

The Shannon Estuary region contains a diverse industry mix including food and agriculture, aviation, metals, cement, life science, high-tech and medical device manufacturing and digital/ICT and is an ideal representation of the national economy as a whole. There is growing concern across the region that energy costs, security of supply and carbon intensity will soon impact our existing industry base while simultaneously reducing our attractiveness as a location for future investment. Furthermore, our strong SME base is also exposed to energy cost inflation as well as wishing to move to a more sustainable supply base. The competitiveness of Ireland's existing industry base is critical to the future development of the region and this must be aligned with the focus on sustainability within industry.

Engagement with agricultural stakeholders identified a desire and ambition to respond to the challenges and opportunities that the sector faces. Given the critical role agriculture plays within the regional and local economy, and its potential to play a pivotal role in contributing to Ireland's climate action target, the sector emerged as a key focus area for the Taskforce.

The Taskforce considered these issues and, informed by engagement with relevant stakeholders and sectoral representatives, therefore makes key recommendations in the following areas:

- biomethane development;
- regional models to scale up decarbonisation;
- financial models and solutions.

Underpinning this focus is the continued need for innovation and R&D to support rapid technology developments, system integration, digitisation and other fields as well as the critical need to ensure a skilled and knowledgeable workforce to deliver on ambitions.

7.1 Biomethane Development Unit

7.1.1 Logic/Rationale

Growth of the biomethane sector has emerged as a key theme within the region during the work of the Taskforce. The National Heat Study[65] identifies a range of scenarios where biomethane can contribute to decarbonisation and complement other efforts such as the electrification of industrial heat. The 'Decarbonised Gas' scenario identifies a Total Primary Energy Consumption of biomethane/biogas of 4.6 TWh by 2030, with the rapid progress scenario showing potential for 8.2 TWh. The report notes *'Biomethane is available sooner than hydrogen but in more limited quantities. The resource estimates suggest that the available biomethane resource could be 4-8% of Ireland's current gas fuel demand. If changes to land use in agriculture were to occur and the freed-up land was used to grow a red clover and ryegrass mix for grass silage, then this could rise to 11% of current gas demand by 2030'.*

The Climate Action Plan 2023[66] commits to supporting and developing biomethane as a key opportunity for the agriculture sector (in terms of diversification) and industrial decarbonisation (Section 13.3.1. Carbon-neutral Heat for Industry). Specific targets of 1 TWh of biomethane (~20 AD plants) by 2025 and 5.7 TWh (~200 AD plants) by 2030 have been set. The Government has established a Heat and Built Environment Delivery Taskforce and will publish a new National Policy Statement on Heat to guide the Government's response to the National Heat Study across all sectors. This Taskforce has engaged with the Heat and Built Environment Taskforce during its deliberations.

Stakeholders have indicated that the lack of a support framework/policy and fragmented nature of the sector has meant that development has been slow or non-existent and the National Climate Action Plan target of 5.7 TWh of biomethane nationally is at significant risk of not being achieved.

The Taskforce notes the following specific actions within the Climate Action Plan:

- EN23/3: Industry – 2023: Prepare a decarbonisation roadmap for industrial heat based on recommendations of SEAI National Heat Study;
- Industry – 2024: DETE – Identify industry clusters near suitable suppliers of biomethane;
- AG23/14: Agriculture – 2023: Development National Biomethane Strategy within 6 months, coordinated by DAFM and DECC;
- AG23/15: Agriculture – 2023: Seek financial opportunities for capital support for the development of biomethane industry in Ireland.

65 National Heat Study, SEAI, 2022
66 Climate Action Plan 2023, DECC, 2022

Furthermore, the KPMG report for Renewable Gas Forum Ireland clearly sets out the economic benefits to the country and agricultural sector of investing and supporting an agricultural industry-led biomethane sector[67].

Given the specific characteristics of the Shannon Estuary region (i.e. large agricultural base, strong industry gas demand and extensive gas network), the Taskforce focused specific efforts on engaging with industry to determine demand and consider how the development could be accelerated. The Taskforce acknowledges the careful planning and management of feedstocks required to enable the sustainable development of a biomethane industry. Consideration also needs to be given to demands from other sectors and the broader bioeconomy. The recently established Renewable Gas Certification Scheme[68] provides a basis to ensure that biomethane development occurs in a sustainable measure. Engagements with Gas Networks Ireland (GNI) indicate a strong willingness to support and engage with project developers to facilitate connection to the gas network.

High level estimates indicate that the technical capacity within the region is 2.6 TWh of biomethane, compared to a regional gas demand from industry of over 6 TWh. While individual industries and project developers are considering entering the market there is no coordination, a lack of central support to engage with relevant agencies, no clear funding solutions and limited connection between large demand and supply.

Building on experiences in other sectors, and informed by consultation, we propose the establishment of a Biomethane Development Unit (BDU). Modelled on the one stop shop concept emerging across Europe for sectors such as building retrofitting, the BDU will act as a catalyst and coordinator of action. We propose that the BDU will be established as a specific team within the Irish Bioeconomy Foundation (IBF). This route ensures that the BDU can be established immediately within an existing legal structure which is directly linked to the bioenergy and bioeconomy sector. Critically, it also enables the BDU to build on expertise and knowledge in relation to sustainability to ensure that the biomethane sector develops in a sustainable manner. The IBF is also associated with a biogas plant which has been granted planning permission and has extensive networks with industry, agriculture and associated sectors.

This BDU will be responsible for engaging with industry to define clear biomethane demand, support project developers at various stages of project development, and facilitate aggregated/clusters to procure biomethane on the market. It will also coordinate efforts to maximise supports for biomethane industry development from national and EU funding sources.

67 An Integrated Business Case for Biomethane in Ireland, Renewable Gas Forum Ireland, 2019.

68 Renewable gas certification, Gas Networks Ireland, website

The BDU will take a leading role in the assessment of sustainable feedstocks within the region, coordinating data from multiple sources, Departments, and sectors to ensure alignment with wider demands across the bioeconomy and other potential applications of biogenic resources. Finally, it will act as a link between the sector and RD&I organisations to drive innovation across the region, seeking to address sustainability, technological developments/innovations, and alignment with the circular and bioeconomy agendas.

Already, the Taskforce has commitment in principle from a number of industries to enter into collaboration to support procurement of biomethane at a regional level. The development of this sector is seen not only as critical to support decarbonisation of industrial energy use within the region but is also a key action required to support the agricultural sector through provision of diversification of activity, new income streams and supporting achievement of environmental and climate targets.

Critically, the Taskforce notes that industry wish to move ahead of Government policy which is lagging behind the sectoral needs and also respond to the current capital seeking to invest in the biomethane sector[69].

The Taskforce conclusion is that without dedicated resources to coordinate the efforts of the agriculture sector (as key to the supply and development of biomethane) and industry, the continued fragmented and slow progress of biomethane within the region will continue. The 2025 targets within the Climate Action Plan are highly challenging (and perhaps unachievable at this point) given the planning, licensing and project development steps which need to be completed and there is an urgent need to bring momentum to the market.

7.1.2 Impact/Outcome

The BDU will have the following roles.

- Develop an innovative procurement process working with industry clusters to procure biomethane supply. This model will seek to break the disconnect between biomethane project developers and end users.
- Leverage existing and future funding and financial supports to scale investment in the sector (e.g. ISIF, Climate Action Fund, etc.) and coordinate efforts to secure capital funding supports for biomethane project development.
- Build structures to support developers to meet relevant climate actions targets on gas decarbonisation in the region, with the potential for scaling nationally.
- Leverage investment of €150 million stimulating 300 jobs and a GVA of €1 billion to 2050[70]. This would represent development of 20-25 agriculture industry-led biomethane plants.

69 Investors ready for Irish biomethane facilities as demand for green energy soars, Gas Networks Ireland, 2022
70 Pro-rata calculation based on report: Sustainability of Biomethane Production in Ireland, KPMG, 2021

- Coordinate a communication campaign across the Shannon Estuary region to showcase the economic, environmental and social benefits of biomethane is communicated to communities and relevant stakeholders.

The BDU will focus its efforts in the Shannon Estuary region initially but will present a model and approach which can be replicated in other regions.

7.1.3 Asks/Key Actions

Action	Owner	Due Date
National Biomethane Strategy		
• Publish the National Biomethane Strategy to ensure clarity for the sector and reduce market risks for potential investors, including the: » establishment of a Guarantee of Origin trading market for renewable gas, similar to that for renewable electricity; » provision of a biomethane (RESS) support scheme to address biomethane (vs natural gas) price competitiveness, as per practice in other EU countries; » building on existing R&D capacity through launch of specific R&D programmes to address critical research needs and opportunities.	DAFM, DECC	Q3, 2023
Biomethane Development Unit		
• Set up a biomethane pilot programme in the region, leveraging the existing industrial demand, regional gas network and rich sources of biogas that are readily available by: » establishing a BioMethane Development Unit, under the Irish Bioeconomy Foundation, to run the regional pilot and ultimately deliver at least the national target of 5.7 TWh by 2030; » Providing estimated initial funding of €2 million (2023 to 2025) with the ambition to support delivery of 5 biomethane plants by 2025, and a further €4 million to be committed 2025 to 2030 – the total investment of €6 million would leverage total investment of €150 million to 2030 (a leverage factor of 25:1); » establishing a capital support programme for the first 20 biomethane plants in the Pilot to be put in place with funding levels of 40% capital grant aid.	DAFM, DECC	Q3, 2023

7.2 Accelerating Decarbonisation

7.2.1 Logic/Rationale

"While climate action is often expressed in terms of national targets, delivery in many cases must happen at regional or local level"[71]. While challenging national targets have been set, translating them into delivery at a local/regional level will be a significant challenge.

The studies conducted by the SEETF have highlighted the significant potential in the region to harness our natural resources and skills to deliver substantially on the decarbonisation agenda.

- 500 MW of rooftop PV could be installed across public, industrial, agricultural and community buildings generating 437 GWh of electricity per annum into the region. This could lead to creation of almost 9,500 jobs and avoid 150 kT of CO_2[72] and investment of €700 million[73] in rooftop PV.
- 1.4 GWh of process heating requires decarbonisation solutions to be developed for industry (electrification, biomass, biomethane and other solutions). Industry has outlined the significant challenges it faces in achieving a 35% CO_2 reduction by 2030. Estimates for the Shannon Estuary indicate investments of €300-336 million potentially generating up to 5,000 jobs[74].

Furthermore, consultation with various sectors and stakeholders, as well as analysis of the Climate Action Plan highlight immediate challenges and opportunities for action.

- Public sector targets of 51% reduction in CO_2 emissions and increase energy efficiency from 33% to 50% by 2030[75].
- District heating solutions can be exploited in specific regions where heat availability can be matched to local demand. Significant levels of residential and office building are anticipated in the region and this could be connected to a district heating network. Such opportunities should align with ongoing feasibility studies being conducted by SEAI.
- RD&I challenges need to be overcome, in particular at higher Technology Readiness Levels (TRLs), to facilitate scale of delivery.

71 Climate Action Plan, page 47

72 SEETF Commissioned Study - O'Regan, B et al (2023) Shannon Estuary Rooftop Solar Photovoltaic Potential. IERC, Cork, Ireland

73 Assuming average investment €1,400/kW from SEAI 2022 "Policy options to support the uptake of small-scale renewable electricity generation (SSG) in Ireland: Overview of economic modelling for the consultation"

74 SEETF Commissioned Study - Variam, A K; Egan, S; Vaughan, L (2023) Decarbonisation of Process Heat – Shannon Estuary. Tipperary Energy Agency CLD (2023).

75 Action PS/23/2 Climate Action Plan (page 114)

Regional energy agencies have been highlighted as being particularly critical to the success of those regions in Europe that are leading the energy transition and decarbonisation agenda. These agencies have been established to deliver National ambitions at a local level. Leading examples include OOEnergiesparverband in Austria, REGEA in Hungary and AREC in France. Furthermore, in Ireland successful models exist in Dublin (CODEMA) and the South East (South East Energy Agency). There is potential for deeper collaboration between the Local Authorities in the region learning from models in other regions in Ireland and across Europe.

Stakeholders identified challenges in project development on both PV and decarbonisation of heat. These included barriers related to **"private wire"** where industry wish to develop PV generation on adjacent sites, challenges to secure investment funding, limited aggregation of smaller scale projects and the viability of electrification given the price differential between electricity and natural gas.

The Taskforce recommends that consideration be given to the development of a Regional Energy Agency which would provide support to industry, enterprise, agriculture, communities, and other sectors to scale up and accelerate their decarbonisation plans and implementation. New and innovative means to finance the energy transition are required where public and private funds are leveraged, and national and EU funding opportunities maximised to support delivery of decarbonisation projects.

7.2.2 Impact/Outcome

The SEETF proposes that the potential for the development of a Regional Energy Agency be explored by the Local Authorities. Such a resource would act as a regional collaboration between the Local Authorities and as the central source of expertise to deliver on the short- and medium-term goals of the Climate Action Plan in the region. It can build up on the existing networks and activities of all Local Authorities but will work with all sectors, public and private, to deliver change and investment.

Establishing a Regional Energy Agency would ensure effective regional collaboration and enhanced delivery capabilities thus enabling the region delivers the scale of actions required in the Climate Action Plan. The agency could identify and assess decarbonisation investment opportunities and target finance from EU, national and regional funds for the region. All sectors in the region require access to specialist knowledge and successful examples of decarbonisation projects to support investment cases and avail of the green transition funds.

Within the Shannon Estuary region, the highly successful Tipperary Energy Agency (TEA) has been a leader in delivering on the energy transition since 1998. It already has an extensive reach across the region and works with public sector, communities, enterprise, SMEs and industry (to a lesser extent). Limerick Clare Energy Agency has also played an important part in supporting the energy transition but has had a narrower remit in recent years. There is potential to build on this knowledge and expertise within the region.

The establishment of a Regional Energy Agency (REA) would potentially create a vehicle through which large scale aggregation of activity can be channelled. The initial focus of a REA could be on supporting decarbonisation within industry, agriculture, and enterprise sectors by addressing the potential identified in the PV and Process Heat studies. Supporting sustainable communities in the region to translate their ambitions into real projects should be a further priority. Successful energy agencies have been central in mobilising collaboration between community, enterprise, and public sectors in particular to access funds, expertise and resources to deliver local energy action.

In addition to the potential for a REA, specific attention and supports are required to ensure the sustainability of enterprise and industry in the region. Enabling policies are needed to deal with the issue of private wire and future opportunities for district heating should be considered.

There has been limited innovation in how the scaling and development of sustainable energy solutions in Ireland can be financed. While initiatives such as ISIF collaboration with Solas Capital[76] are welcome, much more needs to be done to scale the application of energy performance contracts, energy supply companies, heat supply contracts and other measures. There is a need to transition from reliance on public grant support systems to new finance solutions and tools which blend public and private financing. Regional expertise needs to be developed combining knowledge across academic, public and private sectors and build on knowledge within other regions, e.g. CODEMA.

76 ISIF commits €20 million to a fund which will increase energy efficiency in commercial buildings and homes

7.2.3 Asks/Key Actions

Action	Owner	Due Date
Electricity Emissions Monitoring and Support Schemes		
• 6 monthly forecasting of the carbon intensity of electricity supply, providing: » clarity on when the most carbon intensive fossil fuels (coal and heavy fuel oil), will be finally removed from the national grid; » clarity on how the Climate Action Plan targets for onshore wind, solar and offshore wind will be delivered by year until 2030; » clarity on the deployment of EU Green Deal policies with respect to planning permission/permitting process timelines of not more than 12 months for such renewables; » clarity on risk mitigation for all key factors.	DECC	Q3 2023
• Provide ongoing clarity and communication on supports available for companies who wish to invest in technology upgrades that will reduce their carbon emissions.	DECC	Q4, 2023
• Detailed regional grid capacity roadmaps, showing current and future availability, to enable such renewable energy developments.	DECC	Q4, 2024
• Enabling legislation of 'private wire' put in place to facilitate enterprise, industry, and agricultural PV decarbonisation projects to progress.	DECC	Q2, 2024
• District heating supports required to enable project development aligned with demand/supply opportunities.	DECC	Q2, 2024

Accelerating Decarbonisation		
• Detailed regional plan highlighting the key zones where future project development can occur, thus providing certainty to project developers.	DECC	Q3, 2024
• Accelerate the engagement of SMEs with current and future supports to deploy and implement cost-effective decarbonisation plans.	DECC	Q4, 2023
• Support the establishment of a Regional Energy Agency, by expanding the resources and technical capabilities of Tipperary Energy Agency to assist business, agriculture sector and communities in the wider region to assess, develop and deploy a 2030 decarbonisation programme.	DECC	Q1, 2024
• Complete assessment of appropriate structures and resource required to deliver/grow Regional Energy Agency supports by Q4 2023. Estimated funding requirements of €1.5 million to 2025 and €5 million to 2030 to scale up expertise and service delivery.	DECC	Q4, 2024
• Local Authorities in the region to support the deployment of measures targeted in the Climate Action Plan, in a manner that facilitates the sustainable and cost competitive decarbonisation of the Estuary region's existing industrial base.	Local Authorities	Ongoing
• Conduct a study on options to support such developments in the region, including consideration of development charges, rates, and other means. This study to include consideration of best practice across Europe.	Local Authorities	Q1, 2024

8

Energy Security of Supply and Cost

The Shannon Estuary, in common with most of Ireland, depends on the sale of food, manufactured goods, services and tourism to overseas markets. These products are inherently price sensitive, and all our customers globally have choices.

Ireland has for many years been uncompetitive on energy cost compared to countries that we seek FDI investment from, and compared to countries that we sell to. In recent years, that challenge has been compounded by a security of supply issue that is a limit to economic growth[77]. As population and economic output have soared in the last decade, investment in infrastructure has not kept pace, and no economies of scale have been evident from an energy-cost perspective.

As a result, established companies are concerned about their current operations and their potential to expand. It is also a significant risk for FDI considering investments in Ireland, especially for highly automated manufacturing plants and data centres, both of which are key to our economic future. The Climate Action Plan 2023 adds further uncertainty in the minds of those we seek to invest in our region.

To maintain the record level of employment that we currently enjoy, it is essential to have a clear national roadmap to 2030 that achieves security of supply, cost competitiveness and decarbonisation to the EU targets. This is acutely important for the industries in the Shannon Estuary region, given their extremely high dependence on price sensitive exports. FDI investment in the Estuary region exceeds €10 billion, supports over 25,000 direct jobs[78], and requires over €500 million of new investment annually to stay modern. FDI Site Leaders need to be able to make a compelling case for 'Why Ireland?' for their corporation's large capital investment to their management overseas, on energy security and cost.

77 Ireland's Competitiveness Challenge 2022, National Competitiveness Council, 2022
78 IDA Annual Report 2021, IDA, 2022

8.1 Recommendations

Action	Why?	Owner	Due Date
Electricity Security of Supply			
• Recommend that DECC publishes the 'final' Security of Supply Report [79], which adequately addresses the manifold technical concerns raised by a host of respected commentators about the Interim Report of September 2022.	Eirgrid annual reports consistently point to a risk to electricity supply[80]. A range of emergency actions are underway to provide additional short term generation capacity to meet the shortfall identified by Eirgrid[81]. The costs of these are borne by all electricity consumers and the greater share by large employers – who we are seeking to retain and grow.	DECC	Q3, 2023
• Recommend that Eirgrid publishes a progress update, on a 6 monthly basis, until confidence is restored in the adequacy of the electricity system – for both power generation and the network to distribute it.	Confidence in security of supply has been damaged and this confidence is critical to retention and growth of employers in this region.	DECC	Q3, 2023
• Recommend that the corresponding necessary grid infrastructure for this region is identified in the updated 'SOEF' report[82] for implementation.	No incremental transmission lines have been built in Ireland in over 15 years. In the meantime, the Estuary region has seen investment of several billion euro in its manufacturing base.	DECC	Q3, 2023

79 Review of the Security of energy supply of Ireland's electricity and natural gas systems, Department of the Environment, Climate and Communications, 2022

80 Eirgrid Predicts Electricity Supply Challenges Over Coming Years with Publication of Key Report, Eirgrid, 2021

81 Applications received by the Minister for the Environment, Climate and Communications under Section 4 of the Development (Emergency Electricity Generation) Act 2022, Department of the Environment, Climate and Communications, 2023

82 Shaping Our Electricity Future, Eirgrid, 2022

• Recommend that Eirgrid reports annually on what electricity generation and distribution capacity is available for existing industries to expand in, and for new industries to be attracted to the Shannon Estuary region. We understand other jurisdictions make this available and Ireland should replicate so that both power generators and large users can make informed investment decisions, confident that grid is or will be available.			
• Recommend that DECC clarify the Climate Action 2023 Policy for Large Electricity Users[83] (EL/23/27) which states the need for 'demand side management' of up to 20% by 2025 and 30% by 2030, with LEUs 'expected to make a higher proportional contribution to the target'.	Unclear what the short- and medium-term impact of Government policies are for industry leading to uncertainty about future investment. Current industrial investment in the region is approximately €300-€500 million per year.	DECC	Q3, 2023
Natural Gas Security of Supply			
• Recommend that final 'Security of Supply' report provides clarity on how security-of-supply for gas supplies into the Irish system will be achieved both in terms of supply and storage. • Recommend that Government should finalise and publish its position on LNG import and storage as a matter of urgency given the significance of this to our particular region.	Natural gas is the accepted transition fuel to net zero and provides the flexibility and backup the grid requires for the medium term. Many large employers in the region require gas for process heating. To compete globally, this gas must be secure, cost-competitive, and increasingly green.	DECC	Q3, 2023

83 Climate Action Plan 2023, Department of the Environment, Climate and Communications, 2023

Action	Why?	Owner	Due Date
Energy Cost Competitiveness			
• Recommend that Government publishes a detailed roadmap of measures that return Irish electricity prices to at least the European average. • Recommend that the government does not burden industry with the incremental costs of providing emergency electricity supplies that are to be provided in 2023/24.	Many of the products produced in the Estuary region are commodities or very price sensitive. Per Eurostat, Irish electricity prices are 22% above the EU average[84]. The EU Energy Commissioner, in June 2022, pointed to transmission and distribution costs in Ireland being particularly high. These are not energy cost dependent and no new transmission lines have been built in over 15 years. Our ability to attract modern automated manufacturing is very sensitive to electricity and gas prices vs competitor countries. Emergency electricity supplies are now being provided due to Government failure to ensure supply for industrial growth. Industry should therefore not be asked to pay for this failure, beyond normal rates.	DECC	Q3, 2023

84 Electricity price statistics - Statistics Explained, Eurostat, 2022

9

Transport, Logistics and Connectivity

Throughout its extensive stakeholder consultations, the Taskforce has identified present day challenges and future economic development opportunities for the Shannon Estuary. The Transport, Logistics, and Connectivity subgroup identifies decarbonisation and connectivity gaps as the immediate challenges for the region which need to be addressed in the short to medium term. In addition to this, the region's ability to harness the significant opportunity to become a European Hub for clean renewable energy by harnessing OWE will be reliant on vital enabling infrastructure, of which transport and connectivity networks are an important part. This OWE ambition, once realised, will result in a significant expansion of the downstream industrial base, which, over time, will see a significant growth in population and workforce around the Estuary; this is something that the Taskforce argues the region must be prepared for.

The National Planning Framework targets a population growth of 50,000 to 55,000[85] by 2040 in the Limerick metropolitan area before the growth impact of a new offshore wind industry in the Estuary is factored in. Current estimates suggest that an additional 50,000 jobs will be generated in the offshore wind industry and its ancillaries by 2050, which implies a much larger population growth than currently predicted for the Shannon Estuary region, especially when the households associated with these new workers are included. In addition to the enabling infrastructure requirements identified for offshore wind delivery in section 6.3, the Taskforce has identified the need for critical regional infrastructure to support this projected expansion, including transport and digital.

A multimodal and integrated transport and connectivity network within the Shannon Estuary region, connecting to the rest of Ireland, and to Europe/the world will be the bedrock for sustainable economic and demographic development in the region. Strategic infrastructure development in the Mid-West can also help address national challenges. Our vision is that through proactive investment in infrastructure, the Shannon Estuary region can offer a sizeable contribution to the Irish economy and its decarbonisation targets such as reducing transport emissions by 50% by 2030. The Taskforce believes that the Estuary region can provide a solution to the increasingly congested east coast for the transport of goods, people, and data. It can also provide better regional balance and quality of life for all our citizens.

85 Project Ireland 2040 – National Planning Framework, DHPLG, 2018

A recurring theme emerging from the Taskforce's stakeholder consultations is, while there is valuable work being done by separate bodies across the region in terms of infrastructural development, that work needs coordination to present a clearer vision for an interconnected region. In addition, the consultations highlighted a clear regional imbalance in the flows of people, goods, and data throughout the country; for example, in aviation, 84% of all flights were handled by Dublin Airport in 2022, and in terms of freight, 52% of the traffic travelling to Dublin Port originates from over 70 km from the port, while 38% of traffic from the port is destined 70 km or more from the port. In the digital space, 65 of the 70 operational data centres in Ireland are in the Greater Dublin Area.

To address this regional imbalance, while also providing critical transport, logistics, and digital infrastructures for the Shannon Estuary region and its future Atlantic offshore wind industry, the Taskforce recommends that infrastructural masterplanning in the region concentrates on three core pillars.

- **The Movement of People**
  A sustainable and integrated multimodal transport system[86] is proposed, informed by advice from the proposed Shannon Estuary Steering Committee outlined in section 11.4. Similar to the Regional Enterprise Plan Steering Committee structure, this will bring together the key stakeholders in the region, including the Local Authorities, to produce a holistic vision for infrastructure requirements within the Shannon Estuary. The ambition will be to firstly address the gaps in existing transport connectivity, and secondly, to identify the necessary infrastructure that will allow the region to play its role in maximising the economic potential associated with the State's offshore wind targets of 37 GW by 2050. This includes roads, rail, ports/airports, etc. As part of this pillar, it is further recommended that the opportunity for the production of SAFs in the Shannon Estuary region is explored as a potential route to market for FLOW as well as providing locally produced affordable green fuel for the growing aviation sector.
- **The Movement of Goods**
  A National Logistics Hub in the Shannon Estuary region is recommended, building on extensive plans for development at Shannon-Foynes port and the existing infrastructure at Shannon Airport, as well as Irish Rail's proposed Limerick Junction Western Gateway freight terminal, which will become an important hub linking the Estuary area with the South and South-East of the country. New and upgraded infrastructure required to support the National Logistics Hub and Irish Rails' Limerick Junction terminal (road, rail, etc.) will also serve to enhance passenger connectivity within the region, and with other regions.

86 For the purposes of this report, "sustainable" refers to the use of efuels, electric/hybrid vehicles, and increased digitisation in the transport sector. "Multimodal" refers to a move away from the heavy concentration on road transportation for the movement of goods and people. "Integrated" refers to the ease of connectivity between different modes of transport for people and goods.

- **The Movement of Data**

  A Digital Masterplan for the region is recommended. This should take a holistic approach and incorporate data centres, 5G roll-out, and a terrestrial data network in the region. Such an approach will future proof the digital infrastructure requirements of the region serving industry and society.

9.1 Integrated Sustainable Transport System

9.1.1 Logic/Rationale

The Taskforce identifies the need for an integrated approach to infrastructure planning around the Shannon Estuary to maximise the economic potential associated with the State's ambition to deliver 37 GW of offshore wind by 2050. Section 6.5 outlines the need for Strategic Land Planning around the Estuary to enable coordinated planning by the respective Local Authorities informed by the broader region's requirements. This includes developing the infrastructure needed to enable and support the projected population growth. An important pillar of this coordinated effort will be transport planning and management allowing for the delivery of an integrated, sustainable transport system. This planning will need to be carried out in the context of Ireland's carbon emission reduction target of 50% for the transport sector.

The Taskforce notes a number of projects planned for the Shannon Estuary region by the various transport bodies and identifies the need for their coordinated and accelerated delivery as not only being essential to support the future economic development of the region, but also to enhance the quality of life for the current and future workforce and population in the region.

Stakeholder consultations have identified the need for existing national and regional transport strategies and plans to be linked under a coordinated plan for the wider Shannon Estuary region. Transport planning is framed at a national level by Project Ireland 2040[87], the National Planning Framework[88], the National Development Plan[89], and the National Ports Policy[90], all of which have a strategic emphasis on sustainable mobility. This is further embedded in the Economic Recovery Plan 2021[91].

87 Project Ireland 2040 – Building Ireland's Future
88 Project Ireland 2040 – National Planning Framework, DHPLG, 2018
89 National Development Plan 2021 – 2030, DPER, 2021
90 Regional Spatial & Economic Strategy, Southern Regional Assembly, 2020
91 Economic Recovery Plan, Department of the Taoiseach, 2021

At the regional level, integrated transport planning is supported through Regional and Spatial Economic Strategies (Southern Regional Assembly RSES[92]) as well as Metropolitan Area Transport Strategies, with the Limerick Shannon Metropolitan Area Transport Strategy[93] sitting within the Shannon Estuary region. Key stakeholders involved in the implementation and operation of ground transport projects include Transport Infrastructure Ireland, the National Transport Authority, the four local authorities, Irish Rail, Bus Eireann, TFI Local Link, as well as private operators. The Climate Action Plan 2023 calls for enhanced governance particularly at local authority level for improved placemaking and sustainable accessibility and a change in approach from development plans to area-based plans. New approvals for transport projects will need to consider climate, social and environmental impacts as well as value for money.

In terms of air connectivity, the scale of Shannon Airport with European and trans-Atlantic connectivity needs to be acknowledged as a critical hub in the region for international business and visitor connectivity. The Taskforce identifies the need for an expanded network of routes connecting to strategically important business hubs, as well as improved transport connectivity to and from the Airport, as being critical to support the existing and expanded industrial and population bases that are projected for the region.

The Taskforce further argues that Shannon, which has one of the largest aerospace and aviation communities in Ireland, a strong legacy in innovation, and proximity to renewable energy sources, is the ideal location to develop and test the technology associated with sustainable aviation including Battery Electric aircraft, eVTOLs and vertiports (FMCI), SAF, and green hydrogen for aviation. Similar to the proposed *Shannon Estuary Living Lab* for FLOW outlined in section 6.6.1.1, the Taskforce recommends that sustainable aviation demonstrator projects be developed and funded as part of a Living Lab at Shannon Airport.

The availability of efuels will be a key part of ensuring the sustainability of the region's future transport system, and through its consultations, the Taskforce has identified a growing aviation industry requirement for SAFs. There is an opportunity to create a route to market for green energy through the production of SAFs in the region; however, there are many challenges, both economic and technological, to be addressed with regards to SAF production and demand.

92 Regional Spatial & Economic Strategy, Southern Regional Assembly, 2020

93 Limerick | Shannon Metropolitan Area Transport Strategy 2040, National Transport Authority

The aviation industry, which represents 2.3% of global CO_2 emissions, has a declared goal to reach net zero emissions by 2050. Among the many actions identified to reach net zero, the use of SAF is widely regarded as the single biggest lever to reduce aviation sectoral emissions by up to 65% by 2050. There are significant challenges for the industry in terms of both availability and cost of SAFs when compared to conventional aviation fuel.

From both a production capacity and demand point of view, the SAF industry is at an early stage of development and current usage within the EU is at negligible levels. There are different policy approaches to promote the uptake of SAF between the USA and Europe. In the USA, the focus has been on providing incentives to increase production. In Europe, the focus is on driving demand by introducing minimum SAF mandates with its ReFuelEU legislative proposal, which is expected to be agreed in the second half of 2023. SAF is further encouraged under other related European legislative proposals such as the revised energy taxation directive which exempts SAF from taxation for a 10-year transitional period, followed by a significantly lower rate than that for conventional jet fuel.

A national SAF strategy is needed to take account of requirements under these various EU proposals as well as the Renewable Fuels for Transport Policy and an updated National Aviation Policy that is planned for 2023.

9.1.2 Impact/Outcome

Regional level coordination of Integrated Transport Planning will ensure the full and speedy implementation of existing infrastructure development plans as approved under the National Development Plan and National Planning Framework. The Taskforce welcomes the Government's commitment to prioritising the completion of the Limerick to Foynes Road Scheme, which now needs to be completed as expeditiously as possible. We also note and support SFPC's plans for a deep-water port on Foynes Island. The prompt construction of the M20 motorway between Cork and Limerick, as well as the Adare and Listowel bypasses are required to credibly extend an Atlantic Green Digital Corridor along the entire west coast of Ireland.

The role of Shannon Airport is vital for the economic development of the region, and therefore the acceleration of the N19 Shannon Airport Access Road Improvement Scheme is requested. Furthermore, the planned N24 Limerick to Waterford scheme will vastly improve the Estuary region's connectivity to the South-East, which is a key economic corridor for the mid-west region, while also enhancing the Estuary region's connectivity onward to Rosslare, and key European ports.

An overarching planning framework for the region's transport system will identify gaps in existing plans and strategies, particularly in more remote areas around the Estuary, as well as in terms of interregional connectivity. Further investment in accessibility for this region must be deployed now to harness the benefit of Atlantic wind. On the northern side of the Estuary, we ask that the N68 from Ennis to Kilrush be upgraded as a priority given ESB's planned developments at Moneypoint, and to enhance access for locals and tourists to the northern Estuary.

The opportunity to identify SDLs and research centres in the Shannon Estuary region and its environs was identified in sections 6.5 and 6.6 and these will require upgraded road and rail connectivity. There is a need for a northern city relief road and transport corridor that will facilitate the decongestion of Limerick City centre, facilitate the modal shift from private car required to support the government investment planned in active travel and public transport, and be a critical enabler for ecosystem connectivity with the region's academic institutions, R&D centres, and emerging FLOW industry supply chain. The Taskforce therefore requests that the Limerick Northern Distributor Road be reconsidered, as originally proposed in the Southern Regional Spatial and Economic Strategy. The proposed relief road is 10 km, single carriageway, 60 kmph, bus priority at junctions and segregated footpath/cycleway.

On the southern side of the Estuary, the Taskforce recommends that rail and road projects to improve connectivity between Limerick to North Kerry (Ballylongford, Listowel, and others) are assessed, including the N21 Newcastle West and Abbeyfeale bypasses. In addition, an examination of the role Kerry Airport may have in servicing future regional connectivity should also be carried out.

Coordinated regional level transport planning will ensure that intermodal integration is achieved in the implementation of new infrastructure projects and transport services. Enhanced intercity rail and bus services to Dublin, Cork, Waterford, Galway, and an expanded regional/local bus service around the Shannon Estuary under Connecting Ireland should be the key benefits of this. In particular, the Taskforce considers a rail connection to Shannon Airport, the re-instated freight rail link to Foynes (with future upgrade to passenger), and improvements to the Limerick to Waterford corridor as being vital for supporting the economic and demographic growth expected in the region.

Further development of rail infrastructure will also be critical to achieving sustainable mobility in the region. Consultations with Irish Rail highlighted possible future rail network developments around the Shannon Estuary region which the Taskforce requests are now evaluated, with consideration given to what can be delivered as part of a sustainable passenger mobility plan for the Ryder Cup in 2027.

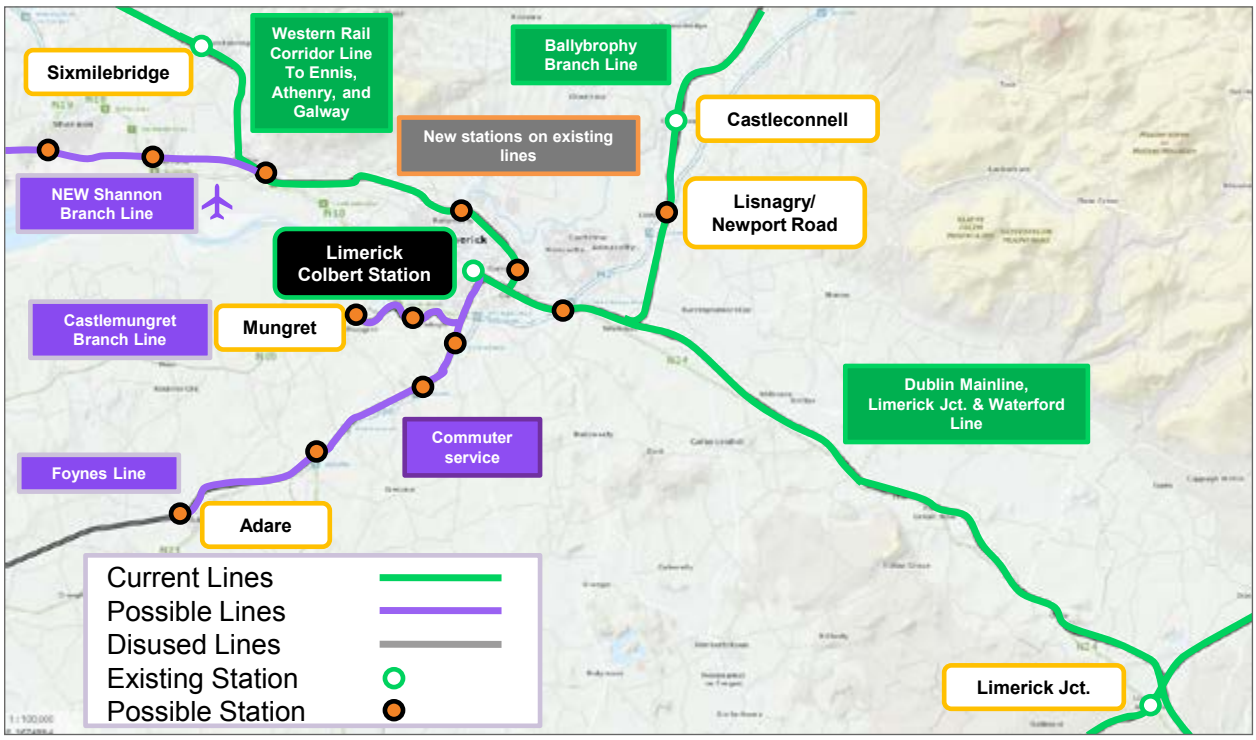


Fig. 13: Potential future rail network around the Shannon Estuary region (Source: Irish Rail)

The Taskforce strongly support the proposed suburban rail network in the Limerick Shannon Metropolitan Area Transport Strategy as a key piece of the wider region's intermodal connectivity:

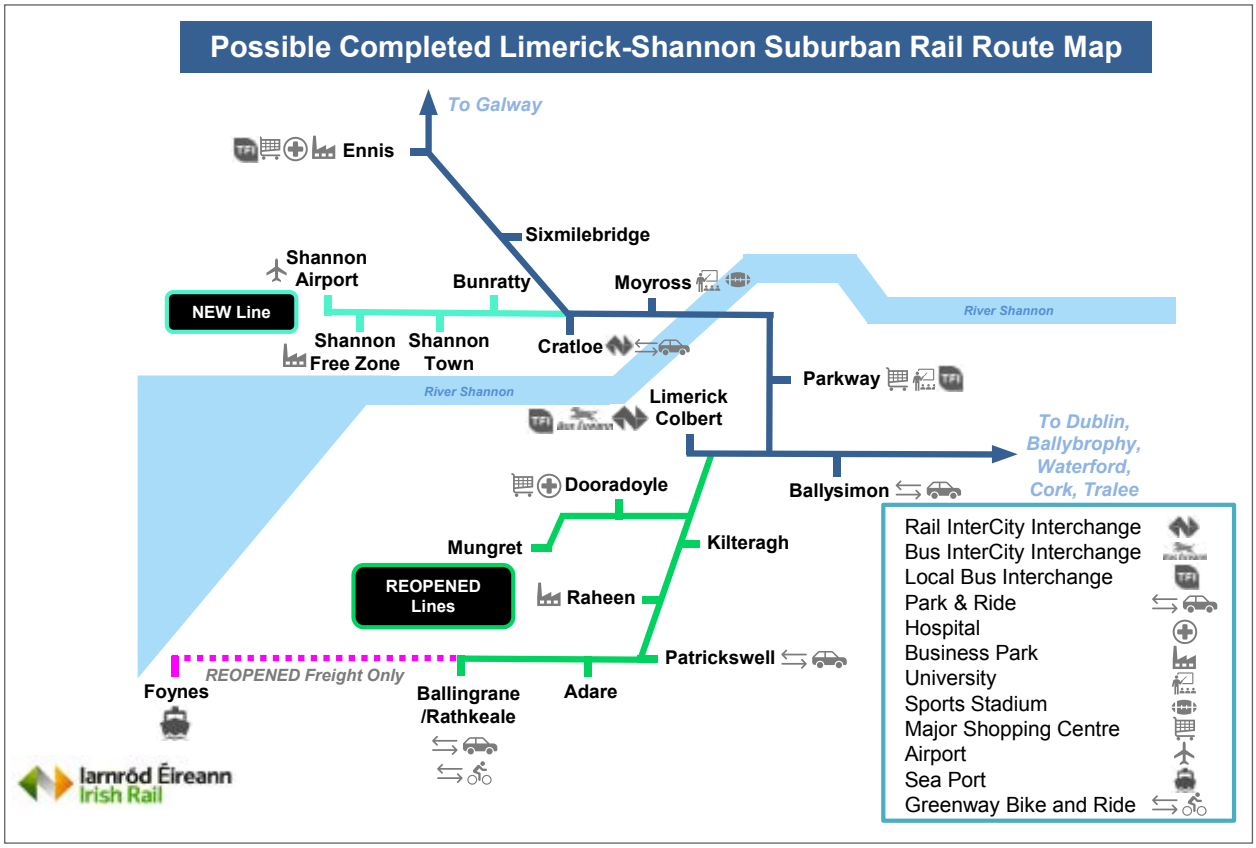


Fig. 14: Possible Completed Limerick- Shannon Suburban Rail Route Map (Source: Irish Rail)

The proposed integrated sustainable transport planning framework will enable all of this by providing a structure which brings together the key transport and connectivity stakeholders in developing future region-wide transport strategies. As part of this, there is an opportunity to identify PathFinder Programme Projects that could be developed under the National Sustainable Mobility Policy.

With regards to sustainability, a future transport network in the region powered by efuels and battery electric vehicles will not only result in a significant contribution to national transport emission reduction targets but will also provide an end-use for the abundant clean renewable energy which will be produced in the region. eFuel production represents a significant opportunity for the region, with SAFs in particular being identified as a potential new industry in the Shannon Estuary. Following extensive consultation with the aviation sector, the Taskforce recommends that a national policy framework that supports SAF in Ireland be developed under the frame of the forthcoming Hydrogen Strategy implementation plan. It is estimated that green hydrogen could account for up to 70% of the cost of SAF production and thus is the key enabler for the industry.

SAF manufactured in Ireland will provide certainty to the aviation industry; as an island nation, SAF production offers fuel security and continued competitive access to our international markets. From the regional perspective, the co-location of a SAF production industry with green hydrogen production in the Shannon Estuary will maximise the benefits to the local population by creating a strong local domestic market for green hydrogen and will stimulate international investment and job creation in the region.

Recognising that the SAF industry is an emerging one, the Taskforce also recommends that funding is provided for a national level SAF project based in the Estuary to enable learning in terms of optimisation of technology, infrastructure, supply chain, and production scaling to be achieved.

9.1.3 Asks/Key Actions

Action	Owner	Due Date
• Develop an Integrated Sustainable Transport Planning framework for the region which takes account of existing national policies and regional strategies across all modes of transport.	Shannon Estuary Steering Committee in collaboration with NTA, TII, Irish Rail, Bus Eireann, TFI Local Link	Q3, 2024
• Funding to be provided under the National Development Plan to deliver on the immediate priorities identified by this process.	The Department of Transport and The Department of Environment, Climate, and Communications	Ongoing from Q1, 2024
• Deliver the following projects which are essential to support existing business needs, in preparation for Atlantic FLOW, to enable sustainable multi-modal passenger mobility, to support tourism initiatives such as the development of Greenways highlighted in section 10.1.1 of this report, and in preparation for Ryder Cup 2027: **Projects completed by 2027** » Limerick to Foynes Road Scheme (including Adare bypass) in line with TEN-T regulations requiring connection by 2030; » Foynes Rail Freight Line in line with TEN-T regulations requiring connection by 2030 (with future upgrade to passenger); » Limerick Northern Distributor Road (a priority project identified in the Southern Regional Spatial and Economic Strategy); » N19 Shannon Airport Access Road Improvement Scheme; **Projects completed by 2027-30** » M20 Limerick to Cork; » N68 Ennis to Kilrush/Moneypoint; » Foynes to Listowel/Ballylongford road upgrade; » N24 Limerick to Waterford upgrade; » N21 Newcastle West and Abbeyfeale bypasses; » Connection of Shannon Airport to the rail network; » Foynes deep-water port on Foynes Island.	Shannon Estuary Steering Committee in collaboration with Local Authorities, NTA, TII, Irish Rail, Bus Eireann, TFI Local Link	2027 2030

• Government support for an expanded network of routes connecting Shannon Airport to strategically important business hubs, as well as improved transport connectivity to and from the Airport.	Department of Transport	Q4, 2023
• Establish a cross-departmental working group under the Green Hydrogen Strategy implementation structures to develop a National SAF Strategy, in consultation with industry.	The Department of Environment, Climate, and Communications (with input from the Department of Transport and industry and academic stakeholders)	Q4, 2023
• National level SAF research project based at the Shannon Estuary to enable learning in terms of optimisation of technology, infrastructure, supply chain and production scaling to be achieved.	The Department of Environment, Climate, and Communications (with input from the Department of Transport and industry and academic stakeholders)	Q1, 2024
• RD&I funding to be provided for sustainable aviation demonstrator projects as a Living Lab at Shannon Airport, which, in partnership with international collaborative programmes, will lead to the commercialisation of net-zero aviation technology.	Department of Enterprise, Trade, and Employment in collaboration with Enterprise Ireland, IDA, Shannon Airport Group, Western Development Commission	Ongoing from Q3, 2023

9.2 National Logistics Hub Masterplan

9.2.1 Logic/Rationale

An important pillar of the overall transport masterplan will be the effective and sustainable management of freight and logistics which can act as a driver of economic development.

The Taskforce recommends a sustainable multimodal logistics hub[94] in the Shannon Estuary region as a means of realising several actions outlined in *Ireland's Road Haulage Strategy 2022-2031*[95] and the Climate Action Plan 2023. In the freight and haulage sector, the Taskforce notes a number of ambitious freight growth plans presented by individual transport providers in the region, including the following.

- Adjacent to the world's busiest shipping routes, currently handling over 10 million tonnes annually and with water depths of up to 32 metres, Shannon Foynes Port, a Tier 1 National port and a 'core corridor port' on the EU's TEN-T network, is uniquely positioned to expand as an international logistics hub serving the domestic, European, and worldwide markets. Shannon Foynes Port Company's objective is to develop commercial container business under its Vision 2041 strategy, targeting 10% of Ireland's container volumes by 2040.
- *Irish Rail Freight 2040 Strategy*[96] which includes a proposed Limerick Junction Western Gateway freight terminal, a large multi-purpose freight interchange and distribution centre linking rail and road networks.
- TII and the Department of Transport's action under *Ireland's Road Haulage Strategy 2022-2031* to complete a study examining the feasibility of Freight Consolidation Centres to consolidate and rationalise freight transport and identify next steps, and associated with that, TII's strategic road projects which will enhance the region's freight and passenger mobility.
- Potential to grow Shannon Airport's air-cargo services between Europe (and beyond) and the US. Ireland's National Aviation policy calls for an overall freight policy for Ireland to be developed with a view to ensuring the continued competitiveness of the freight sector generally, including consideration of the increased role of air cargo.

94 For the purposes of this report, "sustainable" refers to the use of efuels, electric/hybrid vehicles, and increased digitilisation in the transport sector. "Multimodal" refers to a move away from the heavy concentration on road transportation for the movement of goods.

95 Ireland's Road Haulage Strategy 2022–2031, DoT, 2022

96 Rail Freight 2040 Strategy, Irish Rail.

These, together with the expected demand from the FLOW supply chain, will drive exponential growth and demands on the national logistics and transport sector. A sustainable logistics hub presents a significant opportunity to draw together and maximise the collective opportunity from these plans to the benefit of the region and the State.

In terms of carbon footprint, 94% of transport emissions are from road transport, with heavy goods vehicles (HGV) (20%) and light goods vehicles (18%) proving particularly challenging to decarbonise. Mindful of a 50% decarbonisation target for the transport sector, there is a significant opportunity for the Shannon Estuary to become a national leader in sustainable logistics across all modes of transport.

Ireland's freight transport network increasingly centres on the east coast across all modes of transport. This is causing growing concerns about the business impact in terms of increasing congestion, increasing costs, labour shortages, longer delivery times, and increasing emissions. In addition, direct sea routes from Ireland's east coast to Europe have trebled post Brexit. Freight transport in Ireland is particularly reliant on the road network which accounts for 99% of freight movements, while the remaining 1% is made up of rail journeys[97].

By 2040, articulated HGV traffic is projected to increase by 74% over 2016 levels. TII projections also show that the top ten freight routes in the country accounted for 20% (1,476,000) of all HGV journeys in 2016, increasing to 25% (2,615,000) in 2040[98]. These projections, however, assume a 'business as usual' trajectory with no mitigation measures such as those now being developed as a result of successive Climate Action Plans.

9.2.2 Impact/Outcome

The Taskforce projects that once the transport and connectivity infrastructure recommended in this report is developed, the Shannon Estuary region will have the potential to contribute an additional €3.8 to €4.8 billion to Irish GDP per annum through both direct and indirect activities enabled by this infrastructure.

A sustainable multimodal logistics hub in the Shannon Estuary region with full integration of freight routes would create a 'western gateway' for the flow of goods throughout Ireland, thereby addressing the growing national logistics problems we have today (east coast congestion, increasing delivery times, labour shortages, costs and freight km) as well as limiting the need for future decarbonisation measures such as increased taxes, congestion charges and demand management actions.

97 Ireland's Road Haulage Strategy 2022–2031, DoT, 2022

98 National Transport Model Update – Travel Demand Forecasting Report, AECOM, 2019

The proposed logistics hub should be developed in parallel to the strategic land planning recommended in section 6.5 above as this will be the overarching framework under which decisions on infrastructure investments will be made. In addition to addressing current challenges, the logistics hub must be future proofed by incorporating supporting infrastructure for the emerging FLOW industry and associated supply chains from 2030 onwards, and the projected industrial and demographic growth that this will bring.

A core element of delivering this economic benefit will be the development of a sustainable multimodal logistics hub in the Shannon Estuary region targeting a significant percentage of the national road freight traffic, and in doing so enabling the region to be a national leader in the decarbonisation of the transport sector in Ireland.

9.2.3 Asks/Key Actions

Action	Owner	Due Date
• Undertake a feasibility study and develop a concept proposal for the development of a National Logistics Hub in the Shannon Estuary, as an input into the preparation of a 'Regional Freight Strategy' for the Limerick/Shannon region proposed in the Limerick Shannon Metropolitan Area Transport Strategy, and in line with Action 23 for the development of strategies for sustainable freight distribution in the recently published Road Haulage Strategy:	NTA in collaboration with TII, Irish Rail, Southern Regional Assembly, Shannon Estuary Steering Committee (including SFPC, the Shannon Airport Group, Local Authorities).	Q3, 2024
» define scope of study;		Q3, 2023
» engage expert planning consultant;		Q3, 2023
» conduct stakeholder consultations;		Q2, 2024
» deliver feasibility report and concept proposal.		Q3, 2024

9.3 The Shannon Estuary: a New Digital Gateway

9.3.1 Logic/Rationale

National policy such as the White Paper on Enterprise 2022-2030[99] places the twin transitions of decarbonisation and digitalisation at the heart of Ireland's enterprise development strategy, with digitalisation targets and support funding provided for under *The Digital Ireland Framework*[100].

99 White Paper on Enterprise, DETE, 2023

100 Harnessing Digital – The Digital Ireland Framework, Department of the Taoiseach, 2022

There is an opportunity to develop the Shannon Estuary as a new Atlantic Green Digital Corridor. New transatlantic and direct cables to Europe from the Estuary would be a key driver to enabling long term investment in data infrastructure in the region which has the potential to become the western digital gateway for Ireland and Europe. There is also an emerging urgency to consider Ireland's long term data security with aging cable infrastructure and new digital transport corridors emerging post Brexit.

Developing the region's digital capacity can provide Ireland's data centre industry with a clear expansion strategy consistent with sustainable energy generation, grid security, and Irish Government policy objectives. There is a global trend to locate data centres away from major urban centres and adopt more sustainable development models. With the scale of the proposed development of FLOW in the Shannon Estuary, the development of the region as a net-zero industrial zone is identified in section 6.1 as a means of creating routes to market close to the source of green energy production and storage. Connectivity infrastructure for data centre to data centre communications is a key consideration for major data users when choosing a location for data centres.

The Taskforce, through its extensive stakeholder consultations, has identified the need for a digital infrastructure masterplan for the Shannon Estuary to strengthen connectivity and avail of the opportunities presented by FLOW. This masterplan should be developed with reference to the strategic land planning recommended in section 6.5 above as this will over time become the overarching framework under which decisions on both physical and digital infrastructure investments will be made.

The proposed digital masterplan will need to address the following specific challenges.

- A lack of good quality terrestrial connectivity around the Estuary, as well as with Galway, Cork, and Dublin as the key national communication transmission corridors. Addressing this will require strong (backhaul) fibre infrastructure investment, as well as a new build 'trunk type' network (independent of existing mobile operators' infrastructure) built with the latest technology to address latency issues and provide a more economically viable solution. The Connecting Europe Facility (CEF) through CEF Digital is a key funding mechanism in the digital space offering funding opportunities for projects aimed at addressing digital deficits such as those in the Shannon Estuary region[101].

101 Connecting Europe Facility - CEF Digital, European Commission

- A recurring theme emerging from consultations was the complexity reported by operators in navigating the various regulatory processes attached to foreshore licensing, planning, and grid connection. In addition, stakeholders provided examples where the cost of a foreshore licence for a submarine cable was cited at 2 to 3 times what it costs in France. The price of backhaul dark fibre was cited as costing twice that of the UK largely driven by lack of competition in Ireland. The Taskforce notes the imminent establishment of the Marine Area Regulatory Authority (MARA) which should address some of these issues at a national level, but regional challenges will persist if not addressed.
- A lack of coordination for digital infrastructure planning – a key ask emerging from the Taskforce's stakeholder consultations is for a more coordinated approach in the region to facilitate 'ease of doing business'.

9.3.2 Impact/Outcome

A framework for Digital Masterplanning, similar to what is proposed in section 9.1 to coordinate transport infrastructure planning, will be the key outcome of the Taskforce's recommendations in this area. A coherent and coordinated approach to digital infrastructure development for the Shannon Estuary region will increase resilience, diversity, capacity, and reduce latency of the digital infrastructure and also meet growing demands. A more robust digital ecosystem will underpin job creation, new business opportunities, attract future investment, expanded markets, and access to public services.

9.3.3 Asks/Key Actions

Action	Owner	Due Date
• Funding is requested to commission a digital masterplan for the region bringing together expertise from the Local Authorities and expert stakeholders which will prioritise digital infrastructure needs and target support funding provided for under *The Digital Ireland Framework* and which will underpin sustainable economic growth across the region.	Shannon Estuary Steering Committee in collaboration with expert stakeholder consultation (DETE, DECC, DRCD, Western Development Commission, academia, private industry)	Q4, 2023
• Funding and policy direction under the frame of *The Digital Ireland Framework* to be provided from central Government which will enable the Shannon Estuary Steering Committee, in cooperation with the Local Authorities, to deliver on the Digital Masterplan.		Commencing 2024

9.4 Global Transhipment Hub

9.4.1 Logic/Rationale

The overarching theme of the Taskforce report is the unrivalled potential of the Estuary for renewable offshore wind energy production, arising from a combination of the scale of the wind resource coupled with the available sheltered deep water and adjacent development land.

While exporting significant quantities of electrical energy via an increasingly interconnected European distribution network is an option, realising the value of this energy at, or close to, the point of landing onshore is likely to greatly increase the 'added value' of the product as well as enhancing the local and wider economy.

Action 9.2 – National Logistics Hub – highlights how developing logistics and freight infrastructure around the Estuary will support an emerging FLOW industry; there is also an opportunity for a freight and logistics system to provide an end-use case for this renewable energy close to source. In addition to a domestic national logistics hub, the Taskforce identifies the location of a global 'zero-emission' transhipment port in the Estuary as one further option for utilising this energy either directly as electrical energy or other 'green' fuels manufactured from the available electrical energy. The Taskforce recommends that a feasibility study of this concept is initiated as an initial step towards this.

World container port throughput has increased from approx. 550 MTEU (million of twenty-foot equivalent units) to 800 MTEU between 2010 and 2019. This very significant increase in a relatively short period has put considerable pressure on the existing port structures, many of whom are restricted from further expansion by factors such as shipping lane and port congestion and available development land. The ever-increasing size of ships used for transhipment is also presenting additional problems to some already restricted ports.

Following Taskforce consultations with industry experts, it is apparent that the 'green agenda' is having a big impact on the strategic development of the shipping industry. Port facilities and shipping lines are facing increasing demands to address carbon emissions from their customers and regulators. Availability of 'green' energy is certain to be added to the list of items when considering the development of transhipment ports in future. Green shipping corridors are being developed whereby ports and vessels on such routes will have to be classified as emission free.

In addition, a significant amount of transhipment to European ports takes place via British ports such as Southampton and Felixstowe. Brexit has imposed certain competitive disadvantages on these ports such as additional customs clearance and associated delays. This could add significantly to the viability of a transhipment port located on the Shannon Estuary.

9.4.2 Impact/Outcome

It is estimated that a transhipment port of scale could utilise in the region of 300 MW to 1 GW of electrical energy. Factors that would influence the total quantity of energy used include use by moored and feeder vessels and road and rail vehicles, automation which relies on 'green' electricity, and green fuel manufacturing and storage and the location of data facilities in the Estuary.

In addition to the economic activity created by the movement of cargo, other significant economic activity could arise from activities such as bunkering, cruise ships (both servicing and tourism revenue – note section 10.1.6 below), ship repair and maintenance, and warehousing for logistics.

An investment of €1-5 billion is envisaged for the development of a transhipment port in the Estuary which would give high levels of local employment in the construction phase. As it is envisaged that this port would be highly automated, an ongoing demand for highly skilled labour would remain for the long term.

9.4.3 Asks/Key Actions

Action	Owner	Due Date
• Funding requested to commission a feasibility study for a Global Net Zero Transhipment Hub at a suitable location in the Shannon Estuary that will leverage the availability of maritime efuel, sheltered deep water, landbanks, and our location of global maritime importance. Funding for such a study should be sought in conjunction with the forthcoming National Ports Policy Review.	SFPC (having statutory jurisdiction over all marine activities in the Estuary) in conjunction with DoT, NTA, Shannon Estuary Steering Committee.	Q4, 2023

10

Tourism

The Department of Tourism, Culture, Arts, Gaeltacht, Sport, and Media estimates that there are 325,000 people in employment in the tourism sector in Ireland, representing approximately 1 in 8 workers in the State. Along the Wild Atlantic Way, tourism may account for up to 1 in 4 jobs. Reflecting this, the robustness of the tourism sector in areas such as the Shannon Estuary is critical to the economic and social fabric of the region.

In addition, increased focus on work-life balance and the rise in remote and hybrid working have placed a new importance on the quality of life offering in the Shannon Estuary area.

Natural assets, sporting and recreational amenities and the hospitality sector offering are viewed as a differentiating factor in the broader Mid-West employment proposition and are very important to supporting existing employers in Limerick, Clare and Kerry to attract and retain skilled workers.

The Shannon Estuary area is captured within the broader Wild Atlantic Way Regional Tourism Development Strategy (WAWRTDS) which is promoted by Fáilte Ireland. This Strategy is consistent with the Government's broader national strategies and with planning policy as articulated by the National Planning Framework, Regional Spatial and Economic Strategies and Local Economic and Community Plans. It is also aligned with the VICE model for sustainable tourism which has been at the heart of all Taskforce considerations. The VICE model focuses on the interaction between Visitors (V), the Industry (I), the Community that hosts them (C) and their collective impact on and response to the Environment (E).

The overarching principles of the Shannon Estuary Economic Taskforce are to harness green and sustainable opportunities. From a tourism perspective, the Taskforce believes one area where this is an opportunity is targeting slow, sustainable and active tourism.

The strategy for Limerick is centred on Limerick's designation as a Wild Atlantic Way Gateway City, which promotes the city as a vibrant urban base close to the Wild Atlantic Way route and as the ideal starting point for wider exploration of the Wild Atlantic Way. These principles are aligned with the WAWRTDS where the ambition is to *'unlock the commercial potential of the Wild Atlantic Way while ensuring that this development is sustainable, that the benefits accrue to local communities, and that our natural environment is protected'.*

The Taskforce welcomes the ambition from Fáilte Ireland to target growing tourism revenue at a faster rate in areas that are currently less visited relative to established tourism destinations. Having consulted widely with local stakeholders, the Taskforce considers there is significant potential to expand tourist numbers along the Shannon Estuary which may not have benefitted to the same extent as other areas along the Wild Atlantic Way in recent years. This potential is dependent on investment in capital infrastructure and attractions that are appealing to both domestic and international visitors.

Appropriate levels of investment can unlock the targeting of domestic and international visitors who will stay longer in the regions, spend more and/or will arrive in off-peak periods. Having considered the relative strengths of the region, the Taskforce is conscious that there are contrasting requirements for different areas. The Cliffs of Moher, supported by Fáilte Ireland, are in the final stages of completing a Cliffs of Moher 2040 Strategy and Site Masterplan. Funding has to be sought for the implementation of the strategy. Other areas that are not currently as successful in attracting visitor numbers will benefit from targeted supports facilitating greater visitor dispersion. The completion of the vision for the Listowel Rural Regeneration Development (RRDF) Project will also need to be supported to ensure its potential as a strategic economic hub for the region is realised.

A major challenge for the tourism industry in the Shannon Estuary region and across Ireland is the adequate availability of a range of different types of high-quality accommodation. This was a strong theme highlighted in consultations undertaken by the Taskforce. The accommodation shortage is also compounded by the humanitarian crisis and high percentage of accommodation allocated to accommodate refugees, particularly in this region versus national allocation. Currently 40% of Clare's registered accommodation is displaced due to the humanitarian response. It has been reported that the current lack of tourist accommodation could cost non-accommodation tourism businesses over €1.1 billion in lost revenue this year[102]. This represents a level of lost economic opportunity that cannot be sustained. The Taskforce joins the broader tourism industry in encouraging Government to work with Local Authorities and stakeholders in addressing the shortage in tourist accommodation.

102 'Challenges Facing Tourism Accommodation Providers', Fáilte Ireland, 2023

Throughout the Taskforce's consultations related to tourism, the once in a lifetime opportunity for the region represented by the 2027 Ryder Cup at Adare Manor was consistently referenced. Stakeholders emphasised the importance of expediting the delivery of key infrastructure enablers (roads, greenways, and tourism infrastructure projects, etc.) and tourism product offerings prior to 2027. The 2027 Ryder Cup will result in global media coverage and exposure providing an opportunity to showcase the region. Therefore, the Taskforce is strongly advocating for the completion of its recommendations prior to 2027 to maximise the economic benefit of these investments for the national and regional economy.

10.1 Destination Experience Development Plans

Destination Experience Development Plans (DEDP) are 5-year sustainable development plans for a destination. There are currently a number of DEDP plans being developed and implemented across the Wild Atlantic Way, including in the Shannon Estuary region. These plans are managed by Fáilte Ireland and delivered by a Destination Implementation Group in each area. The four plans currently active in the Shannon Estuary region are the Cliff Coast DEDP (North Kerry and West Clare), the Limerick Wild Atlantic Way Gateway City Strategy, the Burren and Cliffs of Moher DEDP, the Shannon Masterplan, and Lough Derg Visitor Experience Development Plan (VEDP). All Capital and Catalyst projects with these plans will require funding streams. Following extensive consultation, the Implementation Group agrees on a range of actions and priorities to be implemented over a 5-year period. They form the core of Fáilte Ireland's strategy in each area.

The Limerick Wild Atlantic Way Gateway City Strategy

The aim of the Limerick DEDP is to develop a world-class leisure tourism industry in Limerick City and diversify its currently corporate market base, and to increase Limerick's national and international profile so it becomes known as *'the newest, best city destination in Europe to visit'*. The Taskforce supports the focus on building a domestic and international leisure tourism market that will deliver substantial visitor numbers and revenue growth and economic benefits to Limerick City and county in terms of increased employment and also by helping to transform the city into a highly attractive and enjoyable place to live, visit and work.

Catalyst Projects

- The re-development of the Milk Market and the area around it as a high-quality leisure and multi-use events space.
- Delivery of an enhanced visitor infrastructure to include the development of existing attractions, e.g. King John's Castle, St. Mary's Cathedral and the Hunt Museum.
- Development of Quarters, City Trails, the development of Tourism Opportunity Sites such as a new attraction at the Cleeves site and to assess the use of the Franciscan Friary on Henry Street. In addition, examine the feasibility of a major new indoor visitor and cultural attraction for Limerick City.
- Develop existing saleable experiences and work with the industry to create high-quality new tourism experiences that can deliver a brilliant visitor experience for people coming to Limerick.

The Ryder Cup

Fáilte Ireland, in conjunction with the Ryder Cup strategy committee, chaired by Tim O'Connor, has compiled a tentative list of capital priorities for Limerick in preparation for the Ryder Cup 2027. The Taskforce strongly endorses the urgent development of these priorities which are aligned to those of the DEDPs in the region and include the following.

- The Milk Market development.
- Upgrade of Adare Visitor Centre.
- Thomond Park – support development of Entertainment/Concert facility.
- Capital investment for King John's Castle.
- Tourism Wayfinding and Orientation – expansion linking city and county as well as gateway towns.
- Investment in Adare Village Public Realm.
- Investment in City Public Realm.
- Festival and Events strategy implementation.
- Listowel RRDF Project.

The Cliff Coast DEDP

The Cliff Coast DEDP identified Loophead lighthouse and Vandeleur Walled Gardens as catalyst projects for the region and as sustainable attractions attracting and encouraging slow tourism.

In addition, a full site masterplan and detailed design has been completed. However, a funding gap will need to be addressed in order to complete the project. Clare County Council will take ownership and management of the Shannon Heritage sites in Co. Clare and these will need significant capital investment. The Council has extensive experience of managing tourism sites such as the Cliffs of Moher, Vandeleur Walled Gardens, and Loophead Lighthouse, all of which have demonstrated commercial viability to the economic benefit to the wider region, while also respecting environmental considerations.

The DEDP emphasises the importance of developing digital capacity across the region to ensure that at every stage of the visitor journey, successful destinations must be visible.

It will be important to align effort with the projects called out in Limerick Wild Atlantic Way Gateway City Strategy and the Cliff Coast DEDP.

Relevant Priority Projects

- Loophead Lighthouse.
- Vandeleur Walled Garden.
- West Clare Railway – Greenway.
- Developing trails and walks within the Cliff Coast region – Shannon Way route, North Kerry trail.
- Investment in shared water facilities in Ballybunion, Fenit and Kilkee.

10.2 Greenways

10.2.1 Logic/Rationale

A joined-up route of greenways would be a huge addition to the tourism product and quality of life offering for the Shannon Estuary and wider Mid-West area and would be entirely consistent with the VICE model of sustainable tourism the Taskforce is determined to promote. Consultations with stakeholders highlighted the 5 Ss required for a successful greenway – scenic, sustainable, strategic, segregated, see and do. The region is fortunate to already be home to a number of scenic greenway routes but the challenge now is to link up the various routes and strengthen the tourist product offering.

Greenways have brought transformative benefits to local communities across the country. With interest in walking and cycling holidays on the rise across Europe and globally, opportunities to develop the tourism potential and economic impact of greenways are supported by the Taskforce. It is estimated by Fáilte Ireland that over 114,000 visitors engage in cycling in Ireland and account for approximately €97 million of overseas visitor spend.

Economic research on the impact of the Great Western Greenway (Westport-Newport-Mulranny-Achill), estimated a full year benefit of €7.2 million to the local economy attracting domestic and international tourists. International greenway visitors were also associated with an average length of stay of 6.8 days. The development of a strong greenway offering is again aligned with attracting visitors who will stay longer in the region, spend more and arrive in off-peak periods.

The Limerick Greenway along the old Limerick to Tralee railway line has been a demonstrable success with over 500,000 users in linking Rathkeale, Newcastlewest and Abbeyfeale where there will be a significant increase in visitors and users with the recent opening of the Kingdom of Kerry Greenways further enhancing the region's tourism product.

The Kingdom of Kerry Greenways is in two sections; one section links the heritage town of Listowel to the existing Limerick Greenway, enabling the visitor to experience a 53 km greenway route. The enhancement of nearby rural and coastal trails including the Shannon Way – Ballybunion to Tarbert, Ballybunion cliff walk and Sive walk will further boost the visitor experience.

A second section links Tralee to the maritime town of Fenit offering a 13.6 km route with scenic views of Tralee Bay. The development of shared beach facilities in Fenit and Ballybunion, supported by Fáilte Ireland Platforms for Growth programme, will ensure the greenway acts as central link between land and marine based activity tourism where the greenway also connects with the trans-European EuroVelo route, a key tourism opportunity.

The Taskforce supports the intention to deliver the planned Listowel to Fenit phase of the Greenway which will then result in over 90 km of uninterrupted greenway from Limerick to Fenit, linking key heritage and historic towns such as Tralee, Listowel and Newcastle West.

To the east of the Estuary, the Taskforce notes projects such as the Limerick to Scariff Greenway which will link Limerick City Centre to Scarriff Harbour in Co. Clare, and the Lough Derg Greenway which will connect Ballina and Dromineer in Co. Tipperary along a 24 km route. Once delivered, both will significantly enhance the sustainable and active tourism offering in the region.

Fáilte Ireland's Platforms for Growth facilities at Dromineer and Ballycuggran will support both Greenway routes. The Greenway routes link to the Lough Derg Blueway network of 21 paddling trails covering 160km.

The Taskforce also supports the development of the West Clare Railway Greenway to Ennis envisaged to deliver a further enviable route.

10.2.2 Impact/Outcome

The Taskforce endorses a fully sustainable/active transport visitor experience on the Shannon Estuary, whereby visitors arriving in Shannon Airport have an opportunity to journey around the Shannon Estuary sustainably through an integrated network of Greenways and segregated cycle lanes.

Therefore, the Taskforce strongly advocates speedy examination of other segregated cycleway developments in tandem with indicated greenway developments to deliver a circuit of safe, segregated cycleways/walkways around the estuary with connectivity incorporating Ennis, Shannon, Bunratty, Limerick City, Adare, Curraghchase forest park, Foynes, Tarbert, Listowel, Tralee and Ballybunion, Kilrush, Kilkee and Nenagh. The development of these routes in addition to the EuroVelo route will provide critical tourism connections to the UK and mainland Europe.

Delivery of this important visitor infrastructure should be completed in advance of the Ryder Cup 2027 to maximise visitor experience on offer and the opportunity to showcase the region to a global audience.

This fully aligns with the green and sustainable ambition for the region and will boost the Estuary's tourism product offering.

10.2.3 Asks/Key Actions

Action	Owner	Due Date
• SEETF lends its support to Kerry County Council, Limerick City and County Council, and Transport Infrastructure Ireland (TII) to complete the Listowel to Fenit Greenway and extend it to University of Limerick via Limerick City. • SEETF lends its support to Clare County Council and Transport Infrastructure Ireland (TII) to complete the West Clare Railway Greenway. • Provide Local Authorities with the resources and staffing required to implement Greenway projects. • TII to continue engagement with Clare County Council, Limerick City and County Council, Kerry County Council, and Tipperary County Council in identifying further greenway routes to strengthen the tourism product offering and build greater connectivity. This work should also strengthen the Eurovelo offering which connects our cycling routes with Europe. Local road infrastructure which forms part of the Eurovelo should be assessed to ensure it meets safe cycling standards. • In consultation with key stakeholders and local communities, maximise the tourism and economic potential of the region's greenways by examining opportunities to link the routes and integrate local tourism amenities and saleable experiences to maximise the economic impact at a local level. • TII to liaise with Kerry County Council, Clare County Council, Limerick City and County Council, Tipperary County Council, Irish Rail and Coillte to identify the further segregated cycleways which will be required to complete a circuit of greenways and cycleways that will provide connectivity around the estuary incorporating the key visitor attractions of Bunratty, Ennis, Kilrush/ Kilkee, Tarbert, Listowel, Tralee, Ballybunion, Foynes, Curraghchase Forest and Limerick City, connecting onwards, on both Clare and Limerick sides, to integrate with Greenways on Lough Derg.	Transport Infrastructure Ireland to lead in consultation with Local Authorities, Irish Rail and Coillte	Q4, 2024

10.3 Capital Projects and Conferencing

10.3.1 Logic/Rationale

The provision of a strong tourism product offering is critical to attracting and retaining visitors for a longer period in the region, increasing tourism spend and lengthening the tourism season.

Fáilte Ireland has more than €60 million in capital funding already committed to tourism projects along the Wild Atlantic Way with further funding to be sought based on the particular needs identified in each of the Destination and Experience Development Plans.

In terms of the Shannon Estuary, the four relevant DEDPs are Burren and Cliffs of Moher, Limerick Wild Atlantic Way Gateway City, Cliff Coast (North Kerry and West Clare), and Lough Derg.

The Taskforce considers there are several priorities for capital funding on the Shannon Estuary with a blend of reinvigorating existing assets and the creation of new offerings.

- The outcomes of the 'Cliffs of Moher Strategy 2040 and Site Masterplan'.
- Investment in Bunratty Castle and Folk Park to upgrade its facilities and deliver a visitor experience that exceeds expectations.
- The development of an events facility that can cater to international conferences. While Shannon Region Conference and Sports Bureau has been successful in attracting a diverse range of conferences and events, it has also lost out on significant opportunities with the lack of suitable venues/facilities cited as the primary reason. Given the scale of ambition from both a tourist and business perspective for the region, the provision of a suitable conference and events facility is considered critical. This aligns with Fáilte Ireland's ambition to increase the number of new luxury saleable experiences to maintain competitiveness and offer compelling reasons to choose the region for business and incentive events and luxury tourism.
- While the Taskforce is eager to focus on outdoor and active offerings, the development of quality indoor attractions will also serve to extend the season and increase spend. Such offerings could include a landmark visitor centre celebrating the extraordinary development of Ardnacrusha 100 years ago, which at that time was an innovative infrastructure development of international significance. Another alternative would be to examine the potential for a Shannon 'Interpretive Centre' showcasing the river with its rich history and environmental importance.

- The need for vibrant towns and villages will be essential to retain conference and events visitors for longer in areas. In that regard, the examination of niche opportunities for local communities in locations such as Ballybunion, Ballyheigue and Listowel in Co. Kerry, Foynes, Glin, Newcastlewest, Abbeyfeale, Adare, Croom, and Askeaton in Co. Limerick, Kilkee, Kilrush, Miltown Malbay, Lahinch, Ennistymon, Ballyvaughan, and Lisdoonvarna in Co. Clare, and Killaloe, Ballina, Newport, and Nenagh in Co. Tipperary to develop accessible tourism, cultural experiences, enhancing outdoor products and tourism packages linking towns to key outdoor and indoor attractions is supported by the Taskforce, as well as the improved road and transport infrastructure required to make these locations more accessible to visitors.
- Develop the network of coastal and rural trails in the region through a sustainable development approach to create a national and international destination profile for local trails and associated experiences. For example, the Shannon Way and the Cliffs of Dooneen walkway from Beale to Ballybunion.

10.3.2 Impact/Outcome

- Protect the natural environment.
- Allow for greater dispersal of tourism activity.
- Attract higher spend and longer-stay tourists.
- Extend the tourism season.

10.3.3 Ask/key actions

Action	Owner	Due Date
• Clare County Council to engage with stakeholders to upgrade the facilities of Bunratty Castle and Folk Park and deliver a world-class visitor experience.	Clare County Council	Q4, 2024

Action	Owner	Due Date
• Fáilte Ireland to engage with Shannon Region Conference and Sports Bureau and the Local Authorities in respect of the development of a suitable conference and events centre. • Fáilte Ireland to work with ESB in assessing the potential for a landmark visitor centre at Ardnacrusha marking its contribution to the Irish State. • Fáilte Ireland to work with the Local Authorities in the region in assessing the potential for a Shannon 'Interpretive Centre' showcasing the river with its rich history and environmental importance. • Fáilte Ireland to work with Clare County Council, Kerry County Council, Tipperary County Council and Limerick City and County Council in identifying quality indoor attractions that will strengthen the tourism offering of the 4 DEDPs.	Fáilte Ireland in collaboration with Shannon Region Conference and Sports Bureau, Local Authorities and ESB	Q4, 2024

10.4 Forestry Development

10.4.1 Logic/Rationale

Consistent with the theme of slow, sustainable and active tourism, the Taskforce consulted widely on the prospect of developing one of the Coillte assets in the Shannon Estuary. This concept takes inspiration from initiatives such as Avondale Forest Park which has exceeded all expectations in visitor numbers demonstrating the demand and value of such an amenity.

The Taskforce welcomes the WAW Regional Tourism Development Strategy commitment to work closely with strategic partners such as the Office of Public Works (OPW), National Parks and Wildlife Service (NPWS), Coillte and others to unlock the tourism potential of state-owned natural assets in a sustainable way.

The Taskforce recognises that the development of natural assets must adhere to conservation obligations and be managed sensitively. However, the Taskforce also advocates that tourism and economic growth considerations should also be accommodated in assessing the potential development of state-owned sites to the benefit of the wider region. Ideally such a site could be developed close to existing urban centres and/or areas of potential tourist concentration such as those facilitated by the expanding greenway network.

10.4.2 Impact/Outcome

Delivery of a landmark forestry park on a similar scale to Avondale House and Forest Park providing an important family attraction and increasing visitors to the region.

Due consideration should be given to Curraghchase Forest Park, which has been identified by Fáilte Ireland as having significant potential.

Continue to support and enhance existing forest recreational parks in the estuary region including Kilrush, Cratloe, Foynes, Lyreacrompane, and Glanageenty, recognising their potential as outdoor recreational amenities.

10.4.3 Ask/key actions

Action	Owner	Due Date
• Establishment of a Working Group led by Fáilte Ireland to include Coillte, the Office of Public Works, National Parks and Wildlife Service (NPWS), Limerick City and County Council, Kerry County Council, and Clare County Council. • Working Group to identify most appropriate site to develop plans for Forest Park along Shannon Estuary. • Funding provided through Fáilte Ireland, Coillte and the relevant Local Authority to deliver on the project(s) with the ambition to be delivered in advance of the Ryder Cup 2027.	Fáilte Ireland in collaboration with NPWS, Coillte, OPW and Local Authorities	Q3, 2023 end 2024 2025

10.5 On-Water Strategy

The Shannon Tourism Masterplan sets out a bold and integrated framework for sustainable tourism development along the Shannon and Shannon Erne Waterway, repositioning the region as a key tourism destination within Ireland's Hidden Heartlands, with world class visitor experiences based on the region's natural and cultural assets. On and off water activities are key to the delivery of the Shannon Masterplan. Shannon experiences will involve direct contact with water. Wherever possible, they will encourage visitors to get into, onto or be near the river and lakes. Otherwise, they will highlight the importance and impact of water. The Lough Derg VEDP aligns to and is supported by the Shannon Tourism Masterplan, implementation of both plans has already begun. All of the projects within the Masterplan will require funding.

10.5.1 Logic/Rationale

At its heart, one of the key competitive advantages of the Shannon Estuary for tourists is its intrinsic relationship with water – both the Wild Atlantic and the lower reaches of Ireland's longest river, the Shannon, as it flows down from Lough Derg leading into the Estuary.

That is why the Taskforce strongly recommends support for the Shannon Tourism Masterplan Lough Derg, VEDP and the Cliff Coast DEDP.

Consultations with stakeholders and Fáilte Ireland demonstrated a strong desire to provide product offerings that take advantage of this natural asset. Again, this ambition wholly aligns with the Taskforce's slow, active, and sustainable tourism model.

The Shannon Tourism Masterplan and the Cliff Coast DEDP highlight the range of product offerings available to tourists with a keen interest in water activities. This can include kayaking, water taxis, cruises, angling, sea-swimming, paddle-boarding, yachting, rowing, etc. In order to develop these offerings, Fáilte Ireland, working in conjunction with the Shannon Foynes Port Harbour Master, Local Authorities, and Waterways Ireland, can identify which activities are most appropriate for different locations. This can result in a balanced water-based product offering across the region.

10.5.2 Impact/Outcome

- A comprehensive water-based product offering that maximises the opportunities presented by Lough Derg, the lower Shannon, its Estuary and the Atlantic including connecting with Tralee Bay, Kilrush and Kilkee Bay on the mouth of the estuary.
- Allow for greater dispersal of tourism activity.
- Attract higher spend and longer-stay tourists.
- Extend the tourism season.
- Explore the potential to link greenways to blueways unlocking the potential to explore new landscapes.

10.5.3 Ask/key actions

Action	Owner	Due Date
• Support the actions within the Cliff Coast DEDP, and the Shannon Tourism Masterplan and the Lough Derg VEDP. • Fáilte Ireland to convene a working group with relevant stakeholders such as the Shannon Foynes Port Company Harbour Master, Waterways Ireland, and Local Authorities in developing an overarching water strategy. • Product development priorities on the estuary to be identified in the strategy and funding allocated.	Fáilte Ireland in collaboration with Clare County Council, Limerick City and County Council, Kerry County Council, Shannon Tourism Masterplan, Shannon Foynes Harbour Master and Waterways Ireland	Q3, 2023 Q2, 2024

10.6 Festivals and Events

10.6.1 Logic/Rationale

A recurring theme of the Taskforce's consultations was the potential for enhanced collaboration across county boundaries and respective DEDPs to market the extensive range of attractions and activities around the Shannon Estuary. This would enable a compelling product offering to be marketed to tourists, increasing local spend, and lengthening the season into the shoulder periods.

This concept is especially valuable when reviewing the rich array of festivals and events which cater to people of all ages, interests, and abilities.

The Taskforce recommends the establishment of a Shannon Estuary Festivals and Events calendar that can be hosted on the shannonestuaryway.ie website and promoted by Fáilte Ireland. The Taskforce also proposes that Fáilte Ireland, together with Local Authorities and event organisers, consider how the range of events/festivals can best be promoted to lengthen the tourist season from early spring through to autumn. This would provide a strong product offering for an extended period to the benefit of the tourism sector in the region and the local economy.

10.6.2 Impact/Outcome

- Lengthening the tourism season.
- Strengthening the brand of the region as the home of both active and cultural events.
- Providing a coordinated calendar of events across the entire Shannon Estuary.

10.6.3 Asks/Key Actions

Action	Owner	Due Date
• Fáilte Ireland to convene a meeting with Local Authorities and event organisers to consider the coordinated timing of events across a lengthened tourist season. • Launching a combined Shannon Estuary Events and Festivals calendar by Fáilte and the Local Authorities with an associated marketing budget.	Fáilte Ireland in collaboration with Local Authorities	Q3, 2023 Q1, 2024

10.7 Sustainable Cruising

10.7.1 Logic/Rationale

The Tourism subgroup of the Taskforce consulted extensively with stakeholders on expanding the burgeoning cruise ship industry. This industry is being targeted by the Shannon Foynes Port Company in collaboration with Limerick City and County Council, Kerry County Council, Clare County Council, and Shannon Airport.

Economic analysis undertaken by Cruise Europe points to a high-growth sector with 34% growth between 2010 and 2019. In 2019, Cruise Europe estimate that 53.96 million passengers and crew members visited European shores.

Consultations with industry highlighted the demand for berthing locations in Ireland and particularly on the west coast. Cruise Europe estimates that 58% of homeport passengers stay in the destination before or after the cruise and stay for an average of 2.3 nights at the homeport destination. The effective co-location of Shannon Airport with Shannon Foynes Port Company makes the Shannon Estuary area the ideal location to benefit from the spill over benefits associated with cruise homeport locations.

Industry surveys further indicate that 30-40% of cruise passengers return on a land holiday to ports their cruise docks at. In effect, the cruise ship acts as a *'moving billboard'* allowing the coastline to showcase its attraction for its clients. Historically, Shannon Foynes Port was limited in the service offering it could provide to the cruise industry, but these limitations will now be overcome by 2027/2028 in light of planned developments under the port's Vision 2041 Strategy.

Members of Cruise Lines International Association (CLIA), the largest cruise industry trade association, have committed to reaching net-zero carbon emissions by 2050, and to reducing carbon rates by 40% by 2030 (as compared to 2008 levels)[103]. The Taskforce believes an opportunity exists for Shannon Foynes Port to develop the port-side infrastructure needed to support zero-emissions docking, cleaner alternative fuels, and other emerging initiatives to decarbonise the sector.

The Taskforce recommends that current tentative efforts of attracting the cruise industry should be bolstered through the formation of a dedicated working group that can address the industry's greener cruising requirements. In addition to developing compelling onshore itineraries and product offering, requirements for port capacity, onshore infrastructure (e.g., sea-bridge and dockside terminal facilities, road, passenger rail, grid connectivity), supply of renewable energy, and turnaround port (Shannon Airport) connectivity should also be examined.

10.7.2 Impact/Outcome

Developing the cruise industry will:

- result in increased access to the luxury tourism market with significant potential for local spending on excursions, hospitality, accommodation etc;
- align with the Taskforce's vision of establishing the Shannon Estuary as a destination of choice for slow, sustainable and active travel;
- provide another potential demand source for the renewable energy resource which will be available in the region;
- support the existing visitor attractions and tourism product in Limerick, Clare and Kerry facilitating itineraries within a 90-minute radius of the Estuary.

103 'Sustainable ships: The world's most eco-conscious cruises', CNN Travel, 2023 / Cruise Lines International Association

10.7.3 Ask/key actions

Action	Owner	Due Date
• Establishment of a working group led by Shannon Foynes Port Company with membership comprising Cruise Europe, Limerick City and County Council, Kerry County Council, Clare County Council, and The Shannon Airport Group. • Working Group to develop key targets for number of cruises docking at Shannon Estuary by 2027/2030 with actions identified to realise this target. • Stakeholders such as Excursions Ireland to assist in developing a compelling product offering for cruise ship passengers that dock in Foynes. • Development of passenger rail services between Foynes and Limerick City, to facilitate increased tourism footfall similar to increases in cruise ship passenger use of rail between Cobh and Cork City. • Fund a business case analysis for the provision of passenger rail services between Foynes and Limerick (line currently being brought back into use for freight services in support of port activities) linking to important residential/business areas on the line for overall economic benefit for the region.	Shannon Foynes Port Company to lead in consultation with Cruise Europe, Local Authorities, The Shannon Airport Group	Q3, 2023 Q1, 2024
• Fáilte Ireland to assess the feasibility of 'Green Cruise Tourism' as an economic driver for the Shannon Estuary region.	Fáilte Ireland	Q3, 2024

11

Recommendations on Implementation

In this section we propose some recommendations on implementation.

In line with standard practice for reports to Government, our range of actions have proposed that responsibility for delivering many of the required actions be assigned to the relevant State institutions. However, the Taskforce strongly advocates for biannual reporting on progress across all actions in this report. This should be centrally coordinated within the Department of Enterprise, Trade and Employment and published on their website.

To support industries in creating and implementing programmes to achieve their own 2030 Carbon emission reduction targets, we propose amalgamating the Limerick/ Clare and Tipperary Energy Agencies and providing them with increased resources to do this work in the wider region. This is an approach that is used successfully in Europe.

For the decarbonisation of industrial heat by biomethane opportunity, we recognise the urgency of catching up with our European neighbours so that existing investment by local industries is protected and further can be attracted within the Climate Action Plan emissions ceiling. We propose that the work we have started should be progressed by the Irish Bioeconomy Foundation, based at the National BioEconomy Campus in Lisheen Co. Tipperary, in partnership with Government Departments such as DECC, DAFM and DETE. We request the resources and funding to enable this.

However, the Taskforce considers that a new specific governance framework is required to drive the economic opportunity presented by offshore wind. A 'whole of Government at pace' approach is essential given our view that: (a) this is effectively a new industrial revolution, and (b) there is a global race underway to secure limited supply chain capacity and to avail of industrial demand opportunities associated with extremely large quantities of green energy.

The framework should consist of complementary layers to drive the industrial revolution.

11.1 Cabinet Committee on Economy and Investment

This Committee is chaired by the Tánaiste and attended by the Minister for Enterprise, Trade and Employment, the Minister for the Environment, Climate and Communications, and Transport, the Minister for Finance, the Minister for Public Expenditure and Reform and the Minister for Tourism, Culture, Arts, Gaeltacht, Sport and Media.

Progress on implementation of an industrial strategy for offshore wind should be reported to this group biannually. The mandate of the industrial strategy should be to maximise the economic opportunity associated with the stated Government ambition of delivering at least 37 GW of offshore wind by 2050.

Prior to progressing to Cabinet Committee, the industrial strategy on offshore wind will be subject to consideration by the cross-Government Senior Officials Group on Economy and Investment.

11.2 Inter-departmental Group Driving Implementation of the Industrial Strategy for Offshore Wind

An industrial strategy for offshore wind should be published in the next 12 months by the Minister for Enterprise, Trade and Employment building on recommendations within this report. This strategy should complement the ongoing work of the Offshore Wind Delivery Taskforce which is led by the Department of the Environment, Climate and Communications.

Implementation of the Strategy should be overseen by the Minister for Enterprise, Trade and Employment through an interdepartmental group consisting of key Government Departments and Agencies. The Minister should then report to the Cabinet Committee on Economy and Investment every six months.

11.3 Dedicated Enterprise Agency for Floating Offshore Wind

Consultations with industry and other stakeholders by the Taskforce have consistently highlighted the extensive administrative burden faced by prospective offshore wind developers and key stakeholders in the wider offshore wind ecosystem. There is also a perception of mixed signals having been presented by the Government exemplified by sudden shifts in policy that can damage investor confidence and the credibility of industry engagement. There are a multitude of state bodies to engage with at national and local level, complex legislation, grid considerations, environmental requirements and other issues to navigate. This can make the Irish business case less attractive relative to other jurisdictions for prospective developers.

Building on the established success and reputation of Enterprise Ireland in building Irish enterprise capacity, and IDA Ireland in attracting FDI, the Taskforce proposes the establishment of a dedicated Floating Offshore Wind Development Agency, composed of singularly focused and appropriately qualified staff who can credibly engage with international developers, at both commercial and technical levels. This will act as the first/one stop shop for all prospective offshore wind developers and key stakeholders in the wider offshore wind ecosystem.

This centre of excellence and expertise can radically simplify the journey for developers and provide a link between national policy, regional implementation and the domestic supply chain. Most importantly, it will benefit green energy production at scale and support balanced regional economic development.

As ultimately well over €100 billion of private investment and technology needs to be attracted, we recommend that this Agency is highly customer focused, and located in the Estuary region, close to customers and to where the floating wind turbines for all Irish waters will be manufactured. A Mid-West location is also central to other proposed floating offshore wind areas, and Dublin.

We propose that IDA and EI retain responsibility for attracting new industries to use this green electricity and add value. It will be essential that all three Agencies work very closely together and that their reporting structures enable that as much as possible.

11.4 Regional Implementation Group

The Taskforce considers that there is a need for key local stakeholders to work in unison and be aligned with national policy to maximise the economic opportunity associated with offshore wind. The Taskforce has seen first-hand the value of bringing representatives from industry, higher education, local authorities, ports/airports and central Government together to collectively consider the issues that need to be addressed for the industry to thrive. The feedback we have received from industry is that they also see huge value in such structures.

Informed by this, the Taskforce strongly endorses the establishment of a standing Shannon Estuary Steering Committee. It is proposed that this group will have a core membership of the relevant statutory bodies in the region and be assisted by others as required. These statutory bodies are the respective Local Authorities (Clare County Council, Kerry County Council, Limerick City and County Council and Tipperary County Council) along with (representation of) regional HEI (UL, TUS, MTU), Shannon Foynes Port Company and Shannon Airport. The Steering Committee should be supported by a small project management team with the relevant specialist skillsets funded initially through central or local government. In time, there may be scope for key stakeholders in the region to fund/second staff to this structure given the mutual benefits of such an arrangement. This is similar in nature to the phased approach taken to funding industry clusters by Enterprise Ireland. The Steering Committee's ongoing work can be supported as appropriate by representation from industry, higher education, central government, enterprise agencies and society.

As this report details, there are a number of recommendations for further specialist studies and areas of research to be commissioned. The Taskforce has proposed that these pieces of research are led by the new Steering Committee. Given the technical nature of this work, it is imperative that the professional project management team that will support the Steering Committee has the appropriate skillset, experience and expertise to manage these complex projects and ensure public monies are managed effectively.

The Steering Committee should be tasked with a number of functions:

Firstly, they should develop a coherent framework strategy for the region that maximises the opportunities from offshore wind. Each strategy will be shared with the Interdepartmental Group driving the industrial strategy for offshore wind. The key considerations of each regional strategy will be informed by the national Industrial Strategy and the strategic plans of the Steering Group members and could include: the following.

- Promotion of key infrastructural requirements, in accordance with the strategic plans of the Steering Group members, to facilitate industrial demand and to be delegated to respective Local Authorities and relative agencies as appropriate. This could include zoning of lands, environmental assessments and provision of roads, digital infrastructure, etc.
- Identification of supporting infrastructural requirements (such as water, wastewater, housing, etc.) to facilitate population growth associated with new employment opportunities and to be delegated to respective Local Authorities and agencies as appropriate.
- Identification of skills requirements and supply capacity for these at regional and national level.

The Steering Committee could also receive updates on relevant national and local developments. For example, this could include updates from Government on national implementation, from the port and industry on their developments, from universities and education and training bodies on the skills agenda, and from enterprise agencies in respect of both supply chain and new industrial demand activity.

Finally, the Steering Committee could act as a first/one stop shop for prospective developers/new industry who would value engagement with one entity which represents a coherent view of regional stakeholders.

While this Steering Group model is proposed for the Shannon Estuary region, it may serve as a prototype for similar structures at other key points around Ireland's coastline which will be important hubs for economic development associated with the offshore wind sector. On that basis, the Taskforce advocates that a representative from this regional Steering Group should be a member of the offshore wind industrial strategy implementation group and the high-level Government/industry forum which should be led by the Department of An Taoiseach.

12

Appendices

12.1 Appendix 1 – Supporting Information

12.1.1 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 aaction plan with specific steps in areas of potential.

12.1.2 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.

12.1.3 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 09 March to 13 April, whilst the second took place following the establishment of the taskforce and was open from the 16 June to 29 July. 42 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.

12.1.4 External Support

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.

12.2 Appendix 2 – Alignment with National, Regional and Local Policy

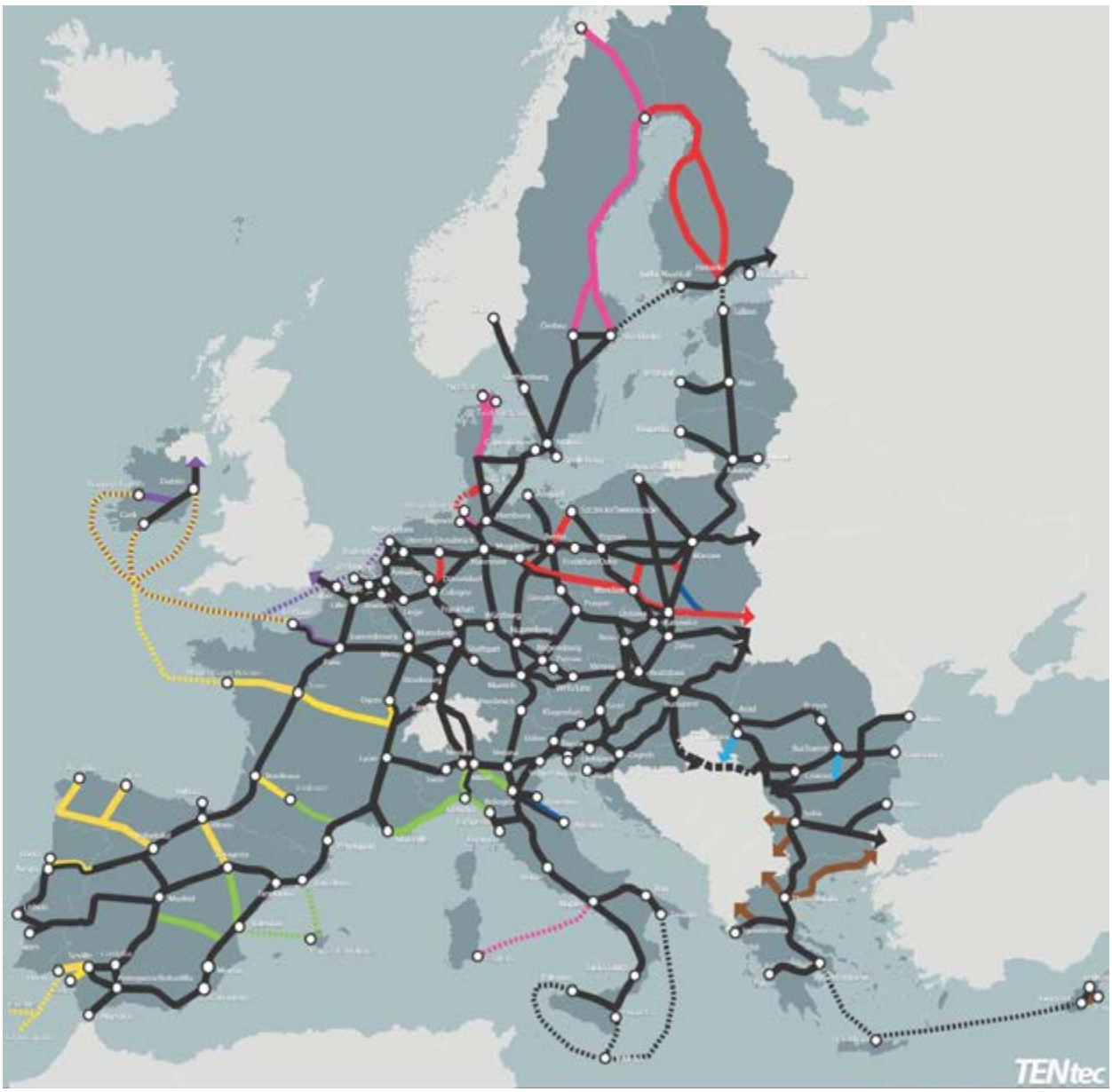
Statutory and policy requirements at national level to mitigate climate change and increase renewable energy generation are informed by higher level international and European legislation. This policy context contributes directly to establishing a clear and urgent need to leverage the opportunities of the Shannon Estuary and the energy potential of the west coast of Ireland. The growth of the offshore renewable energy sector presents an opportunity for the Shannon Estuary in respect of new infrastructure and supply chain opportunities. As illustrated in the chapters below, there is significant policy at international, national, and regional level to enable and support the Shannon Estuary as a major receiving node for offshore wind electricity generated off the west coast of Ireland.

Some elements of this policy alignment appendix in relation to offshore renewable energy and enabling infrastructure have been based on original text contained in Shannon Foynes Port Company's Vision 2041 Strategic Review document prepared by Bechtel Infrastructure Ireland Limited for Shannon Foynes Port Company.[1]

12.2.1 International and EU Policy

TEN-T network

Shannon Foynes Port Company (SFPC) is recognised by the European Commission as one of the three core ports in Ireland under the EC Trans-European Transport Network[2] (TEN-T). The TEN-T network seeks the development of a Europe-wide network of what is considered the most important maritime shipping routes and ports as well as road rail and airport terminals.



Modified Core Network Corridors under Connecting Europe Facility 2 (Source: European Commission)

The TEN-T network is vital to contribute toward European cohesion, strengthening the internal market and forming the backbone for transportation in Europe's Single Market.

For inclusion in the 'core' network, ports (including SFPC) must enjoy significant volumes of freight and have a high level of international connectivity. Significantly, SFPC comprises part of two corridors including the North Sea-Mediterranean (NS-M) Core Network Corridor and the Atlantic Corridor. From 2021, the EC enhanced and prioritised SFPC by adapting the TEN-T core network corridor and extending the NS-M Core network Corridor to include SFPC. This means that not only is SFPC defined as a Core Port in the priority Ten-T Network but the North Sea Mediterranean Core Corridor within the Core Network has been extended to include SFPC to ensure better connectivity of core ports and cross border projects (figure 14 above). This will strengthen the direct shipping linkages between Shannon Foynes and other EU ports on the TEN-T network.

United Nations Framework Convention on Climate Change

The United Nations Framework Convention on Climate Change (UNFCCC) is an international environmental treaty negotiated in 1992. Its ultimate objective was to achieve "...stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system"[3].

Every year the UNFCCC hosts the Conference of Parties (COP) to assess progress in dealing with the issue of climate change. At COP21 in Paris in 2015 the first-ever universal, legally binding global climate deal was brokered, namely The Paris Agreement. That agreement sets out a global action plan to put the global community on track to avoid dangerous climate change by limiting global warming to well below 2°C above pre-industrial levels and pursuing efforts to limit it to 1.5°C above pre-industrial levels.

12.2.1.1 EU Climate Directives and Policies

The various directives and policies of the EU set a clear mandate for each member state to transition to sustainable, renewable energy and reduce greenhouse gas emissions. The EU Directive on the Promotion of the Use of Energy from Renewable Sources (2009/28/EC)[4] set a target of 20% of EU energy consumption from renewable sources by 2020 and a 20% cut in greenhouse gas emissions by 2020, the so-called 20:20:20 plan. As part of this Directive, Ireland's overall national target for the share of energy from renewable sources in gross final consumption of energy in 2020 was 16% (increased from 3.1% in 2005). Whilst Ireland has made significant progress in achieving its 2020 renewable electricity targets it did not meet its electricity target of 40% of energy from renewable sources[5,6].

2030 Climate and Energy Framework

In October 2014, EU leaders adopted the 2030 Climate and Energy Framework which was subsequently updated in 2018[7]. This framework provides a long-term perspective beyond 2020 targets. The 2030 Climate and Energy Framework sets out three key targets for the year 2030:

- At least 40% cuts in greenhouse gas emissions (from 1990 levels)
- At least 32% share of renewable energy
- At least 32.5% improvement in energy efficiency (from 1990 levels).

Further to this, the European Commission in 2016 published its 2030 emissions targets break down for each Member State. While the overall EU target is a reduction of 40% on 1990 greenhouse gas emissions by 2030, every Member State negotiates an individual target. Ireland's target is to reduce its emissions by 30% relative to its 2005 emissions[8].

A Roadmap for Moving to a Competitive Low Carbon Economy in 2050

Looking beyond 2020, in compliance with the EC Energy Roadmap 2050, an EU target of at least 27% has been indicated as the share of renewable energy consumed in the EU in 2030. The Roadmap has informed national policy and has influenced the Climate Action Plan (2021) which sets out actions to reduce climate change towards 2050[9].

Recast Renewable Energy Directive (RED2)

An agreement was made in Europe between negotiators for the European Commission, the European Parliament and the European Council in 2018 with regard to increasing renewable energy use in Europe. The new regulatory framework includes a binding renewable energy target for the EU for 2030 of 32% with an upwards revision clause by 2023. This agreement will help the EU meet The Paris Agreement goals[10].

European Green Deal (2019)

The European Green Deal is a growth strategy for the EU which aims to transform the EU into a fair and prosperous society, improving quality of life with modern, resource efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use. The EU aims to do this by becoming climate-neutral by 2050. A key principle for achieving this will be to develop an energy sector based largely on renewable resources.

EU Strategy for Offshore Renewable Energy

In July 2020, the EU launched a roadmap for its Strategy for Offshore Renewable Energy[11]. The aim of the roadmap was to inform citizens and facilitate participation in consultation activities. This roadmap for the Strategy for Offshore Renewable Energy also highlighted the EU response to the COVID-19 pandemic with regards to offshore renewable energy.

"As Europe deals with the effects of COVID-19 it is crucial to avoid significant delays in offshore renewables investment, as this sector can also ensure the recovery leads to sustainable growth."

The aim of the strategy is to ensure that offshore renewable energy can help reach the EU's ambitious energy and climate targets. The European Commission estimates between 240 and 450GW of offshore wind power is needed by 2050 to keep temperature rise below 1.5°C. The Strategy proposes to increase Europe's offshore wind capacity from its current level of 12GW to at least 60 GW by 2030 and to 300 GW by 2050.

EC REPowerEU Plan

In 2022 the European Commission presented its response to the hardships and global energy market disruption caused by Russia's invasions of Ukraine. The EC outlined their objectives to "ending the EU's dependence on Russian fossil fuels" and "tackling the climate crisis".

The measures in the REPowerEU Plan seek to phase out Europe's dependency on Russian fossil fuels through "energy savings, diversification of energy supplies, and accelerated roll-out of renewable energy". It recognises that a significant "scaling-up and speeding-up of renewable energy" will accelerate EU energy independence and assist in the green transition.

The European Commission proposes to "increase the headline 2030 target for renewables from 40% to 45%" under the 'Fit for 55' package of European Green Deal legislation. This increased ambition recognises the need to "tackle slow and complex permitting for major renewable projects", and a targeted amendment to the Renewable Energy Directive to recognise renewable energy as of overriding public interest[12].

12.2.2 National, Regional, and Local Policy

12.2.2.1 National Policy

National energy and climate policy is derived from the overarching European policy which aims to unify the European Union in energy and climate goals.

Climate Action and Low Carbon Development (Amendment) Act 2021

The Climate Action and Low Carbon Development (Amendment) Act 2021[13] provides for the approval of plans by the Irish Government in relation to climate change for the purpose of pursuing the transition to climate neutral economy by the end of the year 2050. The Act establishes a legally binding framework with clear targets and commitments set in law and will ensure the necessary structures and processes are embedded on a statutory basis to ensure national, EU and international climate goals and obligations are achieved.

The Act embeds the process of carbon budgeting into law. The Government is required to adopt a series of economy-wide five-year carbon budgets, including sectoral targets for each relevant sector, on a rolling 15year basis, starting in 2021. This includes a provision for the first two five-year carbon budgets to equate to a total reduction of 51% emissions over the period to 2030, in line with the Programme for Government which commits to a 7% average yearly reduction in overall greenhouse gas emissions over the next decade, and to achieving net zero emissions by 2050. This Act will drive implementation of a suite of policies to help achieve this goal.

The Act also requires that all Local Authorities prepare individual Climate Action Plans to include both mitigation and adaptation measures, representing a mandate for Local Authorities to adapt to climate change.

Climate Action Plan (2021)

First published in June 2019, the Climate Action Plan (CAP) is fundamental in implementing the Climate Action and Low Carbon Development (Amendment) Act 2021. A new updated CAP was published in December 2022[14] which updates the targets for renewable energy by 2030 from the previous 70% to now 80% target. Similar to the 2019 CAP, the target is to be achieved by providing at least 5GW of offshore wind energy by 2030.

To achieve this target, the CAP deems it necessary to:

- Ensure MARA commences the consenting processes under its remit (EL/23/8),
- Publish a system-wide plan for the delivery of ORE in Ireland (EL/23/9),
- Deliver onshore and offshore RESS auctions as per the annual RESS auction calendar (EL/23/10)
- Ensure that hybrid technology grid connections are facilitated, and remaining barriers removed (EL/23/14)
- Publish updated Interconnection Policy to reflect Ireland's increased climate and energy ambition, the revised EU TEN-E Regulation, Brexit challenges and the increased significance of hybrid interconnectors (EL/23/16)
- Following completion of DECC Interconnector Policy, CRU to update its Interconnection Policy (EL/23/17)

National Energy and Climate Plan 2021-2030

Ireland's National Energy and Climate Plan (NECP)[15] was first submitted to the European Commission on the 31st December 2018. The NECP is a consolidated plan which brings together energy and climate planning into a single process for the first time. The NECP 2021 – 2030 was updated in June 2021. The 2021 publication was prepared to incorporate all planned policies and measures that were identified up to the end of 2019 and which collectively target the delivery of a 30% reduction by 2030 in greenhouse gas emissions from 2005 levels.

Under the Programme for Government: Our Shared Future[16], Ireland is committed to achieving a 7% annual average reduction in greenhouse gas emissions between 2021 and 2030. The NECP was drafted in line with the current EU effort-sharing approach, before the Government committed to this higher level of ambition, and therefore does not reflect this higher commitment. Ireland is currently developing those policies and measures and intends to integrate the revision of the NECP into the process which will be required for increasing the overall EU contribution under The Paris Agreement.

The NECP identifies three phases to developing offshore wind in Ireland:

- Phase 1, which will take place in the first half of the NECP's timeframe, includes early projects, as well as the development of a consenting regime for offshore wind;
- Phase 2 focuses on achieving the 2030 target of at least 3.5GW of offshore wind, moving towards full decarbonisation; and
- Phase 3 looks beyond 2030, at longer-term options.

Project Ireland 2040: National Planning Framework and Revised National Development Plan 2021-2030

Project Ireland 2040 (PI2040)[17] includes the National Planning Framework (NPF) which sets the overarching spatial strategy for the next 20 years and the National Development Plan (NDP) which sets out the 10-year investment strategy. Whilst the NPF sets out a spatial hierarchy of urban centres that are programmed for significant population and economic growth over the plan period, the NDP sets out funding to underpin key Government priorities, including measures to enable a step-change in investment to ameliorate the effects of climate change. Securing the alignment of the NPF and the NDP will be achieved through delivery of National Strategic Outcomes (NSOs).

Under NSO 8 'Transition to Sustainable Energy', the NPF states that "the development of onshore and offshore renewable energy is critically dependent on the development of enabling infrastructure including grid facilities to bring the energy ashore and connect to major sources of energy demand. We also need to ensure more geographically focused renewables investment…".

The NDP recognises that "Ireland's ORE ambitions will entail investment of tens of billions of euros… and development of indigenous supply chains and port infrastructure. The significant role for ports, and need for associated infrastructure development in Irish ORE development is recognised".

National Marine Planning Framework

In May 2021, the Government published Ireland's first national framework for managing marine activities, the National Marine Planning Framework (NMPF)[18]. The objective of the Framework is to provide for a more strategic, plan-led and efficient use of marine resources.

The NMPF supports the establishment of Ireland as a world leader in offshore renewable energy deployment, highlighting the importance of offshore renewable energy in Ireland's decarbonisation journey and promoting a number of policies, including:

ORE Policy 1 "Proposals that assist the State in meeting the Government's offshore renewable energy targets, including the target of achieving 5GW of capacity in offshore wind by 2030 and proposals that maximise the long-term shift from use of fossil fuels to renewable electricity energy, in line with decarbonisation targets, should be supported…".

ORE Policy 11 "Where appropriate, proposals that enable the provision of emerging renewable energy technologies and associated supply chains will be supported".

ORE Policy 10 "Opportunities for land-based, coastal infrastructure that is critical to and supports development of ORE should be prioritised in plans and policies, where possible". Further, the MPF recognises that "Ports can support the growth of other marine activities such as offshore renewable energy, including emerging technologies such as floating offshore wind, through the provision of support services and facilities including for import and export of equipment and for vessels supporting the industry".

Offshore Renewable Energy Development Plan

In 2014, the Government published the Offshore Renewable Energy Development Plan (OREDP)[19]. The OREDP sets out key principles, policy actions and enablers for delivery of Ireland's significant potential for offshore renewable energy. The OREDP provides a framework for the sustainable development of Ireland's offshore renewable energy resources and identifies opportunity for the following:

- The sustainable development of Ireland's abundant offshore renewable energy resources;
- To increase indigenous production of renewable electricity;
- To contribute to reductions in our greenhouse gas emissions;
- To improve the security of our energy supply; and
- create jobs in the green economy.

Looking towards 2030 and 2050, the OREDP sets out goals which will require the expansion of renewable generation including offshore wind. The OREDP actions seeks to:

- "Develop the Supply Chain for the Offshore Renewable Energy Industry in Ireland… export renewable electricity which could bring potentially significant employment creation opportunities. In addition to construction, and operations and maintenance jobs, the supply chain for wind generation will be galvanised as such projects are likely to form a significant part of the initial export activity.
- "Ensure Appropriate Infrastructure Development: The development of offshore renewable energy is critically dependent on the development of enabling infrastructure at a number of points in its value chain, including grid and port facilities."

It should be noted that OREDP II is currently being developed by the Department of the Environment, Climate and Communications and is expected to be available for consultation during 2022.

The National Development Plan 2018-2027 (NDP)

The NDP makes the point that for Ireland, connectivity to Europe and the rest of the world is a key economic driver. The NDP recognises that major capital works are necessary in Foynes and that improvements to the N21 and N69 are necessary to improve connectivity to Foynes.

National Ports Policy 2013

The National Ports Policy[20] was published by the Department of Transport, Tourism, and Sport in 2013 and represents a detailed and descriptive policy document outlining the categorisation of Ireland's ports in the context of the EU TEN-T transportation network as well as corporate governance and environmental issues.

As Ireland's second largest port in terms of total throughput/trade handled and its access to deep water resources, SFPC was designated by the Government in the National Ports Policy as a Tier 1 Port of National Significance. This means that the port must continue to play a key role, both regionally and nationally, in meeting the external trading requirements of the Irish economy, and that the continued successful commercial development of the port represents a key policy objective in this regard.

As noted in the National Ports Policy, "The continued commercial development of Shannon Foynes Port Company is a key strategic objective of National Ports Policy" and "It is the Government's position that those ports considered to be of national significance must be capable of the type of port capacity required to ensure continued access to both regional and global markets for our trading economy."

This implies that government policy anticipates that the Tier 1 Ports of National Significance, including Shannon Foynes Port, will lead the response of the State commercial ports sector in addressing the future national port capacity requirements.

Policy Statement on the Facilitation of Offshore Renewable Energy by Commercial Ports in Ireland, 2021

Pending a review of overall National Ports Policy in 2022, the Department in conjunction with the Irish Maritime Development Office (IMDO), carried out an assessment of the options for Irish commercial State Ports to facilitate the ORE sector and assist in Ireland achieving its emission reduction targets[21].

While the primary function of the State ports is to facilitate maritime transport, it is recognised that ports are also enablers of other activities. The significant role that ports can play in facilitating the development of the Irish offshore renewable energy sector is widely recognised.

The key recommendation arising out of the assessment is that a number of port facilities will be required for deployment activity and a multiple of ports will be needed for O&M operations. The Policy Statement recognises that ORE developments will typically require both large-scale port infrastructure for project deployment and smaller-scale port facilities to provide ongoing operation and maintenance (O&M) services. Around the Irish coast, ORE projects will develop in several phases.

The Policy Document advises that the Offshore Renewable Energy Development Plan II will inform the identification of the optimal areas for renewable technologies through a comprehensive assessment of all available data and information. This will include identification of areas off the South West and West coasts which typically have deeper waters, and a less developed onshore transmission system than on the East coast. Floating turbines, where the turbines are anchored to the seabed rather than directly fixed, will provide the opportunity to develop the deeper waters in the South West and West coasts. The potential to generate green hydrogen from offshore wind will also provide an opportunity for development in these areas that is not fully electricity grid dependant. In that context, the Policy Document recognises that ports such as Shannon Foynes Port can also play a significant part in the provision of the required large scale port infrastructure.

12.2.2.2 Regional Policy

The Regional Spatial and Economic Strategy for the Southern Region 2019-2031

The Regional Spatial and Economic Strategy for the Southern Region (RSES)[22] is a 12-year strategic plan which identifies regional assets, opportunities and pressures and provides appropriate policy responses in the form of Regional Policy Objectives (RPOs). At this strategic level, it provides a framework for investment to better manage spatial planning and economic development to sustainably grow the Southern Region to 2031 and beyond.

The marine economy is identified as an emerging sector in the RSES (Objective RPO76) with the Shannon Estuary, its ports and future development identified as a significant economic driver and transport corridor in the region.

The RSES acknowledges that the region is particularly rich in renewable energy resources and contains significant energy generation infrastructure of national and regional importance, including hydro-generation, thermal generation at Moneypoint, and Tarbert. The Plan recognises that there is significant potential to use renewable energy across the region to achieve climate change emission reduction targets. The RSES supports renewable industries and requirements for transmission and distribution infrastructure. It provides two RPO's in support of such efforts, including RPO 99 where "it is an objective to support the sustainable development of renewable wind energy (onshore and offshore) at appropriate locations and related grid infrastructure in the Region in compliance with national Wind Energy Guidelines" and RPO100 where "it is an objective to support the integration of indigenous renewable energy production and grid injection".

The RSES recognises the Strategic Integrated Framework Plan for the Shannon Estuary as a good practice example. As one of the attributes of the Mid West it identifies the SIFP as providing a coherent spatial plan to recognise the economic potential of the Shannon Estuary. It sets out that the SIFP aims to support the multifunctional nature of the Shannon Estuary and seeks to transform the estuary into an international economic hub. The SIFP has identified an additional 1,200 hectares for marine related development (9 no. strategic development locations) by building on existing industry connectivity and synergy as well as the existing infrastructure to create more sustainable and attractive network for further investment.

The RSES supports the continued and future development of SFPC. Section 6.3.4.2 of the RSES has a number of Regional Policy Objectives (RPO's) supporting the Region's strategic ports and harbour assets. RPO146 provides continued support for the capital infrastructure projects in SFPC's Infrastructure Development Programme, including capacity extension works and infrastructure investment towards deep-water berthage on Foynes Island and offshore resources. The RSES also recognises that the Strategic Integrated Framework Plan for the Shannon Estuary (SIFP) provides significant opportunities to grow the Blue Economy through offshore wave and wind renewable energy in the Shannon Estuary.

The RSES incorporates the Limerick Shannon Metropolitan Area Strategic Plan (MASP). The MASP is a 12-year strategic framework plan founded on the effective integration of land use and transport infrastructure. Section 8.6 of the Limerick Shannon MASP deals with Shannon Foynes Port, which is not located within the MASP plan area, but nonetheless is recognised as being of strategic importance to the MASP as is confirmed in the following extract.

The MASP supports the continued development of Shannon Foynes Port and recognises the significant opportunities for the Region and Ireland due to its deep water. The MASP supports and promotes the inclusion of Shannon Foynes Port onto the EU core network corridor as it brings significant investment opportunities in the form of potential FDI (Foreign Direct Investment) potential and as well as supporting enhanced connectivity with Ireland's European partners.

The MASP further cites "enhanced connectivity to Shannon-Foynes Port including local bypasses" as a national growth enabler and the importance of the proposed road development is referred to in the following extract from Section 8.6 of the RSES.

The delivery of the Foynes to Limerick Road Improvement Scheme is a key infrastructural project. Connectivity to the motorway network will be critical to increasing the Ports economic impacts in the future.

Limerick Shannon MASP Policy Objective 8 states, inter alia, as follows.

Strategic Road Infrastructure

It is an objective to maintain and deliver the sustainable development of strategic road infrastructure for the Limerick Shannon Metropolitan Area and improve transport connectivity to the wider Region. This will include the delivery of the following subject to their consistency with the recommendations of the LSMATS (Strategic Transport Study), the outcome of appropriate appraisal, environmental assessments and the planning process.

Foynes to Limerick Road Scheme (including Adare Bypass)

The following Regional Policy Objectives (RPOs) also demonstrate the policy support for development of the Shannon Estuary.

- **RPO 41:** Support the sustainable development of the 9 no. strategic development locations adjoining sheltered deep water in line with the recommendations of the SIFP for the Shannon Estuary and subject to the implementation of mitigation measures outlined in the SEA and AA undertaken on the SIFP.
- **RPO 79: Shannon Estuary and Other Harbour Plans**
  The RSES recognises the national and international importance of the Shannon Estuary, its potential to attract multinational development and the significant work that has been undertaken to progress its promotion and development. It is an objective to support and promote the delivery of the Strategic Development Locations as set out in the SIFP for the Shannon Estuary subject to the implementation of mitigation measures outlined in the SEA and AA undertaken on SIFP and zoned in the Local Authority Development Plans. It is an objective to promote the SIFP initiative as a good practice model for the Southern Region and to seek the preparation of similar initiatives for Cork Harbour and Waterford Harbour between the relevant stakeholders. It is an objective to support the promotion, marketing and seeking of financial and expertise support for the Strategic Integrated Framework Plan (SIFP) for the Shannon Estuary and specific projects emerging there from. Such initiatives shall be subject to the relevant environmental assessment requirements including SEA, EIA SFRA and AA as appropriate.
- **RPO 140: International Connectivity**
  It is an objective to: sustainably maintain, support and enhance the Region's International Connectivity Transport Network including the Trans European Transport Network (TEN-T) which seeks the development of a Europewide network of railway lines, roads, inland waterways, maritime shipping routes, ports, airports and railroad terminals.
- **RPO 142: Ports**
  Support the sustainable development of the 9 no. strategic development locations adjoining sheltered deep water in line with the recommendations of the SIFP for the Shannon Estuary and subject to the implementation of mitigation measures outlined in the SEA and AA undertaken on the SIFP.
- **RPO 144: Port Infrastructure**
  It is an objective to complement investment in port infrastructure by seeking the sustainable development of improved access infrastructure to ports from their regional catchments, including the promotion of rail access where practicable.

- **RPO 146: High Quality International Connectivity – Ports**
  Continued support for the capital infrastructure projects in the ShannonFoynes Port Company Infrastructure Development Programme, including capacity extension works and infrastructure investment towards deep water berthage on Foynes Island and offshore resources; Strengthening and maintaining access to ports through enhanced transport networks and improved journey times, including support for M11 and N80 improved connectivity to Rosslare, N28 Cork to Ringaskiddy Road and N21/N69 (Foynes to Limerick Road Scheme including Adare bypass).
- **RPO 167**, lists the N21/N69 Foynes to Limerick Road scheme (including Adare Bypass) as a Part (A) National Road Project under Project Ireland 2040 to be delivered in the period up to 2027 to achieve NSO 2: Enhanced Regional Accessibility.

Strategic Integrated Framework Plan for the Shannon Estuary

Perhaps the single most important regional document to be prepared in terms of the Shannon Estuary is the inter-jurisdictional Strategic Integrated Framework Plan (SIFP)[23]. It provides a coherent spatial plan to recognise the economic potential of the Estuary and is significant in that it has 'buy in' from all relevant stakeholders and policy makers.

The Shannon Estuary contains a number of long-established large commercial ports as well as nationally significant industries and economic centres and is one of Ireland's most important maritime resources. However, since the enactment of the *European Communities (Natural Habitats) Regulations S.I. 94/1997*[104], it has become increasingly apparent that the future development and extension of such activities will need to be closely co-ordinated with the conservation objectives for the European sites concerned.

The Shannon Estuary is designated as both a candidate Special Area of Conservation (cSAC) and Special Protection Area (SPA). Therefore, no development can be planned for, or permitted, unless the prior assessment regime laid out in Article 6 of the Habitats Directive has been complied with. In addition, public authorities are obliged to avoid pollution and deterioration of natural habitats and the habitats of species, as well as disturbance of the species, for which areas have been designated in so far as such disturbance could be significant in relation to the objectives of the *Habitats and Birds Directives*.

104 Now superseded by European Communities (Birds and Natural Habitats) Regulations 2015 (S.I 355/2015)

Furthermore, the Cloon River, which flows into the Shannon Estuary at Clonderalaw Bay, forms part of the Lower River Shannon cSAC and is designated for the freshwater pearl mussel which is the subject of further specific protective measures. The designation of habitats is not meant to prohibit development; it is meant to ensure that policies, plans and projects are conceived having due regard to maintaining the integrity and dynamics of a habitat, its constituent species and the necessary environmental resources so as to sustain them at favourable conservation status.

The existence of such designations requires a systematic approach to the development of plans, policies and objectives. This is necessary to demonstrate that environmental considerations have been taken into account from the beginning. An evidence-led approach is required whereby decisions take account of all relevant environmental considerations, including resources such as air and water quality, disturbance, pollution and connectivity.

The SIFP sets out an overall 30-year strategy for the proper sustainable growth, development and environmental management of the Shannon Estuary region. Within its lifetime, the SIFP must be able to respond to changing circumstances within policy and governance at EU, national, regional and local levels, as well as contextual changes within the Estuary region, including population, lifestyles and aspirations for the future.

The Strategy aims to:

- Support the multi-functional nature of the Shannon Estuary and identify opportunities to expand the existing economic base, including port-related industry and other associated activities;
- Facilitate the diversification of the economy through the promotion of appropriate commercial/industrial employment, environmentally friendly aquaculture and fisheries, renewable energy, transport, recreation and tourism industries in a sustainable manner;
- Promote, manage and enhance the natural coastal environment along the Estuary, including its cultural, natural and built heritage; and
- Safeguard the Estuary's sensitive environmental resources and natural heritage of National, European and international significance.

The RSES supports the delivery of the Strategic Development Locations as set out in the *SIFP for the Shannon Estuary* and promotes the SIFP initiative as a good practice model for the Southern Region. It is also an objective of the *RSES* to support the promotion, marketing and seeking of financial and expertise support for the *SIFP for the Shannon Estuary* and for specific projects emerging there from.

SIFP aims to support the multifunctional nature of the Shannon Estuary and facilitate diversification of the economy through the promotion of commercial/ industrial employment and maritime energy over a thirty-year horizon. It seeks to transform the estuary into an international economic hub by taking advantage of what are among the deepest and sheltered harbours in Europe and the world. It has identified an additional 1,200 hectares for port development (9 no. strategic development locations) by building on existing industry connectivity and synergy as well as the existing infrastructure to create more sustainable and attractive network for further investment.

The Strategic Development Locations (SDLs) are a unique national maritime asset as the land within the SDLs adjoins identified sheltered deep water (>15-m depths) sites on the Shannon Estuary. It is intended that these SDLs will attract substantial maritime commerce consistent with the Governments Harnessing our Ocean Wealth assisting in achieving its economic targets.

12.2.2.3 Local Policy

This section details the relevant local policies contained in County Development Plans that have statutory significance over the Shannon Estuary including the Limerick, Kerry and Clare Development Plans.

Limerick Development Plan 2022-2028

The Limerick Development Plan[24] is underpinned by a strategic vision intended to guide the sustainable future growth of Limerick. The Strategic Integrated Plan for the Shannon Estuary forms part of the statutory Development Plan. There are a number of policies and objectives in the Development Plan supporting development in the Port of Foynes, the wider Shannon Estuary and promoting Offshore Renewable Energy which are listed below.

Chapter 5: A Strong Economy:

- Section 5.10 Marine Spatial Planning
  - Objective ECON O54 - National and Regional Marine Planning
- Section 5.11 Shannon Estuary – Limerick Docklands and Foynes
  - Objective ECON O55 - Marine Economy
  - Objective ECON O56 - Strategic Integrated Framework Plan
  - Objective ECON O57 - Safeguard Strategic Development locations along the Estuary
  - Objective ECON O58 - Shannon Foynes Port
  - Objective ECON O59 – Offshore Renewable Energy

Chapter 7: Sustainable Mobility and Transport:

- Section 7.7.2 Strategic Ports and Harbours
  - Objective TR O28 - Docks and Ports

Chapter 9: Climate Action, Flood Risk and Transition to Low Carbon Economy

- Section 9.2 Climate Change
  - Objective CAF O14 - Energy Generation
- Section 9.4 Renewable Energy
  - Policy CAF P6 Renewable Energy
  - Policy CAF P7 Atlantic Green Digital Basin (GDB)
  - Objective CAF O26 Bio Energy
  - Objective CAF O27 Renewable Energy Production
  - Objective CAF O32 - Offshore Wind
  - Objective CAF O33 - Development of Foynes Port

The Clare County Development Plan

The Clare County Development Plan provides clear policy support for a county that builds on the strategic location and natural resources of the Shannon Estuary by facilitating and maximising its potential for various forms of development while managing the estuarine and natural environment in full compliance with all relevant EU Directives. There are a number of policies and objectives in the Development Plan supporting development of the Shannon Estuary and the wider region and promoting Offshore Renewable Energy which are listed below.

Chapter 12: Shannon Estuary

- **Section 12.2.1 Integrated Development of the Shannon Estuary**
  - CDP 12.1: Development Plan Objective: Strategic Integrated Framework Plan (SIFP) for the Shannon Estuary
  - CDP 12.2: Development Plan Objective: Integrated Development of the Shannon Estuary
- **Section 12.2.2 Strategic Development Locations**
  - CDP 12.3: Development Plan Objective: Marine-Related Industry/Large-Scale Industry on the Estuary
  - CDP 12.4: Development Plan Objective: Strategic Development Locations
  - CDP 12.5: Development Plan Objective: Strategic Development Location A – Inishmurry/Cahiracon
  - CDP 12.6: Development Plan Objective: Strategic Development Location B– Moneypoint
- **Section 12.3 Shipping and Navigation**
  - CDP 12.7: Development Plan Objective: Shipping and Navigation
- **Section 12.4 Harnessing the Energy Resources of the Shannon Estuary**
  - CDP 12.8: Development Plan Objective: Harnessing the Energy Resources of the Shannon Estuary
- **Section 12.5 Tourism on the Shannon Estuary**
  - CDP 12.9: Development Plan Objective: Promoting Tourism, Recreation and Leisure around the Shannon Estuary
  - CDP 12.10: Development Plan Objective: Cruise Ship Industry
- **Section 12.6 Estuary Settlements**
  - CDP 12.11: Development Plan Objective:
- **Section 12.7 The Estuary Islands**
- **Section 12.8 Aviation**
  - CDP 12.12: Development Plan Objective: Aviation and the Shannon Estuary
- **Section 12.9 Commercial Fishing/Aquaculture on the Estuary**
  - CDP 12.13: Development Plan Objective: Commercial Fishing/Aquaculture

- Section 12.10 Maritime Research, Education and Training
  - » CDP 12.14: Development Plan Objective: Maritime Training Centre
- Section 12.11 Environment
  - » CDP 12.15: Development Plan Objective: Building on the Shannon Estuary as an Environmental Asset
- Section 12.12 Water-Borne Transport
- Section 12.13 Marina Developments
  - » CDP 12.16 Development Plan Objective: Marina Developments

Kerry Development Plan 2022-2028

The Kerry Development Plan is at Material Alteration Stage and is due to be adopted before the end of the year[26]. It establishes a broad framework for the way in which the economy, society, environment, and the use of land should evolve in County Kerry. The Plan has 10 main goals including promoting the growth of a Sustainable and Strong Economy.

The Development Plan recognises that there are significant opportunities to grow offshore wave and wind renewable energy in the Shannon Estuary reflecting the key natural assets of wave and wind energy, together with the presence of grid connections. The Strategic Development Location (SDL) at Tarbert/Ballylongford in North Kerry is recognised for its potential as an Energy Hub and for industrial development at a regional and national level. The relevant objectives to consider include:

Chapter 2 Climate Change and Achieving a Sustainable Future

- » Relevant KCDP Objectives: 2-1, 2-2, 2-3, 2-6,2-8, 2-11

Chapter 3 Core and Settlement Strategy

- » Section 3.5.1.4: North Kerry/West Limerick/Shannon Estuary/Clare Settlement Network

Chapter 9 Economic Development

- **Section 9.4: Economic Regions of Regional Economic Significance**
  - Section 9.4.2 North Kerry/West Limerick/Shannon Estuary/Clare Settlement Network
    - Relevant KCDP Objectives: 9-4, 9-5, 9-8
  - Section 9.6.1 Economic Development Land Use Zonings
    - Relevant KCDP Objectives: 9-20
  - Section 9.6.1.1 Shannon Estuary
    - Relevant KCDP Objectives: 9-23, 9-24, 9-25, 9-26
  - Section 9.7.6.2.4 Fishing / Aquaculture
    - Relevant KCDP Objectives: 9-75, 9-77
  - Section 9.7.9 Marine Sector
    - Relevant KCDP Objectives: 9-82, 9-83, 9-84, 9-85, 9-87, 9-90

Chapter 10 Tourism and Outdoor Recreation

- **Section 10.1.1 Sustainable Tourism and Climate Action**
  - Relevant KCDP Objectives: 10-1, 10-2
- **Section 10.3 Tourism in County Kerry**
  - Relevant KCDP Objectives: 10-6, 10-7, 10-8, 10-9, 10-13
- **Section 10.4 Tourism and Outdoor Recreation Categories**
  - Section 10.4.1.1 Walking and Cycling
    - Relevant KCDP Objectives: 10-35, 10-38, 10-41, 10-46
  - Section 10.4.1.3 Water-Based Tourism
    - Relevant KCDP Objectives: 10-47, 10-48, 10-51, 10-52

Chapter 11 Environment

- **Section 11.4 Marine**
  - Relevant KCDP Objectives: 11-45, 11-46
  - Section 11.4.1 Marine Spatial Planning
    - Relevant KCDP Objectives: 11-47, 11-48, 11-49, 11-50

Chapter 12 Energy

- **Relevant KCDP Objectives: 12-**1
- **Section 12.2 Gas Network**
  - Relevant KCDP Objectives: 12-3, 12-4
- **Section 12.5 Renewable Energy**
  - Relevant KCDP Objectives: 12-14, 12-16
  - Section 12.5.4.5 Ocean Energy
    - Relevant KCDP Objectives: 12-35

Chapter 14 Connectivity

- Section 14.3.1 Sustainable Transport Planning
  - Relevant KCDP Objectives: 14-1, 14-3
- Section 14.7 Ports, Harbours and Piers
  - Relevant KCDP Objectives: 14-60, 14-61, 14-62, 14-63, 14-64, 14-65, 14-66, 14-67, 14-68

Tipperary Development Plan 2022-2028

The Tipperary Development Plan 2022-2028[27] recognises the need to prepare for and support a climate resilient, sustainable and low-carbon future. The lifetime of the Plan extends to 2028 which aligns local policies with the timeframe for meeting national emissions reductions targets by 2030. The new Tipperary County Development Plan 2022 – 2028 was adopted on the 11 July 2022 by the Elected Members of Tipperary County Council.

In relation to alignment with this report the relevant objectives to consider include:

Chapter 6.0 Supporting Sustainable Communities

- Section 6.8 Digital Connectivity and Innovation
  - Relevant TCDP Objectives: 6-K

Chapter 9.0 Tourism

- Section 9.3 Tipperary Tourism Strategy
- Section 9.4 Tourism Development
  - Relevant TCDP Objectives: 9-A, 9-B, 9-C, 9-F, 9-H

Chapter 10.0 Renewable Energy and Bioeconomy

- Section 10.4 Renewable Energy Policy
- Section 10.6 Supporting the Bioeconomy
- Section 10.7 Disruptive Technologies and Energy Storage
- Section 10.8 The Circular Economy and Sustainable Waste Management
  - Relevant TCDP Objectives: 10-A, 10-B, 10-C, 10-D, 10-E, 10-F, 10-G, 10-H

Chapter 12.0 Sustainable Transport

- Section 12.5 Roads Priorities for Tipperary
  - Relevant TCDP Objectives: 12-B, 12-C, 12-D

Chapter 15.0 Water and Energy Utilities.

- 15.5 Electricity and Gas Supply Networks
  - Relevant TCDP Objectives: 15-E, 15-F

Regional Enterprise Plan to 2024 Mid-West

The Mid-West Regional Enterprise Plan to 2024[28] recognises that renewable energy presents the Mid-West with a number of wonderful opportunities for future economic prosperity and further states that growing international interest suggests that the waters off the Clare/Kerry coastline can be the most reliable locations in Europe for large-scale generation of wind energy.

Action 2.1 presents the Atlantic Green Digital Basin whose strategy is to decarbonise industry by developing the Shannon Estuary as a renewable energy hub.

Regional Enterprise Plan to 2024 South-West

The South-West Regional Enterprise Plan to 2024[29] also contemplates the emergence of offshore floating wind as a cost-effective and highly efficient renewable energy source that sees the Shannon Estuary as the ideal location from which to deliver on a world leading energy resource of up to 70GW in the coming decades.

Action 5.5 calls for the collaboration between the South-West and Mid-West regions to support the economic development potential of the Shannon Estuary and the surrounding region.

12.3 Appendix 3 – Available Land Banks

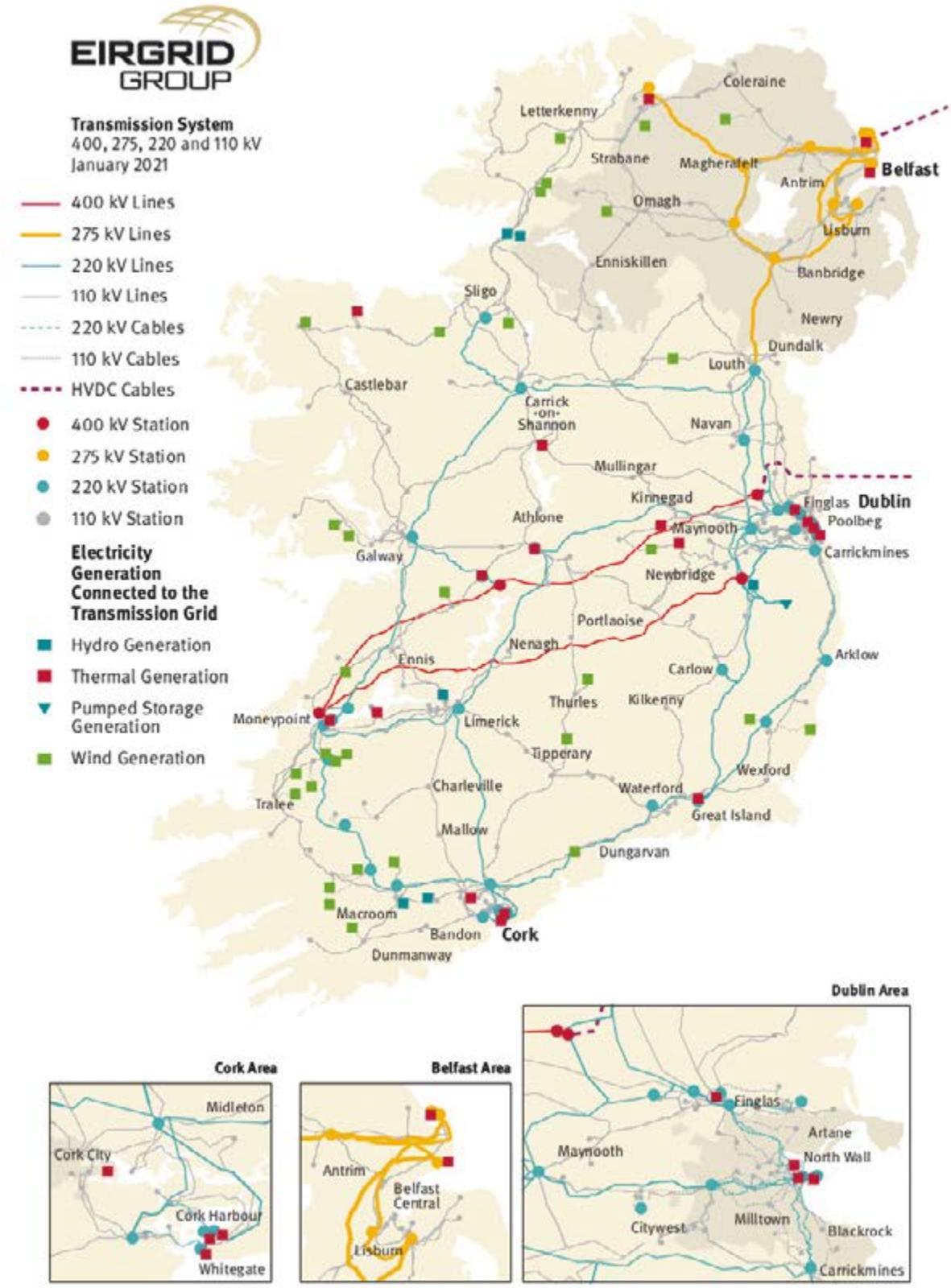
County	Townland	Size (hA)	Size (Acre)	Zoned (Y/N)	Included in SiFP	Deepwater Site (Y/N)
Kerry	Tarbert-Ballylongford	431	1064	Y	Y	Y
Tipperary	Lisheen Mine	414	1024	N**	N	N
Clare	Moneypoint Kilimer	280	692	Y	Y	Y
Limerick	Foynes	170	420	Y	Y	Y
Kerry	Tarbert-Ballylongford 2	160	395	N	N	Y
Tipperary	Clonmel	133	330	Y	N	N
Tipperary	Clonmel	109	269	Y	N	N
Galway	Athenry	97	240	Y	N	N
Limerick	Raheen	96	237	Y	N	N
Limerick	Askeaton	92	227	Y	Y	Close
Clare	Inishmurray/Cahiracon	66	163	Y	Y	Y
Clare	Smithstown and Free zone east	66	163	Y	N	N
Clare	ennis data centre site	55	136	Y	N	N
Kerry	Racecourse, Tralee	54	134	Y	N	N
Galway	Gauraun	47	115	Y	N	N
Limerick	Ballysimon Road	42	104	Y	N	N
Limerick	Dock Road	42	104	Y	N	N
Clare	ballaghfadda	40	99	Y	N	N
Kerry	Bracker O'Regan Road, Tralee	37	91	Y	N	N
Kerry	Kerry Technology Park, Tralee	36	89	Y	N	N
Clare	stonehall caherteige	34	84	Y	N	N
Tipperary	Cashel	33	81	Y	N	N
Tipperary	Carrick on Suir	29	72	Y	N	N
Clare	Gaurus, Ennis	29	72	Y	N	N
Clare	Roche, Clarecastle	27	67	Y	N	N
Galway	Oranmore	27	67	Y	N	N
Tipperary	Cashel	26	65	Y	N	N
Tipperary	Nenagh	26	64	Y	N	N
Tipperary	Clonmel	23	58	Y	N	N
Tipperary	Cahir	22	54	Y	N	N
Tipperary	Cahir	18	45	Y	N	N
Limerick	Rossbrien	18	44	Y	N	N
Tipperary	Clonmel	18	44	Y	N	N
Clare	Tuamgraney	17	43	Y	N	N
Tipperary	Roscrea	17	43	Y	N	N
Tipperary	Cahir	16	40	Y	N	N
Clare	Scariff	16	40	Y	N	N
Limerick	Moyross	15	37	Y	N	N
Clare	Clare Technology Park	11	28	Y	N	N
Tipperary	Thurles	11	28	Y	N	N
Clare	Derpark west	11	27	Y	N	N
Tipperary	Cahir	10	26	Y	N	N
Clare	Ballyurra, Kilrush	10	25	Y	N	N
Clare	Beechpark, Ennis	10	25	Y	N	N
Tipperary	Nenagh	10	25	Y	N	N
Kerry	Killarney	3	8	Y	N	N
Kerry	Island of Geese, Tralee	0.11	0.27	Y	N	N
Total		**2957**	**7308**			**47**

** National Bioeconomy Campus – suitable development will be supported

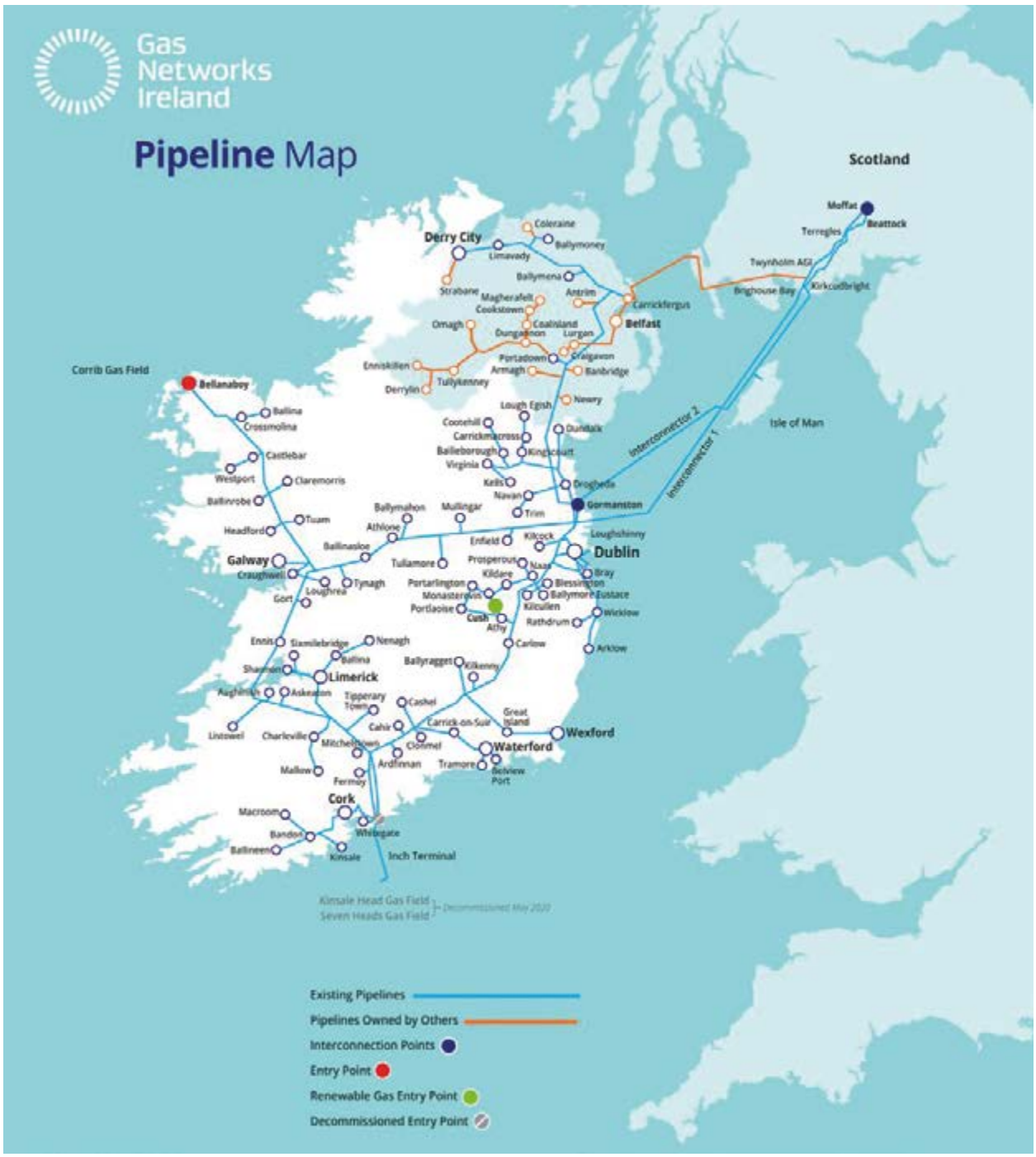
12.4 Appendix 4 – Infrastructure Maps

National Road Network (Source: Transport Infrastructure Ireland)

Irish Rail Network (Source: Irish Rail)



National Grid System (Source: Eirgrid)



Natural Gas Grid (Source: Gas Networks Ireland)

12.5 Appendix 5 – Summary of Actions

Offshore Wind – Policy and Ambition Actions	Owner	Due Date
Policy to recognise Atlantic offshore wind as an economic development opportunity of scale that is strategic to the EU.		
• Through a combination of a Green Industrial Policy and a Phase Three/Future Framework for Offshore Wind Policy, we recommend that clarity be provided on how Ireland will facilitate both the harvesting of Atlantic wind energy and the use of it in Ireland and Europe, as soon as possible.	Whole of Government	Q1, 2024
• Assign an Assistant Secretary General at Department of An Taoiseach (or National Plan Delivery), to oversee a 'whole of Government' approach, via the Senior Officials Group, to accelerate progress on floating offshore wind to a sustained pace similar to other EU countries.	Whole of Government	Q1, 2024
• Create an Economic Development Agency for Floating Offshore Wind whose focus is engaging with developers and government to meet and exceed 2040 and 2050 targets, at cost-competitive rates. Base that Agency close to customers, in the Mid-West, close to manufacturing on the Estuary, central to all 3 offshore wind areas and Dublin.	DETE	Q2, 2024
• Publish the 'Phase Three'/'Future Framework' for Offshore Wind policy that delivers the critical path actions proposed by SEETF for the Climate Action Plan of 2GW and provides clarity on the roadmap post-2030. To include the following: » Clarification that Phase Three floating wind projects can progress in parallel with Phase Two projects. » The publication of a proposed schedule for FLOW auctions subject to continued industry engagement and market sounding. » Delivery of first auction dedicated to floating wind in the Atlantic, with minimum 1 GW allocation for Mid-West DMAP area. » Mandates on the following for floating wind energy contracts: • increasing local manufacturing content over time; • clear R&D criteria, with local content and partnerships. » Direction on long-term routes to market such as domestic grid, hybrid connections, interconnection, power-to-x, etc.	DECC	Q1, 2024

• The current offshore wind delivery taskforce should be co-chaired by DETE, and with greatly increased industry representation (either as members or as part of an advisory council). The UK's Offshore Industry Council model, the Catapult Centre partnership and other international examples should be explored for best practice examples of how the public and private sector can work together to deliver.	DECC	Q3, 2023
Completion of DMAP and acceleration of MAC Applications		
• DMAP for 'Mid-West (Shannon/Foynes area)' to be commenced to encompass existing projects in development and an extension of the maximum depth to 100m+ (up to 200m). DMAP should be completed within a 12-month period.	DECC	Q3, 2023
• OREDP II and future plans to recognise the Estuary advantages of proximity to offshore wind resource, suitable grid connections, wet storage, port facilities, zoned industrial land, etc.	DECC	Q3, 2023
• MAC applications open for projects within the Mid-West DMAP, with maximum 90-day processing time as per the Maritime Area Planning Act 2021.	MARA	Q3, 2024
Policy support for offshore renewable energy projects and enabling infrastructure		
Renewable energy projects, enabling infrastructure and green industrial development in the wider Shannon Estuary Region to be prioritised utilising all available EU and national policies and directives with suitable projects identified as being of 'overriding public interest'. • These projects can occur within designated Net Zero Industrial Parks. These Parks will enable the manufacture of the eight strategic technologies in the EU Net Zero Industry Act, plus other applications for green energy, under the requirements set out in that Act e.g. certainty of planning decision timeframes etc. • We propose an 'Atlantic Green Digital Corridor', centred on the Shannon Estuary region, which can eventually be extended from Donegal to Cork, inland of the Wild Atlantic Way.	Whole of Government	Q2, 2025

Offshore Wind – Potential Routes to Market for Green Energy Actions	Owner	Due Date
Domestic Electricity Grid, Hybrid Connections and Private Wire		
• Develop a Green Industrial Strategy that supports and contributes to the requirements of the EU 'Green Deal' through leveraging Ireland's inherent advantages.	DETE	Q2, 2024
• Eirgrid to provide clarity on the domestic and interconnection grid infrastructure planned to enable 37 GW by 2050 offshore wind targets, and the estimated budget required to deliver these.	Eirgrid, DECC	Q3, 2023
• Hybrid Grid Connection policy statement alongside update of Eirgrid's SOEF to acknowledge the role of existing transmission infrastructure at Tarbert and Moneypoint.	Eirgrid, DECC	Q3, 2023
• Update of Eirgrid's SOEF to approve the identified cable corridors identified in the SFPC Vision 2041 Strategic Review.	Eirgrid, DECC	Q4, 2024
• Provide delivery of 'Private Wire' legislation to enable onshore 'non-grid' use of the 2 GW target for floating offshore wind.	DECC	Q2, 2024
• Provide permitting for developers to build networks from offshore turbines to land as part of the initial project construction.	DECC	Q3, 2023
• Provide clarity on the design criteria and eventual ownership of offshore grid.	Eirgrid, DECC	Q3, 2023
Power to X		
• Publication of National Hydrogen Strategy to: » recognise the key role of the Shannon Estuary both for hydrogen production but also for establishment of new hydrogen-based industry; » support for the development of a green hydrogen manufacturing facility in the Shannon Estuary in line with the development of 2 GW+ of floating offshore wind in Phase Three; » identify optimal economic business case for alternative fuels – hydrogen, methane, methanol, ammonia, SAF etc.	DECC	Q3, 2023
• Publication of National Energy Storage Strategy to include support for large-scale battery storage and pumped storage projects such as Silvermines Hydro.	DECC	Q4, 2023

Interconnection		
• Electricity Interconnection Policy to: » give consideration to future electricity interconnectors (HV or Supergrid) from the Shannon Estuary to Europe. » support the establishment of a cable-corridor into the Estuary. » provide direction on a longer term (post-2030) route to market for green energy, including non-land transmission from the west coast. » support new technologies to be trialled (Supernode, etc.) to enhance market connection to large centres of use in Europe.	DECC	Q3, 2023

Offshore Wind – Enabling Infrastructure Actions	Owner	Due Date
• Financial and permitting supports (as per EU Green Deal policy) for the proposed developments at Foynes and Moneypoint to enable the efficient production of floating wind turbines at scale, with facilities completed by Q4 2028. This should include Government funding support for the construction of Foynes Island.	DoT, MARA	Q4, 2023
• MARA (once operational) should provide MACs for Foynes Island and Moneypoint projects once applications are made in accordance with the MAP Act 2021 and relevant policy directions. Future applications for wet storage should also be prioritised. SFPC has commenced pre-planning discussions in accordance with its Vision 2041 Strategic Review and is awaiting the opportunity to apply for a MAC.	MARA	Q3, 2023
• Financing: Revised National Ports Policy to consider a sovereign debt model (or alternative funding mechanisms or debt models) for prescribed port enabling FLOW infrastructure on the Shannon Estuary.	SFPC, DoT, DoF	Q2, 2025
• The Shannon Foynes Port Company's Vision 2041 Strategic Review identified grid cable corridors, in consultation with Eirgrid, running through the Shannon Estuary to leverage existing onshore grid infrastructure and minimise the need for new greenfield infrastructure. The approval of these cable corridors should be prioritised by Eirgrid.	Eirgrid	Q4, 2024
• Confirmation from Eirgrid/DECC as to whether they propose to provide a grid node or nodes in the water for the Mid-West DMAP area to facilitate the delivery of Phase three projects.	Eirgrid	Q4, 2023

Offshore Wind – National and Regional Planning Systems Actions	Owner	Due Date
Establishment of MARA and clear timelines for MAC processing		
• Prompt commencement of operations of the Maritime Area Regulatory Authority.	DHLGH	Q3, 2023
• Commitment to deliver on 90-day statutory timeframe to determine a valid MAC application.	MARA	Q3, 2023
Increased resourcing of An Bord Pleanála and MARA, and commitment to improve timeframes for decisions		
• Government commitment to a streamlined consenting and planning system to provide clarity and reduce risk for Atlantic FLOW projects.	Whole of Government	Q4, 2023
• Increased resourcing of state agencies such as MARA and An Bord Pleanála to deliver critical infrastructure projects, such as those planned for the Shannon Estuary and offshore, in a more efficient and timely manner.	DPENDPDR, DHLGH	Q4, 2023
• We recommend the introduction and strict enforcement of realistic mandatory timelines for development consent decisions to provide greater certainty to major projects (without resulting in an increased number of rejections).	DHLGH, ABP	Q4, 2023
Priority Planning Designation – with associated enabling investigations and works carried out		
• FLOW projects, including enabling infrastructure such as grid and port infrastructure, should be considered for designation as IROPI by the Government in accordance with the EU Habitats Directive. Until such time as IROPI designation is provided we recommend the prioritisation of renewable projects and supporting infrastructure at all stages of the planning process as per European Directives. The required environmental investigations including AA and SEA should also be prioritised.	DHLGH, and Dept of Taoiseach	Q1, 2024
Re-establishment of Shannon Estuary Integrated Framework Planning Working Group		
• Re-establishment and resourcing of the Shannon Estuary Strategic Integrated Framework Plan Steering Committee to recommence preparatory planning and environmental activities for current and potential new SDLs, with adequate support and centrally resourced.	SIFP Lead Partners, DHLGH	Q3, 2023

Offshore Wind – Strategic Land Planning Actions	Owner	Due Date
• The Shannon Estuary region, leading out on the creation of a national 'Atlantic Green Digital Corridor' already has significant amounts of land zoned industrial, both along the Estuary and inland. SEETF seeks funding to: » identify these sites and the infrastructure needed to get them 'shovel ready'; » enable Agencies of Government to purchase these sites and carry out that work; » identify new sites and the infrastructure needed to get them ready for the next 2 decades (under the guidance of Shannon Integrated Framework Plan Steering Committee).	DETE	Q2, 2024
• Local Authorities to consider collective planning designation for the Shannon Estuary region (potential SDZ or similar) to provide for streamlined and coordinated planning procedures that can meet the industrial and societal needs of the region.	KCC, CCC, TCC, LCCC	Q4, 2024

Offshore Wind - 6.6 Research, Development and Innovation, Education and Enterprise Supports Actions	Owner	Due Date
Stimulate R&D activity		
• The industrial strategy for offshore wind to make recommendations about mandating innovation/ research and development criteria within offshore wind projects.	DETE	Q1, 2024
• The industrial strategy for offshore wind to make recommendations about the phasing of requirements for local supply chain for future projects in line with best international practice.	DETE	Q1, 2024
• Fund a Feasibility Study to build a US – EU Collaboration Ecosystem in the Estuary region: » digital technologies; » material science and manufacturing technologies.	DFHERIS	Q4, 2023
• Develop RD&I zones in close proximity to industrial activity. These zones should consider: wind turbine blade innovation, substructure manufacturing, platform assembly, transport through the Estuary, onshore flexible demand integration for euels, and sustainable materials manufacturing to complement offshore windfarm locations.	DETE/ DFHERIS	Ongoing

Grow the Local Supply Chain		
• Accelerate knowledge building by identifying companies within the region that are already active or wish to engage in the international offshore wind sector, and promote their growth, e.g. through Enterprise Ireland's Gael Offshore Network and equivalent (European and strategic investors).	DETE	Q4, 2023
• Promote and grow the sector regionally by developing an offshore wind supply chain cluster in the region bringing together developers, supply chain, ports, academia, and the public sector.	DETE	Q4, 2023
• Develop a start-up/scaleup accelerator for floating offshore wind development and renewable energy-related activities, such as the development of green hydrogen, digital services for offshore wind, autonomous O&M activities, etc.	DETE	Q4, 2024
Skills Development		
• Allocate funding to a dedicated Sustainability Coordinator to work with the Regional Skills Forum, Education and Training Providers and others to scale provision regionally.	DETE	Q1, 2024
• Following completion of detailed assessment of skills and workforce required allocate funding as required via key stakeholders (ETBs, SOLAS, HEIs, FEIs, Greentech Skillnet, Industry) for dedicated programme provision in relation to onshore and offshore renewable energy development.	DFHERIS	Q1, 2024
• Leverage existing onshore wind turbine expertise at Kerry ETB to develop new programmes and increase the local talent base for offshore projects.	KETB	Q4, 2024
• Establish a Maritime Training Centre of Excellence in Kilrush by 2025, with funding supported by government through existing funding routes.	CCC	Q4, 2024
• Create a real-time talent market profile for the region. This interactive online tool (dashboard or similar) can be used by industry, investment agencies and education and training providers to track the regional talent pipeline and to drive regional investment. This can act as a pilot for other regions.	DFHERIS, Local Education Providers	Q4, 2024

Onshore Renewable Energy – Biomethane Development Unit Actions	Owner	Due Date
National Biomethane Strategy and Support Schemes		
• Publish the National Biomethane Strategy to ensure clarity for the sector and reduce market risks for potential investors, including the: » establishment of a Guarantee of Origin trading market for renewable gas, similar to that for renewable electricity; » provision of a biomethane (RESS) support scheme to address biomethane (vs natural gas) price competitiveness, as per practice in other EU countries; » building on existing R&D capacity through launch of specific R&D programmes to address critical research needs and opportunities.	DAFM, DECC	Q3, 2023
Biomethane Development Unit		
• Set up a biomethane pilot programme in the region, leveraging the existing industrial demand, regional gas network and rich sources of biogas that are readily available by: » establishing a Biomethane Development Unit, under the Irish Bioeconomy Foundation, to run the regional pilot and ultimately deliver at least the national target of 5.7cTWh by 2030; » providing estimated initial funding of €2 million (2023 to 2025) with the ambition to support delivery of 5 biomethane plants by 2025, and a further €4 million to be committed 2025 to 2030 – the total investment of €6 million would leverage total investment of €150 million to 2030 (a leverage factor of 25:1); » establishing a capital support programme for the first 20 biomethane plants in the Pilot to be put in place with funding levels of 40% capital grant aid.	DAFM, DECC	Q3, 2023

Onshore Renewable Energy – Accelerating Decarbonisation Actions	Owner	Due Date
Electricity Emissions Monitoring and Support Schemes		
• 6 monthly forecasting of the carbon intensity of electricity supply, providing: » clarity on when the most carbon intensive fossil fuels (coal and heavy fuel oil), will be finally removed from the national grid; » clarity on how the Climate Action Plan targets for onshore wind, solar and offshore wind will be delivered by year until 2030; » clarity on the deployment of EU Green Deal policies with respect to planning permission/permitting process timelines of not more than 12 months for such renewables; » clarity on risk mitigation for all key factors.	DECC	Q3 2023
• Provide ongoing clarity and communication on supports available for companies who wish to invest in technology upgrades that will reduce their carbon emissions.	DECC	Q4, 2023
• Detailed regional grid capacity roadmaps, showing current and future availability, to enable such renewable energy developments.	DECC	Q4, 2024
• Enabling legislation of 'private wire' put in place to facilitate enterprise, industry, and agricultural PV decarbonisation projects to progress.	DECC	Q2, 2024
• District heating supports required to enable project development aligned with demand/supply opportunities.	DECC	Q2, 2024
Accelerating Decarbonisation		
• Detailed regional plan highlighting the key zones where future project development can occur, thus providing certainty to project developers.	DECC	Q3, 2024
• Accelerate the engagement of SMEs with current and future supports to deploy and implement cost-effective decarbonisation plans.	DECC	Q4, 2023
• Support the establishment of a Regional Energy Agency, by expanding the resources and technical capabilities of Tipperary Energy Agency to assist business, agriculture sector and communities in the wider region to assess, develop and deploy a 2030 decarbonisation programme.	DECC	Q1, 2024

• Complete assessment of appropriate structures and resource required to deliver/grow Regional Energy Agency supports by Q4 2023. Estimated funding requirements of €1.5 million to 2025 and €5 million to 2030 to scale up expertise and service delivery.	DECC	Q4, 2024
• Local Authorities in the Region to support the deployment of measures targeted in the Climate Action Plan, in a manner that facilitates the sustainable and cost competitive decarbonisation of the Estuary Region's existing industrial base.	Local Authorities	Ongoing
• Conduct a study on options to support such developments in the region, including consideration of development charges, rates, and other means. This study to include consideration of best practice across Europe.	Local Authorities	Q1, 2024

Energy Security of Supply and Cost Actions	Why	Owner	Due Date
Electricity Security of Supply:			
• Recommend that DECC publishes the 'final' Security of Supply Report, which adequately addresses the manifold technical concerns raised by a host of respected commentators about the Interim Report of September 2022.	Eirgrid annual reports consistently point to a risk to electricity supply. A range of emergency actions are underway to provide additional short term generation capacity to meet the shortfall identified by Eirgrid. The costs of these are borne by all electricity consumers and the greater share by large employers – who we are seeking to retain and grow.	DECC	Q3, 2023
• Recommend that Eirgrid publishes a progress update, on a 6 monthly basis, until confidence is restored in the adequacy of the electricity system – for both power generation and the network to distribute it.	Confidence in Security of Supply has been damaged and this confidence is critical to retention and growth of employers in this region.	DECC	Q3, 2023

• Recommend that the corresponding necessary grid infrastructure for this region is identified in the updated 'SOEF' report for implementation.	No incremental transmission lines have been built in Ireland in over 15 years. In the meantime, the Estuary region has seen investment of several billion euro in its manufacturing base.	DECC	Q3, 2023
• Recommend that Eirgrid reports annually on what electricity generation and distribution capacity is available for existing industries to expand in, and for new industries to be attracted to the Shannon Estuary region. We understand other jurisdictions make this available and Ireland should replicate so that both power generators and large users can make informed investment decisions confident that grid is or will be available.		DECC	Q3, 2023
• Recommend that DECC clarify the Climate Action 2023 Policy for Large Electricity Users (EL/23/27) which states the need for 'demand side management' of up to 20% by 2025 and 30% by 2030, with LEUs 'expected to make a higher proportional contribution to the target'.	Unclear what the short- and medium-term impact of Government policies are for industry leading to uncertainty about future investment. Current industrial investment in the region is approximately €300-500 million per year.	DECC	Q3, 2023
Natural Gas Security of Supply:			
• Recommend that final 'Security of Supply' report provides clarity on how security-of-supply for gas supplies into the Irish system will be achieved both in terms of supply and storage.	Natural gas is the accepted transition fuel to net zero and provides the flexibility and backup the grid requires for the medium term. Many large employers in the region require gas for process heating. To compete globally this gas must be secure, cost-competitive, and increasingly – green.	DECC	Q3, 2023
• Recommend that Government should finalise and publish its position on LNG import and storage as a matter of urgency given the significance of this to our particular region.		DECC	Q3, 2023

Energy Cost Competitiveness:			
• Recommend that Government publishes a detailed roadmap of measures that return Irish electricity prices to at least the European average.	Many of the products produced in the Estuary region are commodities or very price sensitive. Per Eurostat, Irish electricity prices are 22% above the EU average. The EU Energy Commissioner, in June 2022, pointed to transmission and distribution costs in Ireland being particularly high. These are not energy cost dependent and no new transmission lines have been built in over 15 years.	DECC	Q3, 2023
• Recommend that the government does not burden industry with the incremental costs of providing emergency electricity supplies that are to be provided in 2023/24.	Our ability to attract modern automated manufacturing is very sensitive to electricity and gas prices vs competitor countries. Emergency electricity supplies are now being provided due to Government failure to ensure supply for industrial growth. Industry should therefore not be asked to pay for this failure, beyond normal rates.	DECC	Q3, 2023

Transport, Logistics and Connectivity – Integrated Sustainable Transport System Actions	Owner	Due Date
• Develop an Integrated Sustainable Transport Planning framework for the region which takes account of existing national policies and regional strategies across all modes of transport.	Shannon Estuary Steering Committee in collaboration with NTA, TII, Irish Rail, Bus Eireann, TFI Local Link	Q3, 2024
• Funding to be provided under the National Development Plan to deliver on the immediate priorities identified by this process.	The Department of Transport and The Department of Environment, Climate, and Communications	Ongoing from Q1, 2024
• Deliver the following projects which are essential to support existing business needs, in preparation for Atlantic FLOW, to enable sustainable multi-modal passenger mobility, to support tourism initiatives such as the development of Greenways highlighted in section 10.1.1 of this report, and in preparation for Ryder Cup 2027: **Projects completed by 2027** » Limerick to Foynes Road Scheme (including Adare bypass) in line with TEN-T regulations requiring connection by 2030; » Foynes Rail Freight Line in line with TEN-T regulations requiring connection by 2030 (with future upgrade to passenger); » Limerick Northern Distributor Road (a priority project identified in the Southern Regional Spatial and Economic Strategy); » N19 Shannon Airport Access Road Improvement Scheme; **Projects completed by 2027-30:** » M20 Limerick to Cork; » N68 Ennis to Kilrush/Moneypoint; » Foynes to Listowel/Ballylongford road upgrade; » N24 Limerick to Waterford upgrade; » N21 Newcastle West and Abbeyfeale bypasses; » Connection of Shannon Airport to the rail network; » Foynes deep water port on Foynes Island;	Shannon Estuary Steering Committee in collaboration with Local Authorities, NTA, TII, Irish Rail, Bus Eireann, TFI Local Link	2027 2030

• Government support for an expanded network of routes connecting Shannon Airport to strategically important business hubs, as well as improved transport connectivity to and from the Airport.	Department of Transport	Q4, 2023
• Establish a cross-departmental working group under the Green Hydrogen Strategy implementation structures to develop a National SAF Strategy, in consultation with industry.	The Department of Environment, Climate, and Communications (with input from the Department of Transport and industry and academic stakeholders)	Q4, 2023
• National level SAF research project based at the Shannon Estuary to enable learning in terms of optimisation of technology, infrastructure, supply chain and production scaling to be achieved.	The Department of Environment, Climate, and Communications (with input from the Department of Transport and industry and academic stakeholders)	Q1, 2024
• RD&I funding to be provided for sustainable aviation demonstrator projects as a Living Lab at Shannon Airport, which, in partnership with international collaborative programmes, will lead to the commercialisation of net-zero aviation technology.	Department of Enterprise, Trade, and Employment in collaboration with Enterprise Ireland, IDA, Shannon Airport Group, Western Development Commission	Ongoing from Q3, 2023

Transport, Logistics and Connectivity – National Logistics Hub Masterplan Action	Owner	Due Date
• Undertake a feasibility study and develop a concept proposal for the development of a National Logistics Hub in the Shannon Estuary, as an input into the preparation of a 'Regional Freight Strategy' for the Limerick/Shannon region proposed in the Limerick Shannon Metropolitan Area Transport Strategy, and in line with Action 23 for the development of strategies for sustainable freight distribution in the recently published Road Haulage Strategy	NTA in collaboration with TII, Irish Rail, Southern Regional Assembly, Shannon Estuary Steering Committee (including SFPC, the Shannon Airport Group, Local Authorities)	Q3, 2024
» define scope of study;		Q3, 2023
» engage expert planning consultant.		Q3, 2023
» conduct stakeholder consultations.		Q2, 2024
» deliver feasibility report and concept proposal.		Q3, 2024

Transport, Logistics and Connectivity – National Logistics Hub Masterplan Action	Owner	Due Date
• Funding is requested to commission a digital masterplan for the region bringing together expertise from the Local Authorities and expert stakeholders which will prioritise digital infrastructure needs and target support funding provided for under *The Digital Ireland Framework* and which will underpin sustainable economic growth across the region.	Shannon Estuary Steering Committee in collaboration with expert stakeholder consultation (DETE, DECC, DRCD, Western Development Commission, academia, private industry)	Q4, 2023

• Funding and policy direction under the frame of The Digital Ireland Framework to be provided from central Government which will enable the Shannon Estuary Steering Committee, in cooperation with the Local Authorities, to deliver on the Digital Masterplan.		Commencing 2024

Transport, Logistics and Connectivity – Global Transhipment Hub Action	Owner	Due Date
• Funding requested to commission a feasibility study for a Global Net Zero Transhipment Hub at a suitable location in the Shannon Estuary that will leverage the availability of maritime efuel, sheltered deep water, landbanks, and our location of global maritime importance. Funding for such a study should be sought in conjunction with the forthcoming National Ports Policy Review.	SFPC (having statutory jurisdiction over all marine activities in the Estuary) in conjunction with DoT, NTA, Shannon Estuary Steering Committee	Q4, 2023

Tourism - Greenways Actions	Owner	Due Date
• SEETF lends its support to Kerry County Council, Limerick City and County Council, and Transport Infrastructure Ireland (TII) to complete the Listowel to Fenit Greenway and extend it to University of Limerick via Limerick City. • SEETF lends its support to Clare County Council and Transport Infrastructure Ireland (TII) to complete the West Clare Railway Greenway. • Provide Local Authorities with the resources and staffing required to implement Greenway projects. • TII to continue engagement with Clare County Council, Limerick City and County Council, Kerry County Council, and Tipperary County Council in identifying further greenway routes to strengthen the tourism product offering and build greater connectivity. This work should also strengthen the Eurovelo offering which connects our cycling routes with Europe. Local road infrastructure which forms part of the Eurovelo should be assessed to ensure it meets safe cycling standards. • In consultation with key stakeholders and local communities, maximise the tourism and economic potential of the region's greenways by examining opportunities to link the routes and integrate local tourism amenities and saleable experiences to maximise the economic impact at a local level. • TII to liaise with Kerry County Council, Clare County Council, Limerick City and County Council, Tipperary County Council, Irish Rail and Coillte to identify the further segregated cycleways which will be required to complete a circuit of greenways and cycleways that will provide connectivity around the estuary incorporating the key visitor attractions of Bunratty, Ennis, Kilrush/Kilkee, Tarbert, Listowel, Tralee, Ballybunion, Foynes, Curraghchase Forest and Limerick City, connecting onwards, on both Clare and Limerick sides, to integrate with Greenways on Lough Derg.	Transport Infrastructure Ireland to lead in consultation with Local Authorities, Irish Rail and Coillte	Q4, 2024

Tourism - Capital Projects and Conferencing Actions	Owner	Due Date
• Clare County Council to engage with stakeholders to upgrade the facilities of Bunratty Castle and Folk Park and deliver a world-class visitor experience.	Clare County Council	Q4,2024
• Fáilte Ireland to engage with Shannon Region Conference and Sports Bureau and the Local Authorities in respect of the development of a suitable conference and events centre. • Fáilte Ireland to work with ESB in assessing the potential for a landmark visitor centre at Ardnacrusha marking its contribution to the Irish State. • Fáilte Ireland to work with the Local Authorities in the region in assessing the potential for a Shannon 'Interpretive Centre' showcasing the river with its rich history and environmental importance. • Fáilte Ireland to work with Clare County Council, Kerry County Council, Tipperary County Council and Limerick City and County Council in identifying quality indoor attractions that will strengthen the tourism offering of the 4 DEDPs.	Fáilte Ireland in collaboration with Shannon Region Conference and Sports Bureau, Local Authorities and ESB	Q4,2024

Tourism - Forestry Development Actions	Owner	Due Date
• Establishment of a Working Group led by Fáilte Ireland to include Coillte, the Office of Public Works, National Parks and Wildlife Service (NPWS), Limerick City and County Council, Kerry County Council, Tipperary County Council and Clare County Council.	Fáilte Ireland in collaboration with NPWS, Coillte, OPW and Local Authorities	Q3, 2023
• Working Group to identify most appropriate site to develop plans for Forest Park along Shannon Estuary.		end 2024
• Funding provided through Fáilte Ireland, Coillte and the relevant Local Authority to deliver on the project(s) with the ambition to be delivered in advance of the Ryder Cup 2027.		2025

Tourism - On-water Strategy Actions	Owner	Due Date
• Support the actions within the Cliff Coast DEDP and the Shannon Tourism Masterplan. • Fáilte Ireland to convene a working group with relevant stakeholders such as the Shannon Foynes Port Company Harbour Master, Waterways Ireland, and Local Authorities in developing an overarching water strategy. • Product development priorities on the estuary to be identified in the strategy and funding allocated.	Fáilte Ireland in collaboration with Clare County Council, Limerick City and County Council, Kerry County Council, Shannon Tourism Masterplan, Shannon Foynes Harbour MAster and Waterways Ireland	Q3, 2023 Q2, 2024

Tourism - Festivals and Events Actions	Owner	Due Date
• Fáilte Ireland to convene a meeting with Local Authorities and event organisers to consider the coordinated timing of events across a lengthened tourist season. • Launching a combined Shannon Estuary Events and Festivals calendar by Fáilte and the Local Authorities with an associated marketing budget.	Fáilte Ireland in collaboration with Local Authorities	Q3, 2023 Q1, 2024

Tourism - Sustainable Cruising Actions	Owner	Due Date
• Establishment of a working group led by Shannon Foynes Port Company with membership comprising Cruise Europe, Limerick City and County Council, Kerry County Council, Clare County Council, and The Shannon Airport Group. • Working Group to develop key targets for number of cruises docking at Shannon Estuary by 2027/2030 with actions identified to realise this target. • Stakeholders such as Excursions Ireland to assist in developing a compelling product offering for cruise ship passengers that dock in Foynes. • Development of passenger rail services between Foynes and Limerick City, to facilitate increased tourism footfall similar to increases in cruise ship passenger use of rail between Cobh and Cork City. • Fund a business case analysis for the provision of passenger rail services between Foynes and Limerick (line currently being brought back into use for freight services in support of port activities) linking to important residential/business areas on the line for overall economic benefit for the region.	Shannon Foynes Port Company to lead in consultation with Cruise Europe, Local Authorities, The Shannon Airport Group	Q3, 2023 Q1, 2024
• Fáilte Ireland to assess the feasibility of 'Green Cruise Tourism' as an economic driver for the Shannon Estuary region.	Fáilte Ireland	Q3, 2024

Appendix References

1. Shannon Foynes Port Company Vision 2041 Strategic Review, Bechtel Infrastructure Ireland Limited, 2022.
2. https://transport.ec.europa.eu/transport-themes/infrastructure-and-investment/trans-european-transport-network-ten-t_en
3. United Nations (1992) United Nations Framework Convention On Climate Change viewed at conveng.pdf (unfccc.int)
4. Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (europa.eu)
5. Sustainable Energy Authority of Ireland (2021) Energy in Ireland 2020 Report (seai.ie)
6. Sustainable Energy Authority of Ireland (2020) Renewable Energy in Ireland (seai.ie)
7. European Commission, 2030 climate and energy framework (europa.eu)
8. European Parliament News (2022), Cutting EU greenhouse gas emissions: national targets for 2030 | News | European Parliament (europa.eu)
9. European Environment Agency, COM(2011) 112 - A Roadmap for moving to a competitive low carbon economy in 2050 — European Environment Agency (europa.eu)
10. European Commission, Renewable energy directive (europa.eu)
11. European Parliament Think Tank, EU strategy for offshore renewable energy | Think Tank | European Parliament (europa.eu)
12. European Commission, REPowerEU: affordable, secure and sustainable energy for Europe | European Commission (europa.eu)
13. gov.ie - Climate Action and Low Carbon Development (Amendment) Bill 2021 (www.gov.ie)
14. gov.ie - Climate Action Plan 2021 (www.gov.ie)
15. gov.ie - Ireland's National Energy and Climate Plan 2021-2030 (www.gov.ie)
16. gov.ie - Programme for Government: Our Shared Future (www.gov.ie)
17. gov.ie - Project Ireland 2040 (www.gov.ie)
18. gov.ie - National Marine Planning Framework (www.gov.ie)
19. gov.ie - Offshore Renewable Energy Development Plan (OREDP) (www.gov.ie)
20. gov.ie - National Ports Policy (www.gov.ie)
21. gov.ie - Facilitation of Offshore Renewable Energy by Commercial Ports in Ireland (www.gov.ie)

22. Southern Regional Assembly – Regional Spatial and Economic Strategy for the Southern Region viewed at Southern Regional Assembly RSES 2020 High Res.pdf (southernassembly.ie)
23. Limerick City and County Council, Strategic Integrated Framework Plan | Limerick.ie
24. Limerick City and County Council, Limerick Development Plan 2022-2028 | Limerick.ie
25. Clare County Council, Clare County Development Plan 2023 – 2029 | Clare County Council (clarecoco.ie)
26. Kerry County Council, Draft Kerry County Development Plan 2022-2028 | Kerry County Council (kerrycoco.ie)
27. Tipperary County Council, Tipperary County development Plan 2022 – 2028 | Tipperary County Council (tipperary.ie)
28. Department of Enterprise, Trade and Employment (2022) Mid-West Regional Enterprise Plan to 2024 viewed at mid-west-regional-enterprise-plan-to-2024.pdf
29. Department of Enterprise, Trade and Employment (2022) South-West Regional Enterprise Plan to 2024 viewed at gov.ie - South-West Regional Enterprise Plan to 2024 (www.gov.ie)