NPF Submissions, Forward Planning Section

Department of Housing, Planning, Community and Local Government

Custom House, Dublin 1

D01 W6X0

30th March 2017

Ref: Atlantic Economic Corridor Submission to the National Planning Framework

The Atlantic Economic Corridor (the Chambers of Commerce working group) is an initiative of the Chambers of Commerce of Tralee, Shannon, Ennis, Galway, Roscommon, Mayo, Sligo, Leitrim, and the American Chamber of Commerce. Collectively we represent 80,000 employees, in 2,725 Irish-owned and multinational firms in the mid-west, west and north-west. We welcome the opportunity to contribute to the preparation of the National Planning Framework and acknowledge the commitment in the Programme for Government to the Development of a new Atlantic Economic Corridor(AEC).

Our submission pursues the objective set out in our Regional Economic Strategy published in February 2016, of "an Atlantic Economic Corridor, with a 'city of scale' from Limerick though Galway to Sligo, to match Dublin and Cork in success in developing infrastructure, attracting Irish and multi-national investment, and growing jobs and wealth in vibrant communities.

We consider that the NPF should reflect the paradigm shift in strategic planning that is required if we are to achieve the full potential that the country is capable of. Job creation and economic growth is led by private sector investment and the NPF must signal to investors that we are committed to building on our natural resources, human capital and availability of green energy.

The recognition at Government Programme level of the Atlantic Economic Corridor should be reflected in the draft NPF. We agree that a strong country needs strong regions which in turn need strong tier two cities and we can see this is part of the intent of the current draft of the NPF. However, the promotion of one or more of the four regional cities is not sufficient for the long term and transformational growth that is required.

A key point that underpins the AEC is that we want to build on the strengths of the AEC cities and larger urban centres but also connect them and reinforce the links between them and rural areas. These links can include, for example, looped connections to the Wild Atlantic Way. They can be strengthened in particular by growing our natural resources, green energy and people skills through a coherent planning framework. To do otherwise carries the risk of continuing past policies resulting in the continuous depletion and decline of the western regions. This is not consistent with the goals of the AEC.

The Atlantic Economic Corridor has to be formally designated as a strategic development zone and all local, regional authorities as well as state agencies must become co-ordinated and integrated in pursuit of the development of the strategic zone. Government and its agencies must show they are acting in a fully integrated manner in this regard. The apparent gap between the vision of the Draft National Planning Framework and the Government announcement of a Task Force to pursue the Atlantic Economic Corridor must be bridged.

We note reference in the NPF documentation to the potential of the Eastern Seaboard Corridor which appears to be a branded region – the Atlantic Economic Corridor should also be a designated as a specific economic region. We are greatly encouraged by the recent launch by An Taoiseach Enda Kenny of the Atlantic Economic Corridor Taskforce, on 6th March 2017 under the Chair of Mr Michael Ring T.D. Minister of State for Regional Economic Development.

The AEC Task Force provides the opportunity for working groups to be established with the public bodies responsible for infrastructure planning and expenditure, including the Departments of Finance, Utility companies and commercial state agencies.Progressing the proposal for an Atlantic Economic Corridor must, by its very nature, have a medium to long-term perspective. The National Planning Framework must also be complementary to, and consistent with, the Governments vision for the Atlantic Economic Corridor.The AEC believes our analysis and proposals sustain the underlying case for strong economic growth along the Atlantic corridor requires an integrated approach to long-term economic planning. Our strategy recommends a phased approach, with an immediate and near term focus on the first phase which broadly sets out to correct infrastructure and capacity deficits and optimize the existing capacity to innovate and create new employment. The second and third phase will require a detailed economic analysis of the potential within the economic corridor. This potential will be a combination of the human resource strengths and the potential of successful and sustainable development of all the natural resources of the region. The AEC propose three actions with immediate effect:

1. **Infrastructure provision** to support the expansion of key urban areas required to support capacity expansion, and the best economic return on new infrastructure and private capital investment.
2. Avail of the immediate opportunity to focus on the renewal and re-purposing of **Enterprise Property Capacity** along the corridor. This can be significantly supported by private investment assuming that we can create the certainty and competence necessary to support that investment.
3. An immediate refocusing of national investment on the **Innovation** opportunity that can be realised in the AEC using a vibrant eco-system of human and natural resources.

The attached documents set out: A) the ambition of the AEC, including the opportunities and challenges therein B) an analysis of the integrated infrastructure of the regions and the potential of the natural resource of the western regions.

We are fully engaged with the AEC taskforce in the realisation of the AEC strategy and we are available to discuss and provide additional detail as necessary.

Yours sincerely

Mike Devane

Chairperson

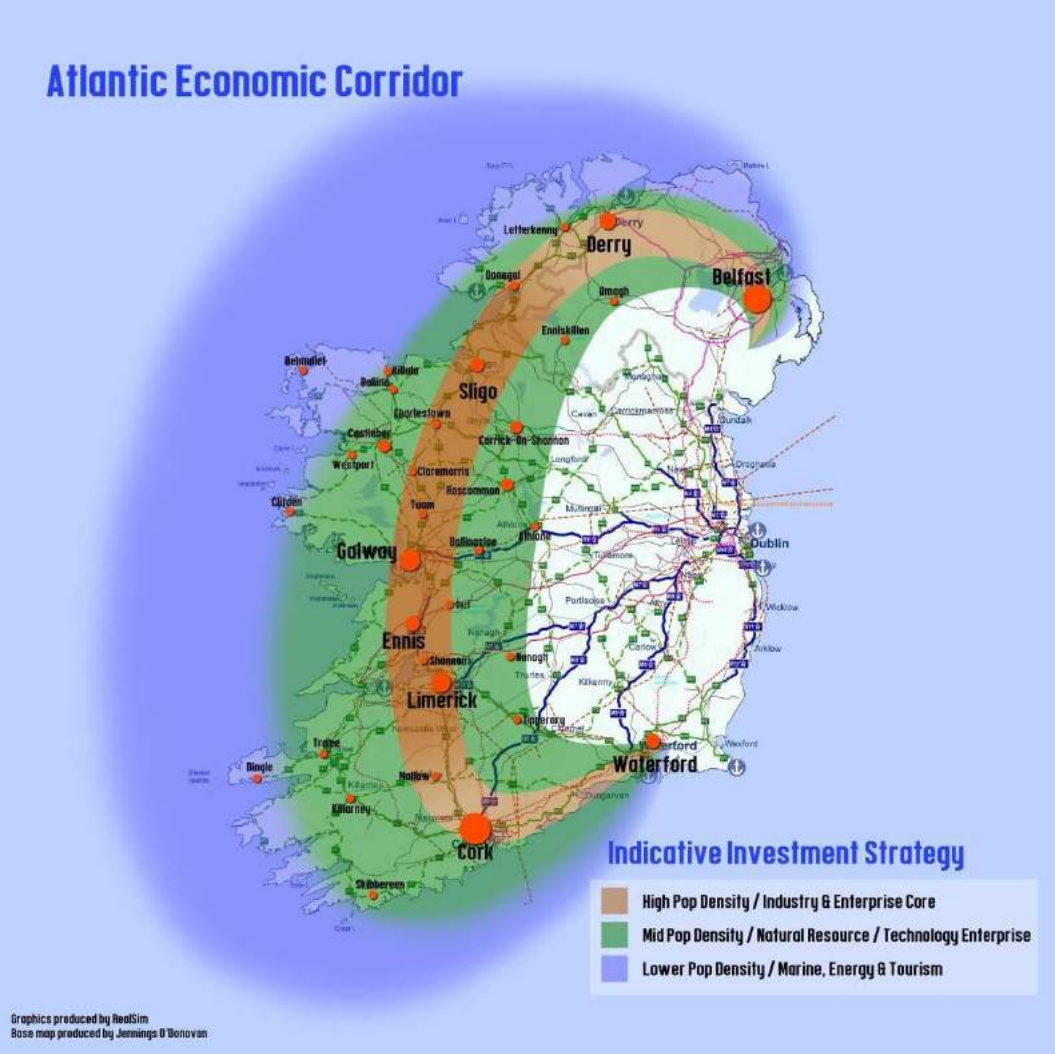
Atlantic Economic Corridor

ATLANTIC ECONOMIC CORRIDOR

SUBMISSION TO

NATIONAL PLANNING FRAMEWORK

INTEGRATED INFRASTRUCTURE ANALYSIS AND THE POTENTIAL DEVELOPMENT OF OUR NATURAL RESOURCES



March 2017

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1. AEC STRATEGY AND INFRASTRUCTURE

Infrastructure is one of the five pillars of the AEC strategy. During late 2016/early 2017, the current state of infrastructure in the AEC region was examined together with the requirements for developing infrastructure on a phased basis so as to unlock opportunities for economic development and respond to a doubling of population.

The review was prepared by infrastructure specialists based in the AEC region (see Slide 5 of Appendix A).

The purposes of the review were:

- To respond to the Department of Arts, Heritage, The Gaeltacht and Rural Affairs following a meeting led by William Parnell, Assistant Secretary with responsibility for Rural Affairs held at Galway on 26th October 2016. It is understood that the Department will use this information as part of its inputs to the mid-term review of the Capital Plan to be published in Summer of 2017.
- To provide a response to consultation in respect of the National Planning Framework in terms of the Regional Development of the west and north-west of Ireland.

Infrastructure was examined under various disciplines which are likely to be significant in attracting industry or in developing natural resources including:

- Road Transport
- Electricity
- Broadband
- Gas
- Rail
- Airports
- Ports and Harbours
- Water Supply and Waste Water
- Air Quality
- Flood Protection.

Each discipline was initially examined in isolation and is then critically analysed interactively with other disciplines so as to identify synergies, hotspots and provide the logic for prioritisation.

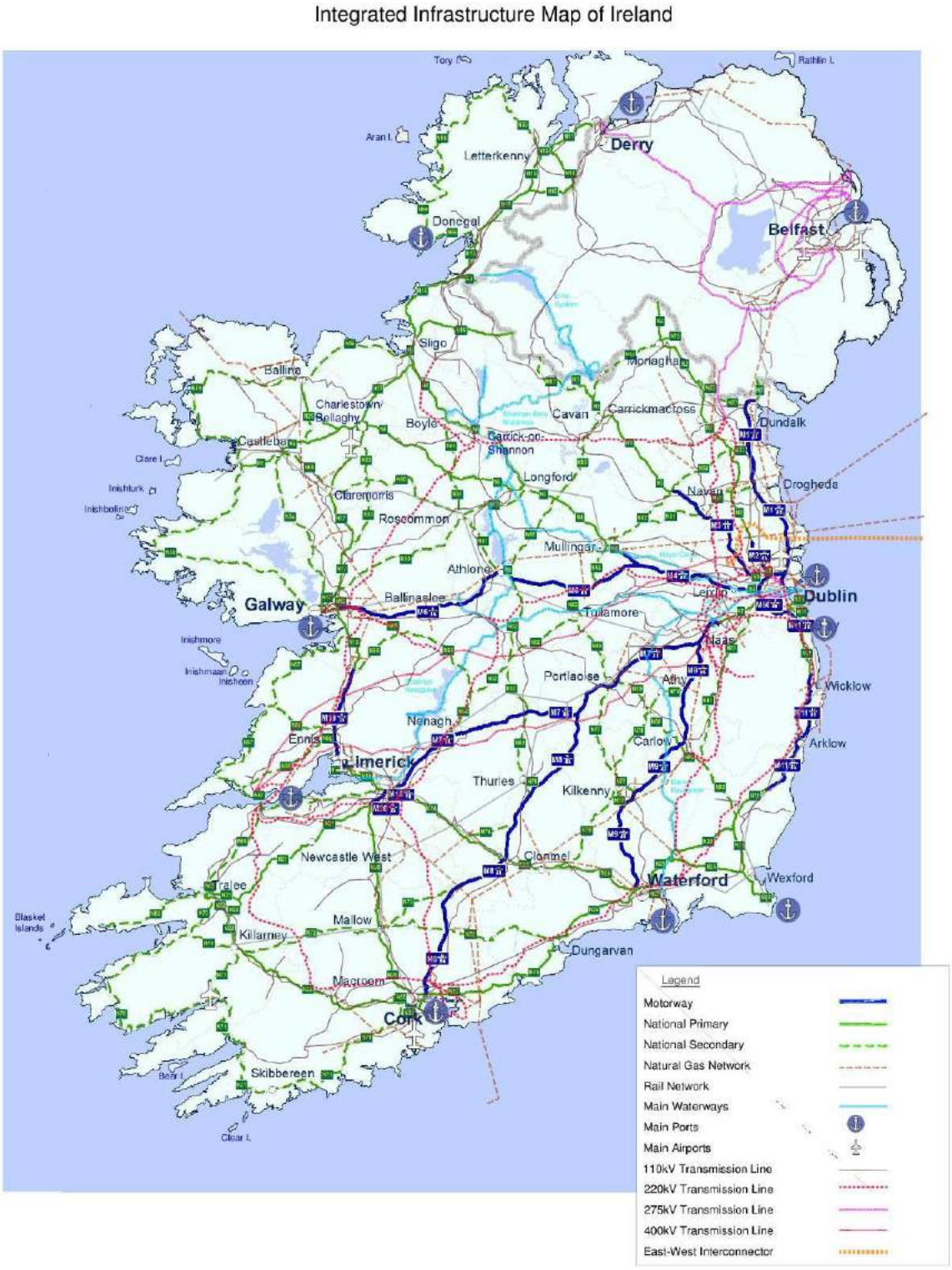


Figure 1.1 - Integrated Infrastructure Map of Ireland

The findings of the Infrastructure review are presented in a series of slides in Appendix A.

It was evident that many projects were "suspended" during the recession and have not been reactivated. It is also evident that the West of Ireland and, in particular the North West, has a deficit of Infrastructure compared to the east of Ireland. A summary of the state of infrastructure for the largest towns in the AEC Region follows as Table 1.1 below.

AEC REGION - 17 LARGEST URBAN AREAS - STATE OF INFRASTRUCTURE

Economic Sub-Region within AEC	Key Urban Areas	Population (2016 Census, prelim)	Motorway Connection	Road Connectivity Along Region	Local Road Capacity	Rail Access	Fibre Broadband	Fibre MAN	220kV Stations	220kV Line	Natural Gas	Airport within 80km	Port within 100km	Water Supply	Waste Water
Limerick / Clare	Limerick	91454	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Ennis	25360	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N
	Shannon	9673	Y	Y	Y	N	Y	N*	N	N	Y	Y	Y	Y	N
	Newcastle West	6327	N	N	Y	N	Y	N	N	N	N	Y	Y	Y	N
Galway/	Galway	76778	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
South Mayo/	Tuam	8242	Y	Y	Y	N	Y	N	N	N	Y	Y	Y	Y	Y
Roscommon	Ballinasloe	6659	Y	Y	Y	Y	Y	Y	N	N	Y	N	Y	Y	Y
	Roscommon	5693	N	N	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y
	Loughrea	5062	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y
	Athenry	3950	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Sligo/Leitrim/	Sligo	19452	N	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
South Donegal	Castlebar	12318	N	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y
	Ballina	11086	N	Y	Y	Y	Y	Y	N	N	Y	Y	N	Y	Y
	Westport	6063	N	N	Y	Y	Y	N	N	N	Y	Y	Y	Y	N
	Carrick-on-Shannon	3980	N	N	N	Y	Y	Y	Y	Y	N	Y	N	Y	Y
North Donegal	Letterkenny	19588	N	Y	Y	N	Y	Y	N	N	N	Y	Y	Y	Y
	Ballybofey-Stranorlar	4852	N	Y	N	N	Y	Y	N	N	N	Y	Y	Y	N

**** Part MAN in Shannon***

Table 1.1 - 17 Largest Urban Areas – State of Infrastructure

It was considered by the AEC Infrastructure Team that a number of key actions should be taken in the near term to support the longer term economic development of the region. These priorities include:

1. Reinforce the integrated corridor infrastructure
    a. Complete a primary and combined road and rail backbone along the corridor.
    b. Maximise the use of key infrastructure assets including airports, seaports and land ports, ensuring a complete infrastructure and utility provision to maximise their effective use and economic benefit.
    c. Ensure the integrated development and expansion of utility capacity for key development zones along the corridor.

2. Prioritise access to and use of natural resource assets.
    a. Optimise the use of green and low carbon energy to provide a unique energy capacity within the region.

b. Integrate the development of tourism and leisure sectors with the development of agriculture and the marine.
c. Increase the infrastructure and utilities available for the development of agri/marine related clusters in sectors including food, technology and machinery/equipment.
d. Develop new tourism infrastructure specifically supporting the Wild Atlantic Way and the shared hinterland (rings) with the economic corridor.

As part of the critical analysis/potential for unlocking of natural resources, an analysis of tourism and energy sections was carried out so as to prioritise infrastructure implementation. These are discussed in Chapters 2 and 3 of this report.

Opportunity in relation to the Marine Sector and Agriculture are discussed in Chapters 4 and 5 respectively.

2. WILD ATLANTIC WAY/TOURISM – INFRASTRUCTURAL ASPECTS

2.1. Tourism Performance

According to Fáilte Ireland (Regional Tourism Performance in 2015, October 2016) the number of overseas visitors to Ireland rose from 6.045million in 2013 to 8.278 million in 2016. The majority of these came from Britain (3.335 million) and mainland Europe (2.89million) with much of the balance from North America (1.585 million).

Table 2.1 below summarises the overseas tourism statistics for Dublin in 2015.

Dublin	Tourist Parameter	Value
	Tourists (000s)	**4,937**
	Tourist Revenue (€m)	1,726.2
	Holidaymakers (000s)	2,841

Table 2.1 - Overseas Tourism Dublin

Table 2.2 below provides a similar summary for Wild Atlantic Way tourism.

Region		2012	2015	Change
South West (Cork, Kerry)	Tourists (000s)	1,779	2,104	+18%
	Tourist Revenue (€m)	562.8	791.8	+41%
	Holidaymakers (000s)	1,101	1,428	+30%
Shannon (Clare, Tipp.N, Limerick, Offaly	Tourists (000s)	867	1,148	+32%
	Tourists Revenue (€m)	221.4	366.8	+66%
	Holiday makers (000s)	499	760	52%
West (Galway, Roscommon, Mayo)	Tourists (000s)	1,164	1,590	+37%
	Tourist Revenue (€m)	339	574.5	+69%
	Holidaymakers (000s)	815	1,120	+37%
North West (Cavan, Leitrim, Sligo, Donegal, Monaghan)	Tourists (000s)	428	694	+62%
	Tourist Revenue (€m)	112.6	224.1	+99%
	Holidaymakers (000s)	266	403	+51%
Totals	Tourists (000s)	4,238	5,536	+31%
	Tourist Revenue (€m)	1,235.8	1,957.2	+58%
	Holidaymakers (000s)	2,681	3,711	+38%

Table 2.2 - Wild Atlantic Way Tourism

The numbers are such that the South-West, Shannon and West have the most visitors.

The North-West experiences only 43% of tourists visiting the West Region or 33% of tourists visiting the South West Region.

It is evident that the West Region has experienced the greatest increase in tourism numbers i.e. by 426,000 (from 1,164,000 to 1,590,000) which was equivalent to the total number of tourists visiting the North West in 2012.

Table 2.3 shows the distribution of visits to AEC Counties in 2015.

County	Overseas Tourists (000)	Overseas Revenue €m	Irish Residents Trips to County (000)	Expenditure by Irish Residents €m
Limerick	537	212	257	32.1
Clare	597	127	410	101.2
Galway	1,354	475	895	194.1
Mayo	302	80	463	93.3
Sligo	186	51	263	61.2
Roscommon	50	20	80*	14.1
Leitrim	57	15	117**	19.75
Donegal	289	83	314	75.7
Total AEC	3,372	1,063	2,799	591.45
Total Ireland	12,963	4,266	9,125	1,725.3
% of Irish Total	26%	25%	31%	34%

** 50% of Combined Roscommon/Longford*
*** 50% of combined Cavan/Leitrim*

Table 2.3 - Distribution of Visits to AEC Counties in 2015

The Northern part of Wild Atlantic Way is not being used to full potential.

There is a need for improved access to Mayo, Sligo, Roscommon, Leitrim and Donegal.

Good access is key to tourism. Dublin Airport is Ireland's busiest with 27.9 million passengers in 2016. Within the AEC Region, Shannon Airport had 1.74 million passengers in 2016 while Ireland West (Knock) had 0.73 million.

It is evident that a substantial portion of visitors to the AEC Region land at Dublin and drive across the Country.

It is likely that part of the increase in numbers to the West Region in recent years is due to the completion of the M6 motorway in December 2009 which makes it easy to get from Dublin to Galway i.e. the middle to the Wild Atlantic Way.

The following projections for growth in tourism are considered by the AEC as being realistic for the AEC Region.

	2015	Phase 1 – Nov (to 2020)	Phase 2 – Near Term (2020 – 2030)	Phase 3 – Medium Term (2030 – 2040)
Overseas Tourism	3,372,000	4,000,000	To 7,500,000	To 10,000,000
Irish Residents Trips	2,799,00	4,000,000	To 7,500,000	To 10,000,000

Table 2.4 - Projected Growth in Tourism

In order to develop tourism further along the Wild Atlantic Way, it is essential to improve access into the West of Ireland and also to improve connectivity up and down along the Wild Atlantic Way Region. The following infrastructural sectors are of vital importance to tourism.

- Broadband
- Airports
- Motorways and Roads
- Ports

2.2. Broadband

Good Broadband is essential so as to make bookings for accommodation and activities. The key recommendations in relation to broadband which are necessary for tourism growth are summarized below:

Phase 1 Now (To 2020)	Phase 2 Near Term (2020-2030)	Phase 3 Medium Term (2030-2040)
Deliver the completed National Broadband Plan. Complete MANs to Ennis and Shannon. Provide MANs to Tuam, Castlebar and Westport.	Provide MANs to urban areas including Rathkeale Foynes Ennistymon, Newmarket-On-Fergus, Newcastle West Ballyhaunis, Killala, Swinford, Ballymote, Tubercurry, Collooney, Ballaghaderreen, Castlerea, Killybegs and Glenties so as to achieve 100Mbps.	

Table 2.5 - Broadband Requirements

2.3. Airports

The combined passenger total for 2016 for Shannon Airport and Ireland West (Knock) airport was 2.47 million which is 8.9% of the passenger numbers for Dublin Airport. So as to facilitate the growth of the Wild Atlantic Way, it is essential that more passengers use Shannon and Ireland West Airports rather than Dublin Airport.

This can be achieved by a combination of marketing and the provision of infrastructure. Much of the recommended infrastructure can be delivered in a short timeframe i.e. between now and 2020 which will be a shorter timeframe than that required for delivery of motorway infrastructure. The following are the key recommendations.

Phase 1 – Now (to 2020)	Phase 2 – Near Term (2020-2030)	Phase 3 – Medium Term (2030-2040)
Designate lands in the vicinity of Ireland West Knock Airport as a Strategic Development Zone	Provide rail link between the Limerick – Ennis line and Shannon Airport	
Carry out works on the main runway and aircraft parking areas at Ireland West Knock Airport		
Extend Aerospace Road to the North of Shannon Airport		
Complete Dual Carriageway of last 1 km of N19 to Shannon Airport		
State to take in charge Flood Protection embankment protecting Shannon Airport and Shannon Tourism		

Table 2.6 - Airport Requirements

2.4. Motorways/Roads

So as to achieve access into the northern part of the Wild Atlantic Way, it is essential that the N4 be developed as motorway/dual carriageway for much of its route from Dublin to Sligo. This will also facilitate additional trips by residents of the East Coast.

It is also important to have a spine of motorways/dual carriageway up and down The Wild Atlantic Way so as to allow easy access and connectivity. Key deficits exist between Limerick and Cork, Limerick and Kerry and Tuam to Sligo.

Many of TII's motorway projects within the AEC Region are "suspended". The AEC urges that these suspensions be lifted as soon as possible so as to allow for the typical 5-6 year lead in time to start of construction.

The following are the AEC's recommended actions.

	Phase 1 – Now (to 2020)	Phase 2 – Near Term (2020 – 2030)	Phase 3 – Medium Term (2030 – 2040)
Planning	• M20 Limerick to Cork Motorway. • N6 Galway City Transport Project (2 Parts). • N24 Ballysimon to Pallasgreen. • M4 Mullingar to Roosky Motorway. • N21 Abbeyfeale Rathkeale. • N59 Clifden to Oughterard. • N17 Tobercurry By-Pass to Knock By-pass (includes Collooney to Charlestown). • N4 Dromod to Carrick-on-Shannon including Carrick-on-Shannon By-Pass. • N17 Tuam to Claremorris.	• Eastern Garavogue Bridge and Approach Roads Sligo. • N15 Sligo to Tullaghan. • N15 Ballybofey/ Stranorlar By-Pass. • N15 Lifford to Stranorlar. • N14/N15 to A5 link Bridge over River Finn. • N16 Sligo to Glencar (May be done in 3 Stages). • N16 Glenfarne to Glencar. • N5/N26/N58 Turlough to Bohola.	

Table 2.7 - Motorways/Roads Requirements – Planning

	Phase 1 – Now (to 2020)	Phase 2 – Near Term (2020 – 2030)	Phase 3 – Medium Term (2030 – 2040)
Construction	• N4 Collooney to Castlebaldwin. • N5 Westport to Turlough Road (Castlebar). • N5 Ballaghaderreen to Scramoge. • Adare to Rathkeale. • N69 Rathkeale to Foynes. • Moycullen Bypass.	• M20 Limerick to Cork Motorway. • N6 Galway City Transport Project (2 Parts). • N24 Ballysimon to Pallasgreen. • M4 Mullingar to Roosky Motorway. • N21 Abbeyfeale Rathkeale.	• N14/N15 to A5 link Bridge over River Finn. • N14 Letterkenny to Lifford. • N13 Letterkenny to Stranorlar. • N13 Letterkenny to Bridgend. • N16 Sligo to Glencar (May

	Phase 1 – Now (to 2020)	Phase 2 – Near Term (2020 – 2030)	Phase 3 – Medium Term (2030 – 2040)
		• N59 Clifden to Oughterard. • N17 Tobercurry By-Pass to Knock By-pass (includes Collooney to Charlestown). • N4 Dromod to Carrick-on-Shannon including Carrick-on-Shannon By-Pass. • N17 Tuam to Claremorris. • Eastern Garavogue Bridge and Approach Roads Sligo. • N15 Sligo to Tullaghan. • N15 Ballybofey/ Stranorlar By-Pass. • N15 Lifford to Stranorlar.	be done in 3 Stages). • N16 Glenfarne to Glencar. • N5/N26/N58 Turlough to Bohola.

Table 2.7 - Motorways/Roads – Construction

2.5. Ports

Cruise liners have been a feature of tourism in Cork and, more recently, in Galway and Killybegs. Foynes (or in the future Moneypoint) which are deepwater ports could accommodate cruise liners in the future. Killybegs is a designated "Fisheries Harbour Centre". Clarity is required as to the potential uses of Killybegs. The following are the key recommendations.

Phase 1 – Now (to 2020)	Phase 2 – Near Term (2020 – 2030)	Phase 3 – Medium Term (2030 – 2040)
• Prepare Feasibility Report on future of Moneypoint Port. • Complete Planning Stage for new Galway Port. • Re-open rail link to Foynes Port. • Upgrade road link to Foynes Port. • Feasibility Study on uses of Killybegs. • Feasibility study on uses of Sligo Port	• Construct new Galway Port. • Planning for Moneypoint. • Improvements for Killybegs Port including extension.	• Implement recommendations for Moneypoint.

Table 2.8 - Port Requirements

3. GREEN ENERGY – INFRASTRUCTURAL ASPECTS

3.1. Approach

There is an abundance of renewable energy potential along the AEC region. This resource/opportunity can help to address two of the NPF key questions:

- Where will Ireland fit in a wider (geographical) context?
- What are the planning responses to key environmental challenges?

In this discussion, the AEC shows how Ireland can be a "green economy with a low Carbon footprint and possibly a nett exporter of a significant quantity of energy ("green" electricity) in the wider geographical context of Europe. It also describes some of the planning responses to environmental challenges.

3.2. Energy Vision

By 2040, it is anticipated that Ireland will have over one million additional inhabitants.

If the AEC Region is notionally taken as Counties Kerry, Limerick, Clare, Galway, Mayo, Sligo, Roscommon, Leitrim and Donegal, then the population of these counties (according to the 2016 census) is 1,170,853 while the population of Ireland (Republic) is 4,757,976.

Thus, the AEC Region hosts 24.6% of the national population.

For the purposes of this submission, the following vision is proposed.

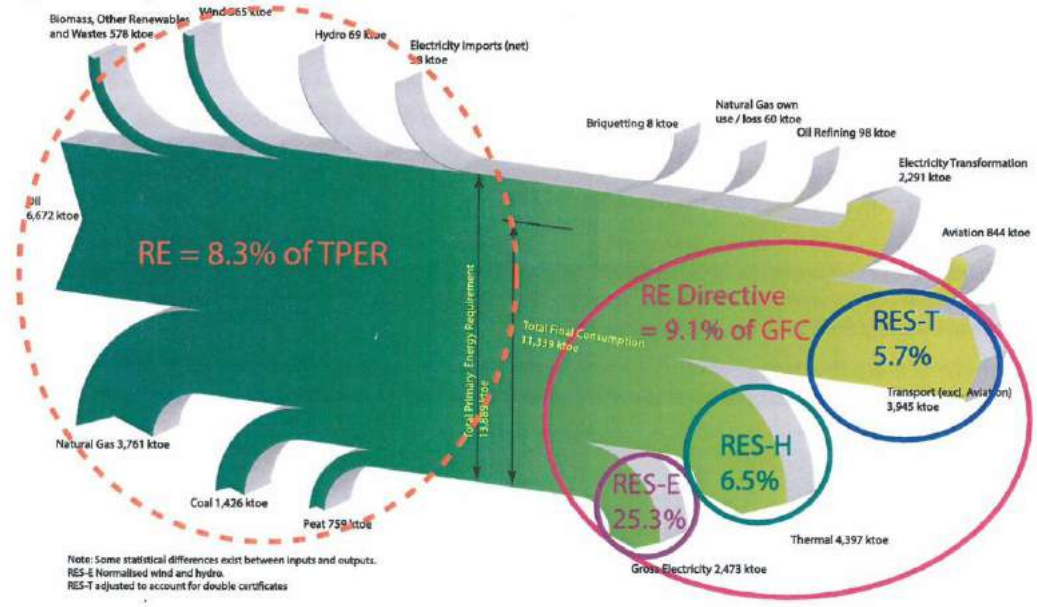
Vision for 2040
• **Population of Notional AEC Region to be 2,000,000 or 35% of Country.** • **AEC region to be self-sufficient in "green" energy.** • **AEC Region to supply "green" energy to other parts of the Country.** • **All transport will be from "green" electricity.**

Table 3.1 - Energy Vision for 2040

3.3. Energy Balance 2015

The SEAI's Report "Energy in Ireland 1990-2015", November 2016, provides a record of the Country's progress in reducing and decarbonising our energy use and monitors progress against the 2020 targets. Section 2.3 of that Report presents an Energy Balance for 2015 while Section 3.1 evaluates progress against 2020 Renewable Energy Targets. These sectional targets are RES-E (electricity), RES-T transport) and RES-H (heat). Figure 21 of the Report is shown below.

Figure 21 *Progress to Targets 2015*



	Progress towards Targets								Target
% of each target	2000	2005	2010	2011	2012	2013	2014	2015	2020
RES-E (normalised)	4.8	7.2	14.6	17.4	19.7	21.0	22.9	25.3	40
RES-T	0	0	2.4	3.7	3.9	4.8	5.1	5.7	10
RES-H	2.4	3.5	4.5	4.9	5.1	5.5	6.6	6.5	12
Directive (2009/29/EC)	2.0	2.8	5.6	6.5	7.1	7.6	8.6	9.1	16

Table 3.2 - Renewable Energy Progress to targets

3.4. Contribution of Renewables 2015

Renewables Contributed 8.3% of Total Primary Energy Requirement in 2015 as follows:

Hydro	69ktoe*
Wind	565ktoe
Biomass, Other Renewables & Water	578ktoe

*kilo tonnes of oil equivalent

The overall breakdown was:

Renewable Electricity %	1990	2000	2005	2010	2011	2012	2013	2014	2015
Hydro (normalised)	5.3	3.4	2.7	2.6	2.7	2.8	2.7	2.6	2.5
Wind (normalised	0	1.0	4.0	10.9	13.5	15.3	16.6	18.4	21.1
Biomass	0	0	0	0.4	0.5	0.9	1.1	1.2	1.0
Landfill Gas	0	0.4	0.4	0.6	0.6	0.6	0.6	0.6	0.6
Biogas	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Solar PV	0	0	0	0	0	0	0	0	0.01
Overall	0	4.8	7.2	14.6	17.4	19.7	21.0	22.9	25.3

Table 3.3 - Renewable Energy Contribution to Gross Electricity Consumption (RES-E normalised)

The total installed wind capacity was approx. 2,440MW.

The average capacity factor for wind was 32% while for hydro, it was 39%. This means that for each MW of wind generation installed the electricity produced is equivalent to full output for 32% of the time.

3.5. AEC Regions Energy Usage, 2015

Based on 25% of national population, the AEC Regions Total Primary Energy Requirement in 2015 is estimated at 3,422.25 ktoe.

3.6. Meeting RES-E 2020 Target

It is anticipated that the REFIT Renewable Energy Feed in Tariffs (which require projects to be operational by end 2019) will bring the total renewable energy generating capacity (mainly wind) to 4,500MW which will mean that Ireland will meet its RES-E target. However, there are concerns that the RES-T and RES-H targets will not be met and hence the overall target of 16% as per Directive 2009/28/EC will not be met. It is possible that Ireland could face fines of up to c. €500m annually for breach of this limit.

3.7. Making up the Shortfall on RES-T

Phase 1 (Now) to 2020	• Increase use of rail for freight • Increased use of compressed National Gas (CNG) for HGV's
Phase 2 Short-Term 2020-2030	• Electrification of Rail • Diesel reduced to 25% of HGV's by 2030, CNG - 50% of HGV's; Electricity – 25% of HGV's
Phase 3 Medium Term 2030-2040	• All HGV's either CNG or Electricity (diesel phased out)

Table 3.4 – Making up the Shortfall on RES-T

Ballina, Co. Mayo is a hub for freight with increasing tonnages annually.

Re-opening three railway lines viz

- Collooney to Claremorris
- Claremorris to Athenry
- Limerick to Foynes

would allow direct access to either Foynes Port or Waterford Port and thereby allow further increases in rail freight. This would facilitate a reduction in HGV's for freight traffic.

The AEC recommends that a national freight strategy and action plan be urgently progressed so as to evaluate what is viable in the short-term. This is likely to involve the construction of freight-capacity passing loops on all single track regional railway at 15km intervals

Gas Networks Ireland is currently targeting at least 5% penetration of compressed Natural Gas (CNG) for commercial fleet operation and 10% of the bus market in Ireland by 2025. Gas Networks Ireland are proposing to develop a 70 station CNG fuelling network, co-located in existing forecourts on major routes and close to urban centres. The AEC believes that these targets are not ambitious enough and that a 10% penetration in HGV traffic by 2020 should be targeted.

In 2015, RES-T accounted for 5.7% (224.8 ktoe) of Transport demand of 3,945 ktoe. Road Freight accounted for 625ktoe energy demand in 2015 while Light Goods Vehicles accounted for 300 ktoe and Public Passenger (Road) vehicles accounted for 137 ktoe. These total 1,062 ktoe.

If 20% of Road Freight was replaced by rail and 10% of the combined total was run on CNG by 2020, this would result in a further overall oil equivalent energy reduction of approx. 250 ktoe by 2020 which would be close to our RES-T target.

3.8. Electrification of Rail

Our rail rolling stock is ageing and will need to be replaced post 2025. Diesel, as a fuel, may be banned at that stage and it would be opportune to electrify our railway system. In 2015, rail had an energy demand of 39ktoe. In future, this could double to 80ktoe as a result of additional freight and increased passengers.

This is equivalent to 930,000 MWH per year. Assuming an 18-hour day, the generating capacity required would be 141MW. For Wind energy at 32% capacity, the installed generation requirement would be 442MW, say 450MW. This could be provided in its entirety by wind power from North Mayo (150 turbines), backed up by peaking plants fuelled by natural gas also based in North Mayo (Bellacorrick area). Solar energy could contribute to the generation mix. As industrial scale battery storage continues to develop, such installations could also be provided.

3.9. Ireland's Potential Renewable Energy Resources Beyond 2020

Ireland has a vast array of potential renewable energy resources. These are described briefly below.

On-Shore Wind: Eirgrid anticipates an additional 180-250MW per year of installed capacity between 2020 and 2030. Many of their sites have Planning Permission and are outside the Gate 3 Grid Connection processing mechanism. The additional installed capacity is estimated at 2,000MW which, at 32% capacity, is equivalent to 482ktoe/annum.

Off-Shore Wind: Some 1,555MW of offshore wind farms have approved Foreshore leases. There is another 2,595MW at application stage. The combined total for off-shore wind is 4,150MW. Assuming a capacity factor is 40%, the energy yield could be 1,250ktoe/annum.

PV Solar: In excess of 5,000MW of grid connection applications have been submitted. Many of these solar farms are going through the Planning Permission process. Assuming a capacity factor of 20%, the energy yield could be 753 ktoe/annum.

Wave Energy: The 2005 Ocean Energy strategy from the DCMNR, cites Ireland as having huge Ocean Energy potential most particularly with regard to its wave resources.

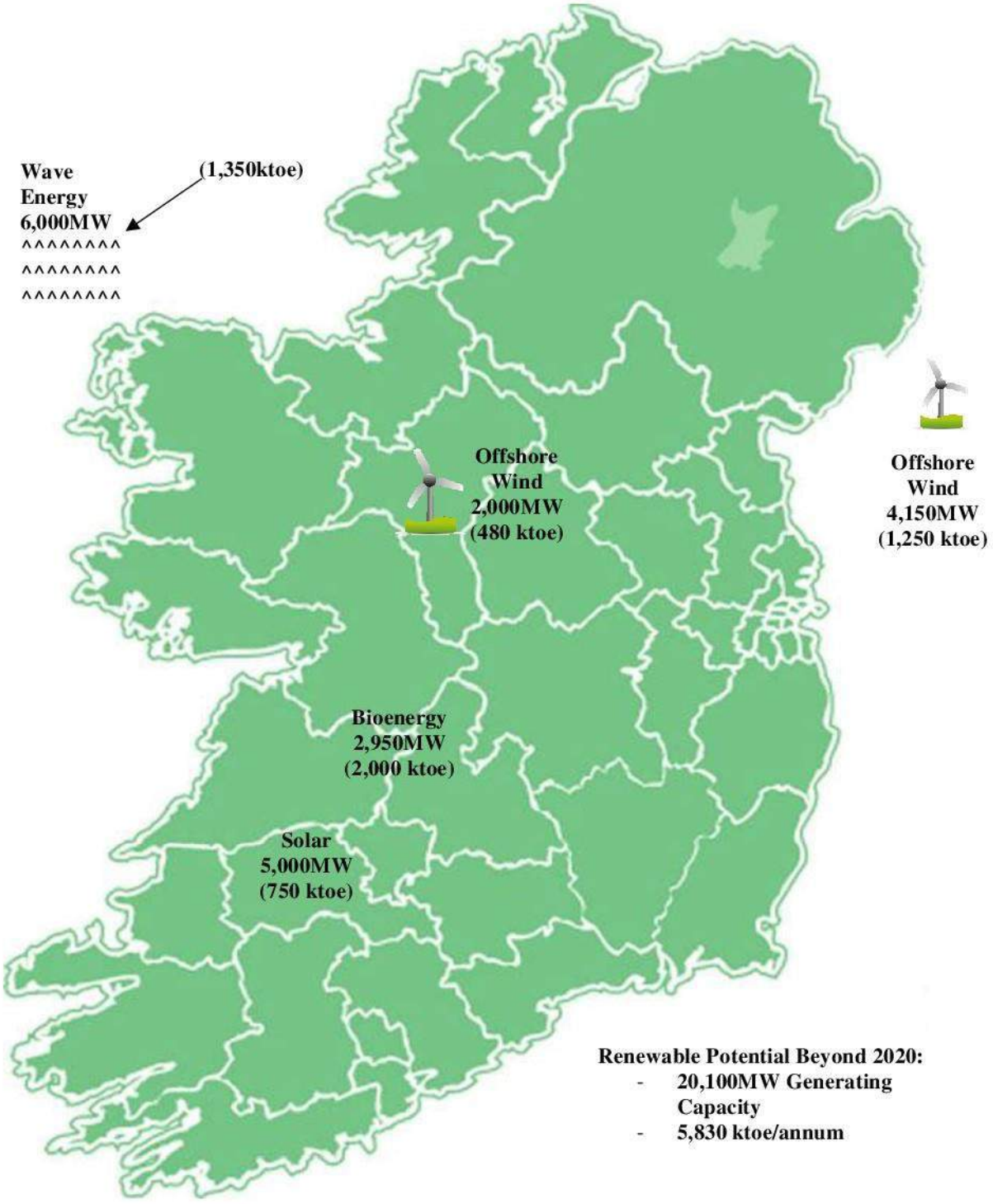
It estimates that the practical wave energy resource offshore is greater than 6,000 MW or 59 TWh per annum as per the public consultation document options for the development of wave energy in Ireland.

The potential is there for wave energy to be a crucial contributor towards Ireland's future energy requirements in the medium to long term.

Assuming a capacity factor of 30% the energy yield could be 1,350 ktoe/annum.

Bioenergy: This includes Biogas from Anaerobic Digestion, Solid Biomass and Liquid Biofuels. Biogas from Anaerobic Digestion can be generated from pig slurry, grass silage, cattle slurry and food waste. Solid biomass includes the use of willow, miscantus, straw and municipal waste. According to the SEAI, the 2035 potential is equivalent to 30% of Ireland's current energy demand. They also state that over 3,500 ktoe of indigenous resources will be available by 2050. A value of c.2,000 ktoe/annum is assumed for 2040. This has potential to attain our RES-H target.

Irelands Post 2020 Renewable Resources



*(Note: These are in **excess** of 2020 projected renewable generation estimates)*

The extent of these renewables is such as to be able to replace almost 90% of current oil usage for total energy production (including cars etc). This would facilitate almost total conversion of transport to electricity.

As Bioenergy offers a scalable solution and can be generated by agricultural activity, it constitutes a use of natural resources (i.e. the land). The generation facilities can be located close to the point of use and heat can be harnessed as well as electricity. The AEC recommends that more should be done by Government in the promotion and development of Bioenergy. The growing of crops can also act as a carbon sink. Agriculture is a key natural resource and bioenergy has the potential to create rural employment. Agriculture is discussed further in Chapter 5 of this Report.

In order to harness this Bioenergy potential, it is considered that the electricity grid needs to be well developed.

4. MARINE – APPROACH TO HARNESSING OPPORTUNITY IN THE WEST OF IRELAND

The importance & potential of our Atlantic Ocean is recognised in 'Harnessing Our Ocean Wealth, an Integrated Marine Plan (IMP) for Ireland'. As Ireland sets forth to double the ocean economy, the AEC, Western Development Commission and the Western region can offer a key role in fostering a collective developmental, financial & policy approach across the Marine & Coastal stakeholders. SEMRU estimates the performance of Ireland's Ocean Economy in 2014 has increased in turnover of 7.6% to €4.5 billion. According to the SEMRU 2014 report, the direct economic value of the ocean economy is estimated to be worth €1.4 billion which is an 8.2% increase on 2012. Employment is estimated to have increased by 6.1% in the 2012-2014 period, to approximately 18,480 FTEs'.

This Western Region has the opportunity to drive and grow national economic growth. The AEC together with the WDC is a platform for working collectively across stakeholders and across geography, to harness our national location advantage and to drive the Atlantic Ocean economy. In our seat on the Western edge of the Atlantic Ocean, our extensive ocean resource and the existence of research infrastructure and a research orientated FDI & SME base can be gathered to position ourselves at the heart of the blue" economy while preserving the ecological stability of our marine environment. This will require a collective approach to: the infrastructure build out, Investment Programme, to Marine Tourism, to near shore farming, to our deep water ports, to our existing coastal populations. The Marine is an opportunity for this region to drive high value growth into region and it requires an integrated approach.

Ireland's marine territory extends 200 nautical miles west into the Atlantic, covering seas 10 times the area of our land mass. Facing this geography Ireland's Atlantic coast enjoys great access to an abundance of natural marine resources. By 2040, the Atlantic will be recognised for its thriving marine economy serving global markets for seafood, tourism, oil and gas, renewable ocean energy and convergent industries in health, medicine and technology. This will enable Ireland to capitalise on a globally competitive locational advantage, and develop a reputation as an economy of ocean innovation.

International experience shows that the most successful entrepreneurial industries (e.g. software and ICT) utilise large and diffuse networks whilst developers in ocean-related industries have remained more isolated[1]. Investment in dedicated marine infrastructure, coastal economies, off shore platforms, incubation and enterprise support centres is required to integrate innovators, policy makers, investors from the important marine, maritime and energy sectors with those from other marine industries and with a broader communities of entrepreneurs and with our coastal and inland populations. This marine focus will drive accelerated Marine economic, societal, innovation, infrastructural growth.

[1] Sigfusson, T. 2015. *Introducing the Iceland Ocean Cluster.* http://tinyurl.com/Introducing-IOCH accessed 11 June 2016.

Innovation: Co-ordinated Marine Incubation Centres are required to shape the national engine, and to drive commercial partnerships, networks and business ventures. By connecting entrepreneurs, business innovators and scientists Ireland will harness and maximise the commercial potential of marine and maritime innovations. Our vision is to implement the enterprise development platform that will: Make Ireland an international leader in marine industrial innovation and enterprise; and Enable indigenous marine companies to quickly develop from concept to market, to successfully compete globally.

The high growth potential of marine industries is well recognised nationally[2], and by the European Commission[3]. The direct economic value of Ireland's ocean economy, estimated at €1.4 billion in 2014 (~0.8% of GDP), grew 8.2% in GVA and 6.1% in jobs since 2012. Our Ocean Economy includes established marine industries, and emerging industries:

Established Marine Industries: **Turnover: €3.96 billion; Jobs: 16,271 FTEs**	**Emerging Marine Industries:** **Turnover: €215 million; Jobs: 1,154 FTEs**
• Shipping, maritime transport & ancillary services • Oil and gas exploration and production • Marine construction and engineering • Fisheries, aquaculture and ancillary industries • Marine tourism and leisure • International cruise tourism	• Marine renewable energy • Marine and maritime commerce • Marine ICT products and services • Biotechnology and bio-products • Nutrition and functional foods

Table 4.1 – Marine Sector Industries

Whilst the established industries require continuing support and innovation, there is huge growth potential in the emerging marine industries which are all experiencing large increases in turnover and GVA and supporting job growth. The OECD advise[4] that deploying "enabling and cross cutting technologies" in the marine sector will be critical in developing new products and services needed to deliver a smart and sustainable knowledge-based maritime economy. Innovations in advanced materials, subsea engineering & technology, sensors & imaging, satellite technologies, computerisation & big data analytics, autonomous systems, biotechnology and nanotechnology – every sector of the ocean economy – will be affected by these technological advances.

[2] SEMRU, NUIG. 2015. *Ireland's Ocean Economy: Reference year - 2012*. http://tinyurl.com/IRL-Ocean-Economy accessed 30 June 2016.
[3] European Commission. 2014. *Communication from the Commission: Innovation in the Blue Economy: realising the potential of our seas and oceans for jobs and growth*. COM(2014) 254/2 (13/05/2014). http://tinyurl.com/Innovation-in-the-Blue-Economy accessed 30 June 2016.
[4] OECD, 2016. *The Future of the Ocean Economy: Exploring the prospects for emerging ocean industries to 2030.* http://tinyurl.com/Future-Ocean-Economy accessed 30 June 2016.

Advanced technologies will become imperative for sustainable management of our seas, and for realization of the European Commission's 'Blue Growth' agenda[5]. Recognition of this growth potential has led many countries (e.g. UK's Strategy for Growth in the Marine Industry) and maritime regions to develop new "Blue Tech" industries, and encourage "Blue Growth", by establishing strategic marine clusters in the Western Region. These developments will respond directly to the Government's Harvesting our Ocean Wealth[6] and Renewable Energy Strategies[7] by pursuing market opportunities identified as highest priority and high potential (see Table 4.2). Successful leverage of these market opportunities requires focussed innovation supports in three cross-cutting strategic domains: Marine ICT; Marine Biotechnology, and Renewable Energy.

Market Opportunities identified in the "Harvesting Our Ocean Wealth" report (2012):	Projected market size 2020	Cross-cutting marine domains		
		ICT	Biotech	Energy
Maritime commerce and ship leasing	€2.6 billion	✓		✓
Marine and coastal tourism and leisure (incl. cruise tourism)	€1.5 billion	✓	✓	✓
Ports and maritime transport services, maritime manufacturing, engineering, offshore oil and gas	€1.2 billion	✓		✓
Seafood (fisheries, aquaculture, seafood processing)	€1.0 billion	✓	✓	✓
Other marine ICT and biotechnology	€61 million	✓	✓	

Table 4.2 – Market Opportunities in the Marine Sector

Marine ICT and Engineering: Over 50 indigenous and MNCs based in Ireland are currently developing or providing high-tech marine products and services to global markets[4]. An SEAI & EI assessment of supply chain needs for the offshore energy sector[6] found that the core capabilities required by indigenous companies were: Wireless communication platforms; Data management & internet-based visualisation tools; Streaming data analytics; Modelling; Simulation; Forecasting; &, Engineering design to support operational management. The marine innovation network proposed within the Atlantic Economic Corridor will enable industry access to these needs through its proximity to national research and test infrastructures, and established working relationships with domain experts.

[5] European Commission, *Blue Growth Opportunities for marine and maritime sustainable growth*. COM(2012) 494 final. http://tinyurl.com/EC-Blue-Growth accessed 30 June 2016.

[6] Government of Ireland (2012). *Harnessing Ocean Wealth – An Integrated Marine Plan for Ireland*. Government publications, Dublin. http://tinyurl.com/HOOW-2012 accessed 30 June 2016.

[7] DCENR, 2012. *Strategy for Renewable Energy:* 2012-2020. http://tinyurl.com/Renewable-Energy-Strategy accessed 30 June 2016.

Marine Biotechnology for the Life Sciences & Food Sectors: An ideal geographic location will help businesses access Ireland's vast and rich natural marine resources. Proximity to established infrastructures required for blue biotech industry development will enable Ireland's marine biotechnology industry to grow and serve diverse markets for medical devices, pharmaceuticals, food products (incl. functional foods), cosmetics, agrichemicals, fine chemicals, proteins and biofuel.

Marine Offshore Renewable Energy development is an identified key priority of the European Commission. The export opportunity for Irish companies is substantial[8]. If successfully commercialised, wave and tidal energy could generate up to 100 GW by 2050 in Europe[9]. Whilst wave and tidal energy share similar technical challenges, tidal stream technology is at a more advanced stage of development and well placed to access burgeoning marine renewable energy markets.

A Marine Innovation Network strategically positioned along and beyond our traditional Western Region will drive the development of an ocean industry ecosystem through creating BlueTech 'spin-off sectors' in Marine ICT, Biotechnology, and Offshore Renewable Energy. Creation of technology based companies will have direct economic benefits through wealth and job creation, and via new knowledge generation and stimulation of novel industrial sectors.

A Marine Cluster support base that aligns research institutions, infrastructures, mature companies and our strategic location will be hugely important to our Marine economic formation. Ireland's strong track record in attracting FDI and MNC anchor companies in global industries has created a greater push in indigenous technology entrepreneurship and is also pulling Irish ventures into feeding the global supply chains of MNCs. An aligned Western Region Marine Cluster will drive the push-pull dynamics in our marine/maritime sectors to maximise the economic benefit for Ireland.

It is envisaged that a **Marine Investment Program** is needed to support specific initiatives to drive forward the readiness of the marine sector, as well as supporting the capacity for the Marine economy to develop. A targeted Marine Investment Programme could focus on:

- ✓ Capacity and capability building to support enterprise and industry development.
- ✓ Infrastructure that is required to grow the economy.
- ✓ Enterprise or industry initiatives that enable sectors to develop or scale quickly.

A **Marine Convergence Centre** is required to enable existing national assets i.e. Insight, Curám, BioInnovate, MarEI, Tyndall to develop the next generation of economic development and wealth from our Blue Ocean

[8] SEAI and Enterprise Ireland. 2012. *A study of the Supply Chain Requirements and the Irish Company Capability in the Offshore Wind, Wave and Tidal Energy Sector*. http://tinyurl.com/Supply-chain-requirements accessed 30 June 2016.

[9] DCENR, 2012. *Strategy for Renewable Energy:* 2012-2020. http://tinyurl.com/Renewable-Energy-Strategy accessed 30 June 2016.

economy. Creating & seeding the next generation of sectors by way of example the Marine ICT sector in this region, would enable us to create the capacity to generate economic wealth from our natural resource base. A Marine Convergence platform with an ambition of international significance would attract our marine geographies to co-join with our region and in turn attract further talent base, investment, industry and enterprise to this region.

Integrated Infrastructure such as ports – supported by roads, rail and air transport will be required to facilitate development of the marine sector.

5. AGRICULTURE – THE WESTERN REGION NATURAL RESOURCE AGRICULTURE OPPORTUNITY

As outlined in the "The future of food and agriculture"[10], which sets out key global trends and associated challenges that will influence food and agriculture in the coming decades, the Western Region needs to collaborate in order to rebuild value chains and to sustain the role of our custodians and the vibrancy of our rural communities of our Natural Resource. In common with much of the EU periphery, the population in the Western Region of Ireland are facing significant economic, and population challenges. Emigration and regional migration has marked the growth potential of the Agri sector with the loss of our youth in this region over several generations. As our young, vibrant and educated Agri population has migrated, this has perpetuated a cycle of dependence on subvention. This subvention dependence has taken on the form of a continued and yet unsustainable reliance on farm subsidies, government employment and social welfare schemes.

As evidenced in the National Farm Survey, 2015 where the 'Family Farm Income is the principal measure, the average family farm income across the 84,259 farms was €26,303 in 2015. The highest average farm income is in the Southeast at €42,141, by contrast the West and the Border are the most disadvantaged with the lowest farm income and the highest reliance on direct payments. Farm income varies widely by regions driven by scale, system, profitability and direct payments[11].

The recent economic crisis has created a new wave of emigration and unemployment, further hampering the potential for future economic growth. The rural population of the Western Region of Connacht, Clare and Donegal is consequently increasingly elderly, underemployed, geographically-dispersed and poorly connected to the economic powerhouse of the Dublin Region, especially in our connections to the digital economy, coupled with poor levels of broadband and infrastructure. Thus our rural populations continue to economically perish as entire streets have emptied of business activity and employment.

[10] Food and Agriculture Organisation of the United Nations, The future of Food and Agriculture 2018 - 2021
[11] National Farm Survey, Teagasc, 2015

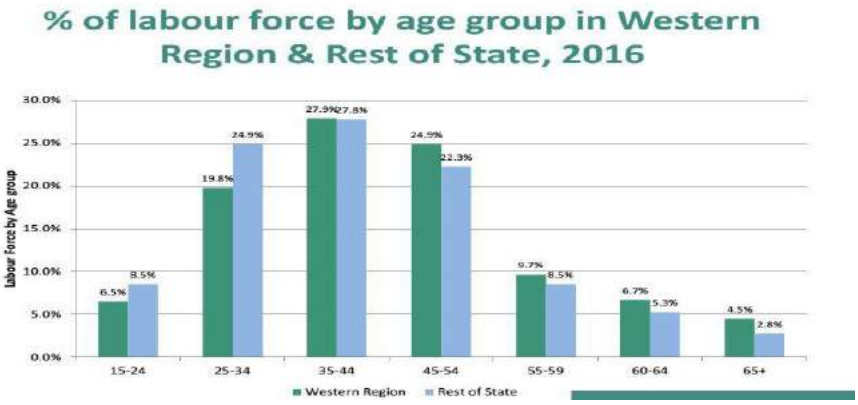


Figure 5.1 - The ageing workforce of the regional relative to the rest of Ireland. [12]

Agriculture within the region is characterised by fragmented, small-scale farms on average-to- poor quality soils, often poorly drained or mountainous, limited arable land with predominantly natural grasslands, the, the opportunities for the farming community to engage in the more profitable commodity farm enterprises such as dairying or tillage are severely curtailed. As a consequence, farming has become increasingly specialised towards poorly profitable beef and sheep production, while the majority of the farm household income is subsidised from two external sources:

- The majority of farms fall into the "part-time" category where the farmer and generally also the farmer's spouse must work off farm in order to keep the farm household financially sustained.

- The bigger scale, predominantly full-time farms have become increasingly dependent on farm subsidies with significant cognitive resources on the part of the farmers deployed to maximise subsidy eligibility.

In the global context the vast majority of the world's farms are small or very small. Worldwide, farms of less than 1 hectare account for 72% of all farms, but control only 8% of all agricultural land. In contrast, only 1% of all farms in the world are larger than 50 hectares, but they control 65% of the world's agricultural land. Moreover more than 90% of farms are run by an individual or a family and rely primarily on family labour. Family farms occupy a large share of the world's agricultural land and produce about 80% of the world's food[13].

The sustainability of the existing policy and strategic approach is in doubt, in light of declining EU Pillar 1 CAP Funding, as well as the negative impacts on families, rural economy and communities throughout the

[12] Insights – Enterprise Profile of the Western Region, WDC, Sept 2016
[13] The State of Food and Agriculture. Food and Agriculture Organisation, 2014

region[14]. This reliance on these external subventions is inherently unsustainable both for farm families and the broader rural community and must be addressed as a matter of urgency[15]. Given the likely negative impacts of geopolitical changes, including Brexit and the upcoming CAP reform of 2020, sustainable alternatives to subsidy dependence were never more urgently required in this region. This is echoed by the 2013 UN Trade & Development Report where indicates that sustainability can only be built with 'major changes are needed in our food, agriculture and trade systems, with a shift toward local small-scale farmers and food systems recommended'[16].

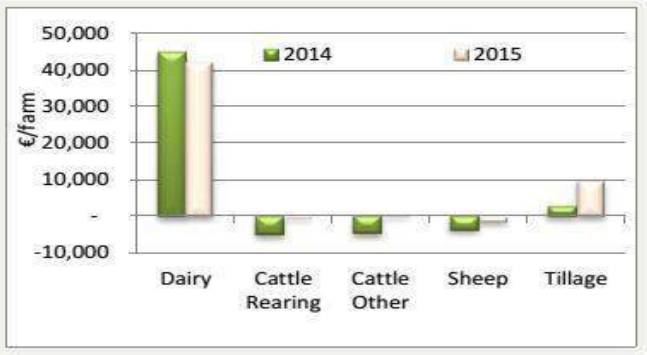


Figure 5.2 - Farm Incomes (ex subsidies) 2015

The Agri Activation Platform that drives a pipeline of Agri Innovation in the Western Region

A Western Agri-Tech Knowledge Co-op is collaborating to develop a strategy with the intent of breathing new life and vibrancy into this important peripheral Agri region. The Agri-Tech Knowledge Co-op group is comprised of individuals from all strands of the rural economy and community of this region. This group will deliver Agri-Innovation and Agri community led development through the collaboration of the latent Agri assets of knowledge and resourcefulness that exist in this region. The success of the Agri Innovation Cluster depends upon the committed engagement of a diversity of stakeholders: farmers, existing agri- industry entrepreneurs, students and individual innovators, academic researchers and the broader rural community, as well committed support base of national & EU policy makers, local government and the state agencies.

The farming community will commit resources which includes their innate knowledge of the natural environment of the region and the opportunities and constraints to food production from the natural resources beneath their feet. The farmer and rural communities will derive numerous rewards from participation which includes off-farm employment, co-build Innovations, connect with the next Agri Innovators, new Innovation opportunities for diversification of their existing farm enterprise. This will help to both reduce subsidy-dependence while also engaging the often-isolated farmer into wider regional social networks. The Agri-Industry stakeholders will bring a wealth of business acumen, knowledge, R & D, physical assets, investment and market access which is required to build a sustainable regional Agri Innovation platform. This

[14] Incomes, National Farm Survey, Teagasc, 2016
[15] Finneran & Crosson, 2013
[16] UN Commission on Trade and Development, Trade & Environment Review, 2013 'Wake up Before it is Too Late'.

combination of skills, resources, credibility and networks will provide the tools to help develop an innovative idea into an activated enterprise. This collaborative engagement of Agri stakeholders will be further embedded through the integration with the education system and the wider Agri community.

This approach will widen access to the next pipeline of Agri Innovation, to potential new human resources, to connect up current research as well as being able to influence the shape of the agricultural education programme. The Agri Innovation platform will provide potential future business partnership, marketing and new product development opportunities for the industry players, as well as sustaining the rural communities and driving up the Agri GVA and Agri Farm Incomes. The integration of the third level agricultural student education into the activities will become a cornerstone at Mountbellew Agricultural College (MAC) in conjunction with Galway Mayo Institute of Technology (destined to become part of a Technological University together with IT Sligo), Teagasc and in collaboration with other education providers such as the National University of Ireland Galway, Galway/Roscommon Education and Training Board.

At a very broad level the Western Region Agri Knowledge Co Op will increase the Agriculture value chains. The current value chains in food are focused on the maximum value creation for shareholders of larger corporates or industry and this has brought about a lack of control of agriculture business models. The Activation and Innovation Centre will enable Agri-practitioners to recognise value and generate opportunities to gain value at farm level. This will aid the value spread more equally across the chain (the knock-on effects of food security and localisation of food systems can be a benefit). This in turn will increase local employment opportunities, reduce subvention dependence, promote entrepreneurial thinking and above all reduce the inevitability of emigration for the graduating student population of the region. Because of the community-centric and bottom-up approach underpinning the activities stakeholders from within the wider rural region will be engaged at all stages and innovative ideas and enterprise activation will flow in both directions. In this way, the employment and GVA growth derived from the activities will diffuse into the rural communities of the region. This Agri Activation & Innovation model can be based on the successful community driven SCCUL Enterprise Centre model: www.bbec.ie. A similar approach can be taken for bioenergy.

By remaining focused on the Natural Resource and by adopting a person-centric approach, this cluster will remain flexible and adaptable to future changes in environmental, policy or community factors. As the physical asset base will be modest, the primary resource will be the empowerment and increased GVA produced by the sharing of knowledge and expertise across an Agri activated Platform. A positive corollary of the emigration problem faced by the West of Ireland is the significant numbers of diaspora originating in the region now involved in successful business in countries all around the world. Connecting the Natural Resource environment back into our Agri international diaspora will lead to inward investment opportunities as well as potential knowledge sharing opportunities and marketing avenues for new export-focused enterprises. The

opportunity to drive latent existing natural and human resources is clear, which in turn will propose a model which can become a beacon of hope for struggling rural communities all across the periphery of Europe.

The opportunity can disrupt the Agri decline and to seed new shoots to renew our sustainable Agricultural Industry in our region which will service the wider population, both within Ireland and internationally. In the near term, it will focus on youth population retention through job creation, and serve the farming population by providing opportunities for rural enterprise activation. This Agri Cluster centered at Mountbellew Agricultural College will integrate, organise and inspire local leadership to create the next generation of Ag-Tech employers and to grow the GVA in the farming and rural communities in this region from the existing natural and human capital resources on the Western Periphery of Europe.

Good transport, communications and electricity infrastructure will be required, on an integrated basis, to facilitate the development of the Ag-Tech sector.

APPENDIX A

Atlantic Economic Corridor

PowerPoint Presentation

Atlantic Economic Corridor

February 2017

AEC Infrastructure

1. Background & Approach
2. Infrastructure Baseline
3. Evaluation – Brexit
4. Evaluation - Viable Sub-Regions & Reversal of Population Decline
5. Evaluation – Wild Atlantic Way
6. Evaluation – Rail Electrification
7. Priority List

Why?

- Submission to National Planning Framework (by 16th March)
- Inputs to review of Capital Expenditure Plan (to be published June 2017).
- Response to William Parnell, Assistant Secretary with responsibility for Rural Affairs following meeting of 26th October 2016 (& subsequent meetings).

How?

- Preparation of baseline report
- Identification of Infrastructure deficits
- Evaluation
- Priority List for Infrastructure

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- Mr. Joe Gilmore, Ireland West Airport
- Mr. Michael McDonnell, Tobin Consulting Engineers
- Mr. Ross Palmer, Fastcom
- Mr. Alec Fleming, Former County Manager
- Mr. Mike Devane, Quilly
- Mr. Sean Keenan, Multis Group
- Mr. Fergal Burke, Burke & Associates
- Mr. David Kiely, Jennings O'Donovan & Partners Ltd, Consulting Engineers

Sectors

- Road Transport
- Electricity
- Broadband
- Gas
- Rail
- Airports
- Ports & Harbors
- Water Supply & Waste Water
- Air Quality
- Flood Protection

Road Transport

Road Transport – Recent Progress

1. M17 Gort to Tuam (Under Construction)
2. N5 Ballaghaderreen Bypass (Complete 2014)
3. N15 Blackburn Bridge, Ballybofey (2.5km))Complete 2016)
4. N16 Cornacloy to Sradine, Ph. 2 (Leitrim) (2km) (Under Construction)
5. N24 Ballysimon Interchange, Co. Limerick. (2km, Complete 2012)
6. N4/N15 Sligo Urban Improvement Hughes Bridge Widened, (Complete 2015)
7. N17 Carrownurlar to Ballindine (2.4km) (Complete early 2017)
8. N5 Ballaghaderreen to Scramoge (at Pre- Construction Stage)
9. N5 Westport to Turlough Road (at Pre-Construction Stage)
10. N4 Collooney to Castlebaldwin (at Pre-Construction Stage)

All other key projects suspended.

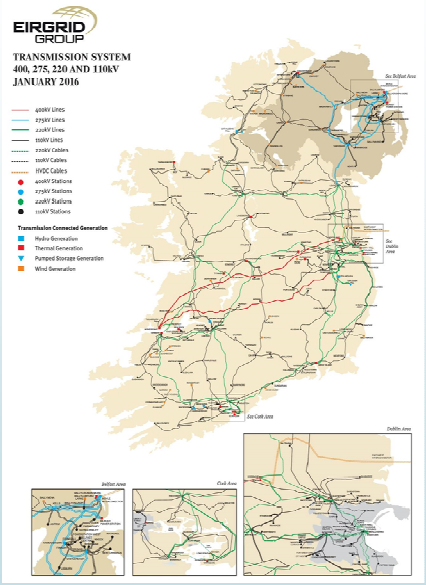
Road Transport – Status of Projects

Item	Road Infrastructure Component	Year	Item	Road Infrastructure Component	Year
1	N4 Collooney to Castlebaldwin	2020	11	N24 Ballysimon to Pallasgreen	2023
2	N5 Westport to Turlough Road (Castlebar)	2021	12	M4 Mullingar to Roosky Motorway	2025
3	N5 Ballaghaderreen to Scramoge	2021	13	N21 Abbeyfeale Rathkeale	2026
4	Adare to Rathkeale	2021	14	N59 Clifden to Oughterard	2026
5	N69 Rathkeale to Foynes	2021	15	N15 Sligo to Tullaghan	2026
6	Moycullen Bypass	2021	16	N17 Tobercurry By-Pass to Knock By-pass (includes Collooney to Charlestown)	2027
7	M20 Limerick to Cork Motorway	2023	17	N15 Ballybofey/ Stranorlar By-Pass	2027
8	Western Distribution Road Sligo (Phase II)	2020	18	N4 Dromod to Carrick-on-Shannon including Carrick-on-Shannon By-Pass	2027
9	N6 Galway City Transport Project (2 Parts)	2022	19	N15 Lifford to Stranorlar	2027
10	Eastern Garavogue Bridge and Approach Roads	2022	20	N14/N15 to A5 link Bridge over River Finn	2027

Road Transport – Status of Projects (Cont..)

Item	Road Infrastructure Component	Year
21	N14 Letterkenny to Lifford	2027
22	N13 Letterkenny to Stranorlar	2027
23	N13 Letterkenny to Bridgend	2027
24	N16 Sligo to Glencar (May be done in 3 Stages)	2028
25	N16 Glenfarne to Glencar	2028
26	N5/N26/N58 Turlough to Bohola	2028
27	N17 Tuam to Claremorris	2030

Electricity



Electricity – Complete/Ongoing Projects

- Cashla to Salthill, Co. Galway – Ongoing
- Cunghill to Glennee, Co. Mayo & Co. Sligo – Complete 2013
- Salthill to Screeb – Ongoing
- Binbane to Letterkenny – Complete 2013
- Gort to Ennis – Complete 2011
- Cathleen's Falls to Srananagh – Complete 2009

Electricity - Outstanding

- Grid West
- Important for Renewable Energy

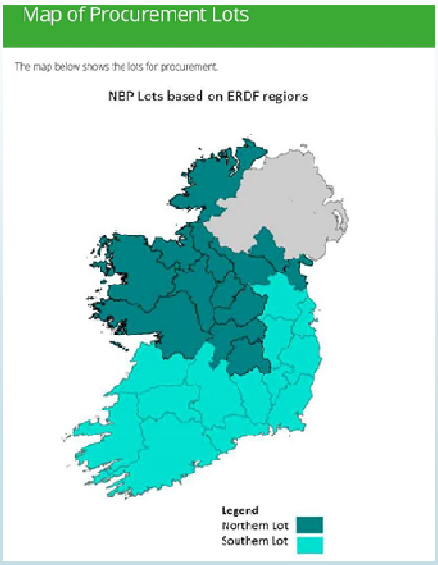
Electricity Recommendations

Recommended Action	Timeframe
Revised proposals for Grid West be finalised and constructed	2019
Government to make post REFIT arrangements for the support of renewables.	2017
Eirgrid/ESB Networks/CER to initiate Gate 4 grid connection process.	2017
Strategic Environmental Assessment for Renewable energy projects including grid connections to be carried out on a countryside basis to inform National Planning Framework and County Development Plans the potential for renewable energy development and to inform Gate 4 process.	2018
Proposals for the development of interconnector(s) to Europe be developed such that Ireland can become a nett exporter of "green" electricity. Procure Foreshore leases and other consents. Construct interconnector.	2026
Confirm proposals for grid development in the north west and construct.	2025

Broadband

- Original National Broadband Plan (NBP) awarded to "Three", complete October 2010.
- Updated NBP 2015.
- Industry to provide connections to 70% of population by end 2016.
- 757,000 households target for State Intervention.
- EU Target of 30 Mbps for all homes and businesses by 2020.
- Future EU target to be increased to 100Mbps.

Broadband – NBP Procurement



Shortlisted:
- Eir
- SIRO
- ENET

Broadband – Fibre Optic Networks

- Open Eir
- ENET
- AURORA Backhaul
- ESB
- CIE (BT)

Broadband – Metropolitan Area Networks (MANs)

- MANs constructed in 2 Phases
- 28 MANs Phase 1
- 60 MANs Phase 2
- 27 MANs in AEC Region (Plus Ennis & Part Network in Shannon)

Broadband – AEC MANs

County	Urban Area	MAN Phase 1 or 2	Fibre Links
Limerick	Limerick City	1	EIR, ESB, ENET, AURORA
	Abbeyfeale	2	EIR, ENET
Clare	Kilrush	2	
Galway	Galway City	1	EIR, ESB, ENET, AURORA
	Athenry	2	EIR, ESB, ENET
	Ballinasloe	2	EIR, ENET
	Clifden	2	EIR
	Gort	2	EIR, ESB, ENET
	Loughrea	2	EIR, ESB, ENET

County	Urban Area	MAN Phase 1 or 2	Fibre Links
Mayo	Ballina	1	EIR, ESB, ENET
	Belmullet	1	
	Ballinrobe	2	EIR, ENET
	Kiltimagh	1	
	Claremorris	2	EIR, ENET
	Knock Airport	2	EIR
Sligo	Sligo Town	1	EIR, ESB, ENET
Roscommon	Roscommon Town	1	EIR, ESB, ENET
Leitrim	Carrick-on-Shannon	1	EIR, ESB, ENET
	Manorhamilton	1	EIR, ESB, ENET

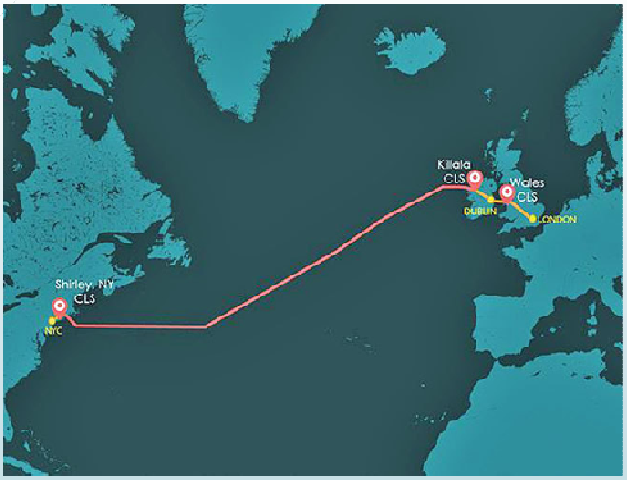
Broadband – AEC MANs (Cont..)

County	Urban Area	MAN Phase 1 or 2	Fibre Links
Donegal	Gweedore / Bunbeg	1	EIR
	Letterkenny	1	EIR, ESB, ENET
	Ballybofey / Stranorlar	2	EIR, ESB, ENET
	Ballyshannon	2	EIR, ESB, ENET
	Buncrana	2	EIR, ESB, ENET
	Bundoran	2	EIR, ESB, ENET
	Carndonagh	2	EIR, ENET
	Donegal Town	2	EIR, ESB, ENET

Broadband – Urban Areas Without MAN's

- Tuam (Some ducts laid)
- Castlebar
- Westport
- Killala

Broadband - AEConnect



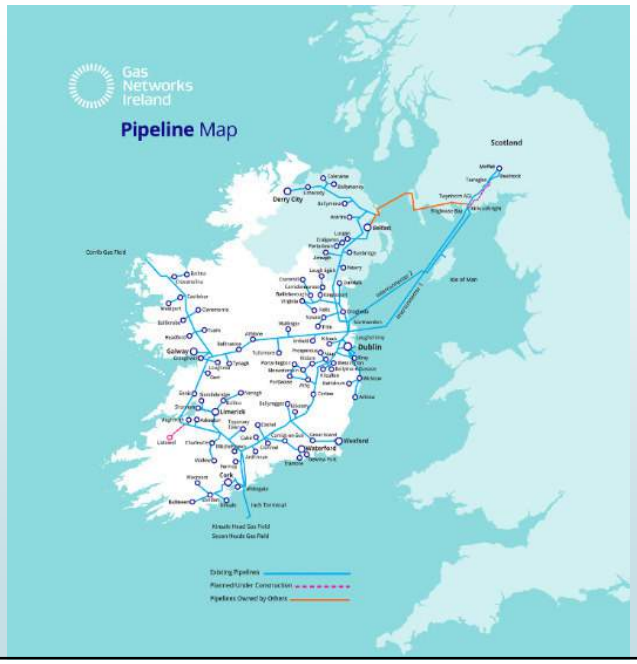
Broadband – Fibre Ducts Alongside Gas Pipeline

- Between Bellanaboy and Ballymoneen, built 2008
- 3 No. Ducts
- Procuring Management Services Agency
- SEPIL assistance with installation
- Installation during 2017
- Aurora (Backhaul)
- Atlantek (local broadband)
- Opportunity for Data Centers

Broadband – Recommended Actions

Recommended Actions	Timeframes
Advance the award of contracts for the NBP.	Mid-2017
Deliver the completed NBP.	End 2020
Provide MANs to Shannon, Tuam, Castlebar and Westport.	2019
Provide fibre optic cable connections to Kilrush and Kiltimagh (which currently have MANs).	2020
Provide fibre optic cable to Galway/Mayo Telecoms Duct thereby connecting Belmullet.	2017
Provide a further fibre optic connection between Killala and Bellanaboy so as to provide and enhanced link the proposed Galway / Mayo fibre optic cable with the AEConnect cable at Killala.	2018
Provide MANs to urban areas including Rathkeale, Foynes, Ennistymon, Newmarket-On-Fergus, Newcastle West, Ballyhaunis, Kilala, Swinford, Ballymote, Tubercurry, Collooney, Ballaghaderreen, Castlerea, Killybegs and Glenties so as to achieve 100Mbps.	2025

GNI Map



NI Map

Key

- Existing gas transmission system
- Potential Gas to the west HP system
- Potential Gas to the west IP system
- Strabane connection

In **Londonderry** and **Portadown** we'll be connecting to the existing gas transmission system

Natural Gas- Gas Networks Ireland

- Network Plan 2016
- Connection to Listowel
- Connection to Wexford Town
- Complete Network in Nenagh
- Connection to Moneypoint

Natural Gas – Previous Studies

- Phase I, 2006 – 11 towns, Ballyhaunis, Knock, Craughwell and Athenry outstanding.
- Phase II, 2007 – 15 towns evaluated, 6 eligible, 3 in AEC - Gort, Loughrea and Athenry connected.
- Phase III, 2010 – Considered 39 other towns, 4 Eligible, none in AEC.

Natural Gas – New Studies?

- Previous studies didn't fully consider Economic Benefit.
- Negative NPV can be funded from another source.
- Take account of CER/15/227 of 30th September 2015.
- Connection options could be reviewed.

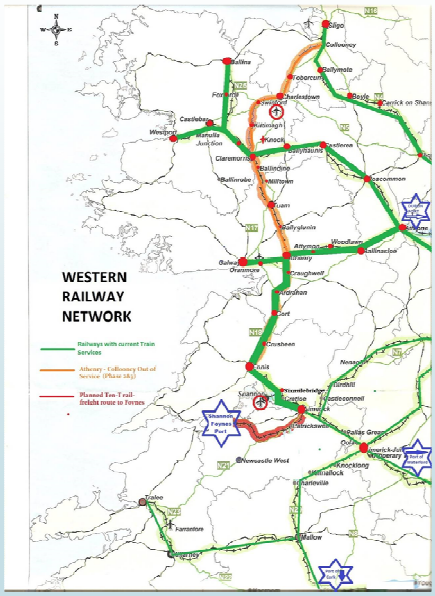
Natural Gas – Recommended Action

Recommended Action	Timeframe
Connections to Knock, Ballyhaunis, Athenry and Craughwell.	2019
Connections to Letterkenny and Lifford from Northern Ireland.	2018
Connections to Edgewarthstown, Longford, Dromad/Roosky, Carrick-on-Shannon, Boyle, Collooney and Sligo from Mullingar.	2023
Connections to Ballyshannon, Bundoran, Donegal Town, Killybegs, from Northern Ireland.	2026
Interim Compressed National Gas Networks to Longford, Sligo, Killybegs, Donegal Town.	2019

Rail Infrastructure

- Fragmented Rail Network in West of Ireland.
- Galway – Limerick Train has fastest growth rate of any route in Country.
- Un-used line between Limerick and Foynes Port.
- Un-used line between Athenry and Collooney.
- Busiest Freight route in the Country – from Ballina.

Rail Infrastructure



Rail Recommended Actions

Recommended Action	Timeframe
Carry out track improvements so as to facilitate all Intercity average end to end journey speeds of 60mph.	2022
Make commuter train services and LEAP Card / taxsaver.ie a feature of train services to Regional centres of population.	2018
Complete a national rail freight strategy and action plan.	2017
Undertake a railway order between Mayo and Sligo to identify future optimal rail route.	2018
Implement services between Galway and Limerick consistent with those described in the Iarnrod Eireann Business Case.	2017
Reconfigure train services between Limerick and Waterford as through direct Limerick-Waterford intercity 7 day services.	2017
Construct freight-capacity passing loops on all single track regional railways at 10 mile (15km) intervals as part of a rail-freight strategy..	2020
Neutralise speed restrictions associated with level crossings.	2019
Provide enhanced car parking facilities at Sligo Railway Station	2018

Rail Recommended Actions (Cont..)

Recommended Action	Timeframe
Provide enhanced car parking facilities at Sligo Railway Station	2018
Re-construct the Claremorris to Tuam to Athenry railway to freight and 80mph passenger standard.	2020
Re-open rail link to Foynes Port.	2020
Provide double track from Galway to Athenry.	2022
Provide a rail-served dry inland port in Co. Galway as part of a rail freight strategy.	2022
Remedy flooding issues at Ballycar, Co. Clare.	2018
Provide double track Kilonan to Limerick Junction.	2022
Identify locations for new commuter stations to serve Limerick and Galway.	2018
Provide for electrification of the entire railway network, as part of a carbon reduction strategy as renewal of the current ICR Intercity fleet occurs.	2025-2030
Re-open Collooney to Claremorris to Athenry	2025-2030

Rail Electrification

- Transport 33% of Total Energy Usage in 2013
- 4,275 ktoe (kilo tonnes of oil equivalent)
- Rail Usage 14.2% of transport, 607ktoe
- 7,059,000 MWh
- 19,000 MWh / day
- 1070 MW per hour over 18 hour day, possibly 1,500 MW at peak

Rail Electrification

- 2,000MW of Generating Capacity to allow for transmission losses and growth
- Mix of Wind, Wave, Solar, Biomass with natural gas peaking plant
- Provide full generation capacity in Mayo
- Follow track system to distribute electricity

Airports

- Shannon
- Ireland West Knock
- Shannon 2015 – 1,714,872 passengers (half of 2006 figure)
- Ireland West 2016 - 734,031 passengers

Airports – Recommended Actions

Recommended Action	Timeframe
Provide rail link between the Limerick-Ennis line and Shannon Airport	2030
Extend Aerospace Road to the North Shannon Airport	2025
Carry out works on the main runway and aircraft parking areas at Ireland West Knock Airport	2020
Designate lands in the vicinity of Ireland West Knock Airport as a Strategic Development Zone	2017
Complete dual carriageway for last 1km of N19 to Shannon Airport	2019

Ports and Harbors

- National Ports Policy, 2013
- Foynes – Tier 1
- Galway – Tier 3
- Killybegs – Tier 3
- Moneypoint – ESB Control

Ports – Capacity

Year		Foynes			Galway			Killybegs*	
	Goods Received (000 t)	Goods Forwarded (000 t)	Total Goods Handled (000 t)	Goods Received (000 t)	Goods Forwarded (000 t)	Total Goods Handled (000 t)	Goods Received (000 t)	Goods Forwarded (000 t)	Total Goods Handled (000 t)
2015	8523	2348	10871	425	137	562	2	32	34
2014	5776	4213	9989	421	142	563	5	47	52
2013	8356	1934	10290	429	92	521	3	68	71
2012	8207	1886	10093	429	72	501	10	117	127
2011	7801	2098	9899	511	43	554	3	34	37

* Excludes fish landings which averaged 165 thousand tonnes/year for 2011-2015.

Ports – Recommended Actions

Recommended Action	Timeframe
Re-open rail link to Foynes Port	**2020**
Upgrade Road link to Foynes Port	**2020**
Develop new commercial port in Galway	**2026**
Prepare Feasibility Report on Future of Moneypoint	**2017**

Water Supply and Wastewater

- Responsibility of Irish Water (IW) since 1st January 2014.
- IW Investment Plan 2017-2021.
- Extensive on-going programme of Projects.
- Target Capacity of 20% headroom by 2040.
- Wastewater more problematic than water supply.

Wastewater – No Treatment

County	Location	On IW Programme (Y/N)
Clare	Shannon	Yes
Clare	Lahinch	No
Clare	Ennistymon	Yes
Galway	Clifden	Yes
Galway	Mountbellew	Yes
Sligo	Ballymote	Yes
Leitrim	Drumshambo	Yes
Donegal	Bundoran	Yes
Donegal	Killybegs	Yes
Donegal	Lifford	Yes
Donegal	Convoy	Yes

Large Urban Areas within the AEC Area that failed to comply with EU Effluent Quality Standards in 2015.

Wastewater – Spare Capacity

County	Urban Area	Urban Area (p.e.)	WWTP (p.e.)	% Spare Capacity
Clare	Ennis South	2,826	6,000	53%
Limerick	Castletroy	24,151	29,477*	18%
Galway	Mutton Island	145,000	170,000	17%
	Ballinasloe	8,908	13,500	34%
	Clifden	3,737	6,000	38%
	Loughrea	6,148	9,500	35%
	Tuam	16,368	24,834*	34%
Mayo	Ballina	20,094	25,000	20%
	Castlebar	18,500	28,000*	34%
Sligo	Sligo	27,408	50,000*	45%
	Enniscrone	3,500	5,000	30%
Roscommon	Boyle	3,594	6,000	40%
	Monksland	8,731	14,381*	39%
	Roscommon	6,748	9,550	29%
Leitrim	Carrick-On-Shannon	5,676	11,500*	51%
Donegal	Ballyshannon	2,104	6,000	65%
	Letterkenny	29,542	40,000*	26%

* Spare Capacity of over 5,000p.e.

Water Supply and Wastewater – Recommended Actions

Recommended Actions	Timeframes
Completion of IW's Investment Plan for Drinking Water Supply.	2021
Completion of IW's Investment Plan for Waste Water (including Shannon, Athenry and Bundoran).	2021
Provision of Upgraded WwTP Capacity at Ennis North, Newcastle West, Gort, Swinford, Westport and Carndonagh.	2021

Air Quality

- Important for Clean Room Reliant Industry
- Compliant with EU limits and WHO Guidelines.
- Stations at Shannon Estuary, Ennnis, Galway, Mace Head (Galway), Claremorris, Castlebar.
- Establish further monitoring stations.

Flood Management

- Office of Public Works.
- Completed CFRAM studies, (Catchment Flood Risk Assessment and Management).
- Identification of Projects, 2017.
- €430m to 2021
- €100m per year thereafter
- Completion of Projects, 2029.
- State to take in charge flood defense works at Shannon which protect town and airport

Effects of Brexit

BREXIT – Priority Projects

Project	Type	Timeframe	Project	Type	Timeframe
N4 Collooney to Castlebaldwin	Roads	2020	N16 Glenfarne to Glencar	Roads	2028
Adare to Rathkeale	Roads	2021	N16 Sligo to Glencar (May be done in 3 Stages)	Roads	2028
N69 Rathkeale to Foynes	Roads	2021	N17 Tuam to Claremorris	Roads	2030
N6 Galway City Transport Project (2 Parts)	Roads	2022	Extend Aerospace Road to the North Shannon Airport	Air	2025
M4 Mullingar to Roosky Motorway	Roads	2025	Carry out works on the main runway and aircraft parking areas at Ireland West Knock Airport	Air	2020
N15 Sligo to Tullaghan	Roads	2026	Designate lands in the vicinity of Ireland West Knock Airport as a Strategic Development Zone	Air	2017
N17 Tobercurry By-Pass to Knock By-pass (includes Collooney to Charlestown)	Roads	2027	Undertake a railway order between Mayo and Sligo to identify future optimal rail route.	Rail	2018
N15 Ballybofey/ Stranorlar By-Pass	Roads	2027	Re-construct the Claremorris to Tuam to Athenry railway to freight and 80mph passenger standard.	Rail	2020
N4 Dromod to Carrick-on-Shannon including Carrick-on-Shannon By-Pass	Roads	2027	Re-open rail link to Foynes Port.	Rail	2020
N13 Letterkenny to Stranorlar	Roads	2027	Provide a rail-served dry inland port in Co. Galway as part of a rail freight strategy.	Rail	2022

AEC Region– Population Density

County	Population (2016 Census)	Area (km^2)	Density No/km^2	Charge Since Previous Census
Limerick	195,175	2,756	70.8	+3,366 +1.8%
Clare	118,627	3,450	34.4	+1,431 +1.2%
Galway	258,552	6,149	42.0	+7,899 +3.2%
Mayo	130,425	5,586	**23.3**	**-213** **-0.2%**
Sligo	65,357	1,838	35.5	**-36** **-0.1%**
Roscommon	64,436	2,548	**25.3**	+371 +0.6%
Leitrim	31,972	1,590	**20.1**	+174 +0.5%
Donegal	158,755	4,861	32.6	**-2,382** **-1.5%**
Total	1,023,299	28,778	35.6	+10,610 +1.0%

Vibrant Sub-Regions – Reverse Population Decline

EC1 = Economic Cluster – Limerick/Clare
EC2 = Economic Cluster – Galway/Roscommon
EC3a = Economic Cluster – Sligo, Mayo, Leitrim, South Donegal
EC3b = Economic Cluster – North Donegal

Sub-Regions – Population Densities

Cluster	Sub-Region	Population	Population Density
EC1	Limerick/Clare	313,802	50.6
EC2	Galway/Roscommon/ South Mayo	373,467	32.5
EC3a	Sligo/North Mayo/Leitrim/South Donegal	204,137	28.3
EC3b	North Donegal	131,893	33.9

Vibrant Sub-Regions – Infrastructure Summaries

AEC REGION - 17 LARGEST URBAN AREAS - STATE OF INFRASTRUCTURE

Economic Sub-Region within AEC	Key Urban Areas	Population (2016 Census, prelim)	Motorway Connection	Road Connectivity Along Region	Local Road Capacity	Rail Access	Fibre Broadband	Fibre MAN	220kV Stations	220kV Line	Natural Gas	Airport within 80km	Port within 100km	Water Supply	Waste Water
Limerick / Clare	Limerick	91454	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Ennis	25360	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N
	Shannon	9673	Y	Y	Y	N	Y	N*	N	N	Y	Y	Y	Y	N
	Newcastle West	6327	N	N	Y	N	Y	N	N	N	N	Y	Y	Y	N
Galway/	Galway	76778	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
South Mayo/	Tuam	8242	Y	Y	Y	N	Y	N	N	N	Y	Y	Y	Y	Y
Roscommon	Ballinasloe	6659	Y	Y	Y	Y	Y	Y	N	N	Y	N	Y	Y	Y
	Roscommon	5693	N	N	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y
	Loughrea	5062	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y
	Athenry	3950	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Sligo/Leitrim/	Sligo	19452	N	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
South Donegal	Castlebar	12318	N	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y
	Ballina	11086	N	Y	Y	Y	Y	Y	N	N	Y	Y	N	Y	Y
	Westport	6063	N	N	Y	Y	Y	N	N	N	Y	Y	Y	Y	N
	Carrick-on-Shannon	3980	N	N	N	Y	Y	Y	Y	Y	N	Y	N	Y	Y
North Donegal	Letterkenny	19588	N	Y	Y	N	Y	Y	N	N	N	Y	Y	Y	Y
	Ballybofey-Stranorlar	4852	N	Y	N	N	Y	Y	N	N	N	Y	Y	Y	N

*Part Network in Shannon

Vibrant Sub-Regions – Priority Projects

Project	Type	Timeframe	Project	Type	Timeframe
N4 Collooney to Castlebaldwin	Roads	2020	N21 Abbeyfeale Rathkeale	Roads	2026
N5 Westport to Turlough Road (Castlebar)	Roads	2021	N59 Clifden to Oughterard	Roads	2026
N5 Ballaghaderreen to Scramoge	Roads	2021	N15 Sligo to Tullaghan	Roads	2026
Adare to Rathkeale	Roads	2021	N17 Tobercurry By-Pass to Knock By-pass (includes Collooney to Charlestown)	Roads	2027
N69 Rathkeale to Foynes	Roads	2021	N4 Dromod to Carrick-on-Shannon including Carrick-on-Shannon By-Pass	Roads	2027
Moycullen Bypass	Roads	2021	N13 Letterkenny to Stranorlar	Roads	2027
Western Distribution Road Sligo (Phase II)	Roads	2020	N17 Tuam to Claremorris	Roads	2030
N6 Galway City Transport Project (2 Parts)	Roads	2022	Revised proposals for Grid West be finalised and constructed	Electricity	2019
N24 Ballysimon to Pallasgreen	Roads	2023	Government to make post REFIT arrangements for the support of renewables.	Electricity	2017
M4 Mullingar to Roosky Motorway	Roads	2025	Eirgrid/ESB Networks/CER to initiate Gate 4 grid connection process.	Electricity	2017

Vibrant Sub-Regions – Priority Projects (Cont..)

Project	Type	Timeframe	Project	Type	Timeframe
Advance the award of contracts for the NBP.	Broadband	Mid 2017	Provide MANs to urban areas including Rathkeale, Foynes, Ennistymon, Newmarket-On-Fergus, Newcastle West, Ballyhaunis, Kilala, Swinford, Ballymote, Tubercurry, Collooney, Ballaghaderreen, Castlerea, Killybegs and Glenties so as to achieve 100Mbps.	Broadband	2025
Deliver the completed NBP.	Broadband	End 2020	Connections to Knock, Ballyhaunis, Athenry and Craughwell.	Gas	2019
Provide MANs to Ennis, Shannon, Tuam, Castlebar and Westport.	Broadband	2019	Connections to Letterkenny and Lifford from Northern Ireland.	Gas	2018
Provide fibre optic cable connections to Kilrush and Kiltimagh (which currently have MANs).	Broadband	2020	Connections to Edgewarthstown, Longford, Dromad/Roosky, Carrick-on-Shannon, Boyle, Collooney and Sligo from Mullingar.	Gas	2023
Provide fibre optic cable to Galway/Mayo Telecoms Duct thereby connecting Belmullet.	Broadband	2017	Connections to Ballyshannon, Bundoran, Donegal Town, Killybegs, from Northern Ireland.	Gas	2026
Provide a further fibre optic connection between Killala & Bellanaboy so as to provide & enhanced link the proposed Galway / Mayo fibre optic cable with the AEConnect cable at Killala.	Broadband	2018	Interim Compressed National Gas Networks to Longford, Sligo, Killybegs, Donegal Town.	Gas	2019

Vibrant Sub-Regions – Priority Projects (Cont..)

Project	Type	Timeframe	Project	Type	Timeframe
Carry out track improvements so as to facilitate all Intercity average end to end journey speeds of 60mph.	Rail	2022	Provide a rail-served dry inland port in Co. Galway as part of a rail freight strategy.	Rail	2022
Undertake a railway order between Mayo and Sligo to identify future optimal rail route.	Rail	2018	Identify locations for new commuter stations to serve Limerick and Galway.	Rail	2018
Implement services between Galway and Limerick consistent with those described in the Iarnrod Eireann Business Case.	Rail	2017	Provide for medium term electrification as renewal of the current ICR Intercity fleet occurs.	Rail	2025-2030
Reconfigure train services between Limerick and Waterford as through direct Limerick-Waterford intercity 7 day services.	Rail	2017	Provide rail link between the Limerick-Ennis line and Shannon Airport	Airport	2030
Construct freight-capacity passing loops on all single track regional railways at 10 mile (15km) intervals as part of a rail-freight strategy.	Rail	2020	Extend Aerospace Road to the North Shannon Airport	Airport	2025
Re-construct the Claremorris to Tuam to Athenry railway to freight and 80mph passenger standard.	Rail	2020	Carry out works on the main runway and aircraft parking areas at Ireland West Knock Airport	Airport	2020
Re-open rail link to Foynes Port.	Rail	2020	Designate lands in the vicinity of Ireland West Knock Airport as a Strategic Development Zone	Airport	2017

Vibrant Sub-Regions – Priority Projects (Cont..)

Project	Type	Timeframe
Re-open rail link to Foynes Port	Ports	2020
Develop new commercial port in Galway	Ports	2026
Completion of IW's Investment Plan for Drinking Water Supply	Wastewater	2021
Completion of IW's Investment Plan for Waste Water	Wastewater	2021
Provision of Upgraded WwTP Capacity at Ennis North, Newcastle West, Gort, Swinford, Westport and Carndonagh	Wastewater	2021
Establish further monitoring locations	Air Quality	2020
Identification of Projects	Flood Management	2017
Completion of Projects	Flood Management	2029

Wild Atlantic Way – Tourism Figures

Region		2012	2015	Change
South West (Cork, Kerry)	Tourists (000s) Tourist Revenue (€m) Holidaymakers (000s)	1,779 562.8 1,101	2,104 791.8 1,428	+18% +41% +30%
Shannon (Clare, Tipp.N, Limerick Offaly)	Tourists (000s) Tourist Revenue (€m) Holidaymakers (000s)	867 221.4 499	1,148 366.8 760	+32% +66% +52%
West (Galway, Roscommon, Mayo)	Tourists (000s) Tourist Revenue (€m) Holidaymakers (000s)	1,164 339.0 815	1,590 574.50 1,120	+37% +69% +37%
North West (Cavan, Leitrim, Sligo, Donegal Monaghan)	Tourists (000s) Tourist Revenue (€m) Holidaymakers (000s)	428 112.6 266	694 224.1 403	+62% +99% +51%

Tourists visits to AEC Counties in 2015

County	Overseas Tourists (000)	Overseas Revenue €m	Irish Residents Trips to County (000)	Expenditure by Irish Residents €m
Limerick	537	212	257	32.1
Clare	597	127	410	101.2
Galway	1,354	475	895	194.1
Mayo	302	80	463	93.3
Sligo	186	51	263	61.2
Roscommon	50	20	80*	14.1
Leitrim	57	15	117**	19.75
Donegal	289	83	314	75.7
Total AEC	3,372	1,063	2,799	591.45
Total Ireland	12,963	4,266	9,125	1,725.3
% of Irish Total	26%	25%	31%	34%

*50% of Combined Roscommon/Longford
**50% of combined Cavan/Leitrim

AEC Tourism

- Northern Part of Wild Atlantic Way is not being used to full potential.
- Need improved access to Mayo, Sligo, Roscommon, Leitrim and Donegal.

Wild Atlantic Way – Priority Projects

Project	Type	Timeframe	Project	Type	Timeframe
N4 Collooney to Castlebaldwin	Roads	2020	N17 Tobercurry By-Pass to Knock By-pass (includes Collooney to Charlestown)	Roads	2027
N5 Westport to Turlough Road (Castlebar)	Roads	2021	N15 Ballybofey/ Stranorlar By-Pass	Roads	2027
Adare to Rathkeale	Roads	2021	N4 Dromod to Carrick-on-Shannon including Carrick-on-Shannon By-Pass	Roads	2027
N69 Rathkeale to Foynes	Roads	2021	N17 Tuam to Claremorris	Roads	2030
Moycullen Bypass	Roads	2021	Deliver the completed NBP.	Broadband	End 2020
N6 Galway City Transport Project (2 Parts)	Roads	2022	Provide MANs to Ennis, Shannon, Tuam, Castlebar and Westport.	Broadband	2019
M4 Mullingar to Roosky Motorway	Roads	2025	Provide rail link between the Limerick-Ennis line and Shannon Airport	Rail / Airport	2030
N21 Abbeyfeale Rathkeale	Roads	2026	Extend Aerospace Road to the North Shannon Airport	Airport	2025
N59 Clifden to Oughterard	Roads	2026	Carry out works on the main runway and aircraft parking areas at Ireland West Knock Airport	Airport	2020
N15 Sligo to Tullaghan	Roads	2026			

Wild Atlantic Way – Priority Projects (Cont..)

Project	Type	Timeframe
Develop new commercial port in Galway	Ports	2026
Carry out track improvements so as to facilitate all Intercity average end to end journey speeds of 60mph.	Rail	2022
Make commuter train services and LEAP Card / taxsaver.ie a feature of train services to Regional centres of population.	Rail	2018
Identify locations for new commuter stations to serve Limerick and Galway.	Rail	2018
Provide for medium term electrification as renewal of the current ICR Intercity fleet occurs.	Rail	2025-2030

Atlantic Economic Corridor

Submission to National Planning Framework

30 March 2017

Table of Contents

1. Atlantic Economic Corridor – Key Principles

1.1 Atlantic Economic Corridor

The Atlantic Economic Corridor is an initiative of the Chambers of Commerce of Tralee, Shannon, Ennis, Galway, Roscommon, Mayo, Sligo, Leitrim, and the American Chamber of Commerce. Collectively we represent **80,000 employees, in 2,725 Irish-owned and multinational firms** in the mid-west, west and north-west.

We welcome the opportunity to contribute to the preparation of the National Planning Framework and acknowledge the commitment in the Programme for Government to the Development of a new Atlantic Economic Corridor.

Our submission pursues the objective set out in our Regional Economic Strategy published in February 2016, of an Atlantic Economic Corridor, with a 'city of scale' from Limerick though Galway to Sligo, to match Dublin and Cork in success in developing infrastructure, attracting Irish and multi-national investment, and growing jobs and wealth in vibrant communities.

We consider that the NPF should reflect the paradigm shift in strategic planning that is required if we are to achieve the full potential that the country is capable of.

Job creation and economic growth is led by private sector investment and the NPF must signal to investors that we are committed to building on our natural resources, human capital and availability of green energy.

The recognition at Government Programme level of the Atlantic Economic Corridor should be reflected in the draft NPF. We agree that a strong country needs strong regions which in turn need strong tier two cities and we can see this is part of the intent of the current draft of the NPF. However, the promotion of one or more of the four regional cities is just one part of the required long term and transformational growth.

A key point that underpins the AEC is that we want to build on the strengths of the AEC cities and larger urban centres but also connect them and reinforce the links between them and rural areas. These links can include, for example, looped connections to the Wild Atlantic Way. They can be strengthened in particular by growing our natural resources, green energy and people skills through a coherent planning framework. To do otherwise carries the risk of continuing past policies resulting in the continuous depletion and decline of the western regions. This is not consistent with the goals of the AEC.

The Atlantic Economic Corridor has to be formally designated as a strategic development zone and all local, regional authorities as well as state agencies must become co-ordinated and integrated in pursuit of the development of the strategic zone. Government and its agencies must show they are acting in a fully integrated manner in this regard.

The apparent gap between the vision of the Draft National Planning Framework and the Government announcement of a Task Force to pursue the Atlantic Economic Corridor must be bridged.

2. Atlantic Economic Corridor - Introduction

2.1 Atlantic Economic Corridor Strategy and Focus

The proposed Atlantic Economic Corridor (AEC) strategy for economic development in the western regions, in its' publication of February 2016, entitled Atlantic Economic Corridor (Regional Economic Strategy), is based on a business stakeholder consensus and sets out an approach and new model for economic growth. It supports a genuine desire to reverse the depopulation of western regions and significantly increase employment within those regions. The vision of the AEC is to "Realise the hidden, untapped, present opportunity to bring jobs and investment, and to develop a city of scale in the Atlantic Economic Corridor". It has set out an objective of driving the gross value add per person (GVA) above the national average within a twenty-year timeframe.

In support of this, the strategy outlines five areas of focus including;

- Upskilling a dynamic workforce
- Securing active community engagement
- Developing an innovation foundry
- Utilising assets and growing capacity
- Investing in infrastructure

The strategy outlines the opportunity and proposed response in respect of those areas of focus. the AEC believes that there needs to be an integrated approach to economic development which clearly aligns investment in infrastructure and capacity with enterprise and job creation. It also requires alignment and long term commitment to investment by both the private and public sector/ that in turn engenders certainty and confidence, which are key attributes that are not currently present.

2.2 Phased Approach and Areas of Immediate Focus

This proposed strategy recommends a phased approach to the development with an immediate and near term focus on the first phase which broadly sets out to correct infrastructure and capacity deficits and optimize the existing capacity to innovate and create new employment. The second and third phase will require a detailed economic analysis of the potential within the economic corridor. This potential will be a combination of the human resource strengths and the potential of a successful and sustainable development of all the natural resources of the region.

In response to the proposed national planning framework the AEC proposes three actions with immediate effect:

1. **Infrastructure provision** to support the expansion of key urban areas required to support capacity expansion, and the best economic return on new infrastructure and private capital investment.
2. There is an immediate opportunity to focus on the renewal and re-purposing of **Enterprise Property Capacity** along the corridor. This can be significantly supported by private investment assuming that we can create the certainty and competence necessary to support that investment.
3. An immediate refocusing of national investment on the **Innovation** opportunity that can be realised in the AEC using a vibrant eco-system of human and natural resources.

This document describes the issues, opportunities and actions required to deliver on the potential of the AEC in each of these three areas. Further detail on each is provided in the appendices to the document.

Atlantic Economic Corridor – Introduction (continued)

2.3 Planning and Execution

The concluding parts of the document look at the critical role of the **Community** and the importance of **People and Skills** in the delivery process.

Finally, the document sets out the shared approach to public and private **Economic Planning and Execution** that will be required for realisation of:

- The immediate phase which through a private and public sector investment transformation programme would deliver **100,000 innovation led jobs by 2025**
- The intermediate phase, which would require a capital investment program from 2020 to 2030, should aspire to create a further **200,000 innovation lead jobs by 2035.**
- The final phase of capital investment from 2030 to 2040 should aspire to the creation of **a further 300,000 jobs**.

3. Immediate Focus Areas

3.1 Infrastructure

Infrastructure is one of the five pillars of the AEC strategy. In order to build a solid evidence base on issues and opportunities a team of infrastructure specialists across the AEC have engaged in a detailed exercise which includes:

- Preparation of baseline report
- Identification of Infrastructure deficits
- Evaluation
- Priority List for Infrastructure

The objective of the exercise was to examine the current state of infrastructure together with the requirements for developing infrastructure on a phased basis in order to unlock opportunities for economic development and respond to a doubling of population. The analysis covered various disciplines which are likely to be significant in attracting industry or in developing natural resources including:

- Road Transport
- Electricity
- Broadband
- Gas
- Rail
- Airports
- Ports and Harbours
- Water Supply and Waste Water
- Air Quality
- Flood Protection

Each discipline was initially examined in isolation and is then critically analysed interactively with other disciplines so as to identify synergies, hotspots and provide the logic for prioritisation.

The hotspot analysis is summarised in tabular form on the next page. An extensive and detailed document has been produced with the outcome for each infrastructure discipline.

For the purposes of our submission to the NPF the analysis and recommendations on infrastructure are linked to two key areas of strength and opportunity across the Atlantic Economic Corridor:

- Wild Atlantic Way/Tourism
- Green Energy

Appendix 1 provides detailed analysis, commentary and recommendations on the key infrastructural priorities linked to the growth of these sectors in the AEC.

3.1.1 Infrastructure – Current Situation

AEC Region – 17 Largest Urban Areas – State of Infrastructure

Economic Sub-Region within AEC	Key Urban Areas	Population (2016 Census, prelim)	Motorway Connection	Road Connectivity Along Region	Local Road Capacity	Rail Access	Fibre Broadband	Fibre MAN	220kV Stations	220kV Line	Natural Gas	Airport within 80km	Port within 100km	Water Supply	Waste Water
Limerick / Clare	Limerick	91454	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Ennis	25360	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N
	Shannon	9673	Y	Y	Y	N	Y	N*	N	N	Y	Y	Y	Y	N
	Newcastle West	6327	N	N	Y	N	Y	N	N	N	N	Y	Y	Y	N
Galway/	Galway	76778	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
South Mayo/	Tuam	8242	Y	Y	Y	N	Y	N	N	N	Y	Y	Y	Y	Y
Roscommon	Ballinasloe	6659	Y	Y	Y	Y	Y	Y	N	N	Y	N	Y	Y	Y
	Roscommon	5693	N	N	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y
	Loughrea	5062	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y
	Athenry	3950	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Sligo/Leitrim/	Sligo	19452	N	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
South Donegal	Castlebar	12318	N	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y
	Ballina	11086	N	Y	Y	Y	Y	Y	N	N	Y	Y	N	Y	Y
	Westport	6063	N	N	Y	Y	Y	N	N	N	Y	Y	Y	Y	N
	Carrick-on-Shannon	3980	N	N	N	Y	Y	Y	Y	Y	N	Y	N	Y	Y
North Donegal	Letterkenny	19588	N	Y	Y	N	Y	Y	N	N	N	Y	Y	Y	Y
	Ballybofey-Stranorlar	4852	N	Y	N	N	Y	Y	N	N	N	Y	Y	Y	N

3.1.2 Infrastructure - Actions

As the significant investors in the development of enterprise, we have a need to ensure that the required and promised infrastructure is in place to support investment. This is currently a significant challenge within the corridor, particularly as is related to transport, energy, broadband and water utility provision.

Therefore, it is proposed that a number of key actions are taken in the near term to support the longer term economic development of the region. These priorities include;

1. Reinforce the integrated corridor infrastructure
• Complete a primary and combined road and rail backbone along the corridor. • Maximise the use of key infrastructure assets including airports, seaports and land ports, ensuring a complete infrastructure and utility provision to maximise their effective use and economic benefit. • Ensure the integrated development and expansion of utility capacity for key development zones along the corridor.
2. Prioritise access to and use of natural resource assets.
• Optimise the use of green and low carbon energy to provide a unique energy capacity within the region. • Integrate the development of tourism and leisure sectors with the development of agriculture and the marine. • Increase the infrastructure and utilities available for the development of agri/marine related clusters in sectors including food, technology and machinery/equipment. • Develop new tourism infrastructure specifically supporting the Wild Atlantic Way and the shared hinterland (rings) with the economic corridor.

More detailed recommendations from the AEC Infrastructure Review Group are outlined in **Appendix 1**.

3.2 Enterprise Property Capacity

The AEC strategy document proposes that the corridor must have a planned urban and inter-urban zoned industrial and enterprise capacity. This, in most cases, does not require new build. There is an opportunity for the upgrade and repurposing of new and existing enterprise property capacity to service current and future demand.

There is evidence that private investment is available to support the repurposing of such assets and capacity, but it is dependent on the certainty and confidence with regard to start support/investment and planning. Under-utilised capacity exists in many forms, including estates and parks owned by IDA, local government and private investors. These, in conjunction with brown field sites and identifiable enterprise hub capacity within urban areas, provide a significant capacity opportunity.

The experience and analysis of a number of chambers indicate that this underutilised capacity could be quickly transformed. This requires local government/state implementation of new measures to ensure that the assets involved are acquired and made available for new investment and use. This also involves upgrade to international standards and ongoing effective management.

It is essential that the policy and investment that will drive this repurposing of existing capacity is delivered with clarity of purpose. Different enterprise segments have varying property needs and there is no one size fits all solution so a clear framework is required. Clear definitions and standards are also required for the wide range of potential solutions. The AEC has developed an action oriented proposal and plan to deal with these points. **The detail is included in Appendix 1.**

Current Issues with Enterprise Properties in Large AEC Towns
A Range of Industrial, Business, Commercial Parks, Stand Alone Units
Wide Variation in Standards
Cases of Unclear Ownership of Park or Estate
Cases of Poor or Non-existent Estate Management
Variable & Poor Business Experience

Potential Interventions Developed in Response to Analysis to Date

- Local Authorities to **CPO** business properties where there are title and access issues
- Sell acquired properties under license to ensure utilization of asset
- Legislate for **mandatory management companies**

3.2.1 Enterprise Property Capacity - Actions

The AEC proposes that a number of actions are taken in the near term to ensure the transformation and expansion of existing capacity and attract new investment to support that. The goal is to ensure that the AEC is in a position to provide a network of fit for purpose property solutions for all enterprise segments. Large urban centres will provide multiple components of this network. But they will also be linked to smaller locations providing just one component. Key actions include:

1. Immediately start the process of identifying and re-purposing enterprise and industrial zones and ensure that they are investor ready

- Implement the proposal and detailed workstreams set out in Appendix 1

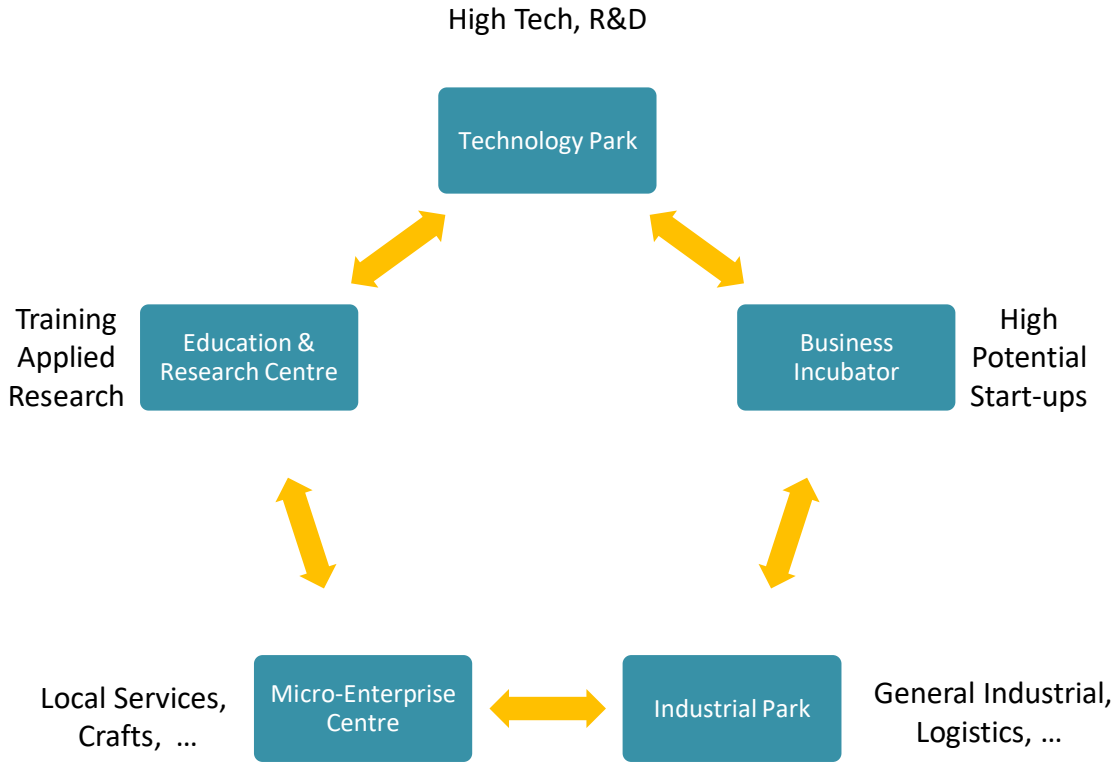
2. Optimise the use of existing industry and enterprise capacity

- Increase the employment density within existing parks and centres through the redevelopment and upgrade of existing assets and Facilities. This priority to be supported by the compulsory use of idle or derelict assets.
- Upgrade existing infrastructure and utilities to support this redevelopment and optimise the opportunity to "green" parks, make more effective use of public transport, and modify planning restrictions to allow for new park design and higher density.
- Encourage the combined residents (owner/companies) to create future development strategies that will differentiate their parks and centres, providing a cluster or sector focus, and ensuring critical links with innovation centres and education/research institutes.

3. Designate and create innovation and enterprise capacity within large and small urban areas

- Designate specific urban areas to allow for the development of international services, that support a "live and work" concept, thereby maximising the use of public transport, facilities and supporting other urban development.
- Fully integrate associated sectors within these new designated zones including, the creative arts, artisan services, and technology or community led innovation centres.

Re-Purpose Existing Capacity
To Create a Network of Fit for Purpose Investor Friendly Business Locations across the AEC



3.3 Innovation

The initiative of the business community in proposing the Atlantic Economic Corridor stems from a desire to increase the level of enterprise and job creation within the region. As stakeholders, they understand their own obligation to participate in the economic development process and in particular their own role in creating and supporting new enterprise.

Fully understanding the changing economic landscape and the increasing international competition for mobile investment and jobs, we believe that the central focus of job creation must be a clear and unified strategy that supports innovation. International companies now routinely refer in their future strategy to the mantra of "Innovate or Die". The combined chambers including the American Chamber believe that innovation, combined with a vibrant eco system of sector based and cross sector clusters provide the best opportunity for new job creation and the attraction of private investment.

The AEC strategy proposes an immediate refocusing of national investment on the "Innovation" opportunity. Further, it suggests that key instruments of economic development, combined with education and research institutions, should develop a coherent strategy with the support of the business and industry community to create a new and ambitious plan to add **100,000 innovation led jobs by 2025** and ensuring that the capacity for those jobs is fully in place by 2020.

Create An Innovation Foundry

Unlock Latent Potential

- Key Assets
- High Growth Economic Sectors and
- Our Key Talent Base
- Incoming Opportunities

Through Connecting

- Regional & National Stakeholders
- Economic Locations
- Services, Infrastructure and Assets

Delivering

- Responsive, Proactive, Cohesive Agile, Economic Growth

… Integrated network of innovation.. hubs, incubators, accelerators, technology hubs, clusters …

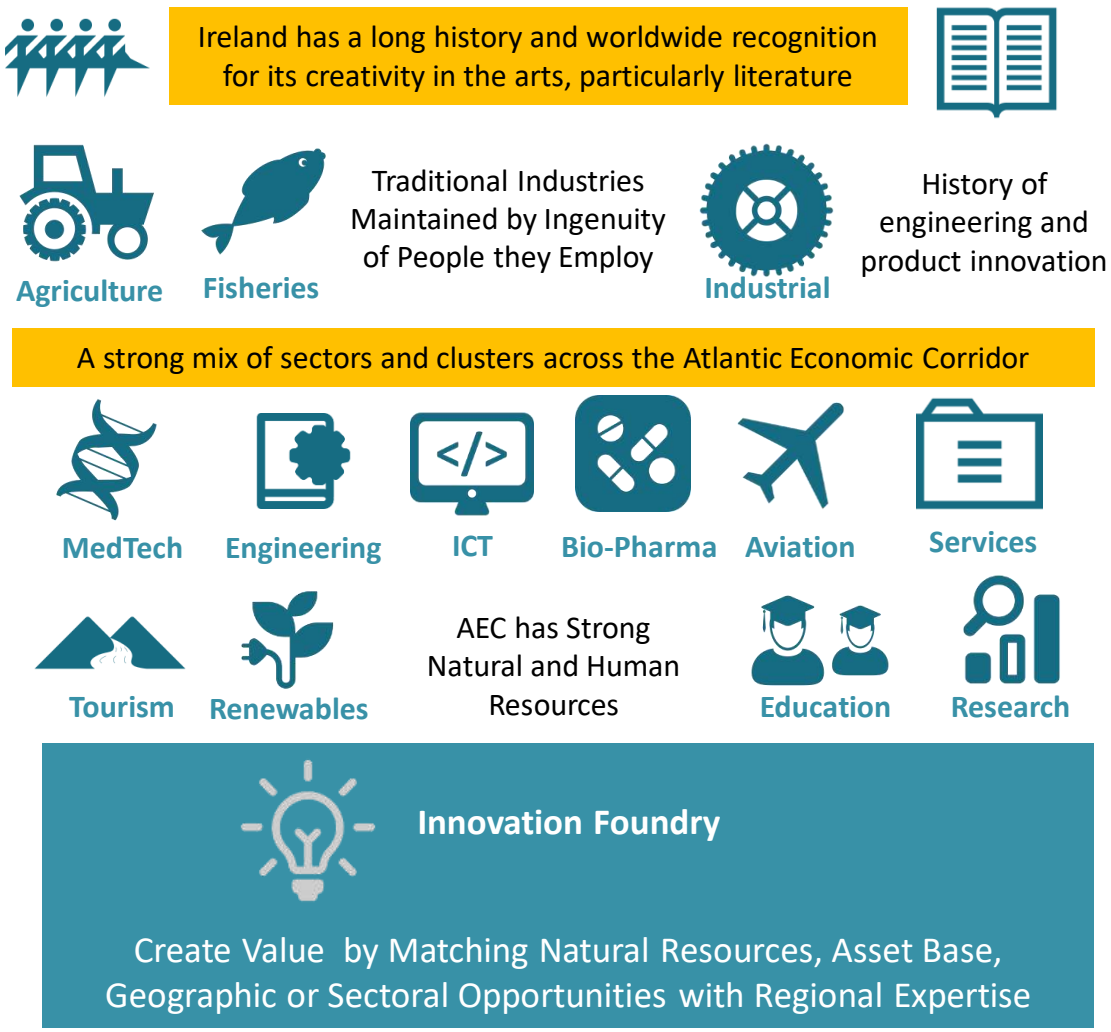
3.3.1 Innovation – The Innovation Foundry

The AEC has developed the term **Innovation Foundry** to describe the processes and networks that will be used to generate a pipeline of entrepreneurs and enterprise. The Foundry is a platform for working collectively across stakeholders and across geography, to harness our national location advantage and to drive the AEC Economy.

In our seat on the Western edge of the Atlantic Ocean and of Europe, our natural resource asset base, combined with the existence of research infrastructure and a research orientated FDI and SME base can be gathered to position ourselves at the heart of the 21st century national economy. This will require an aligned and collective approach to the Infrastructure build out, to the Investment Programme, to Economic Development. The Foundry is an opportunity to drive high value regional growth using an integrated approach which seeks to combine our natural and our human resource asset base. This requires a strong and an aligned west coast presence by Innovation and Enterprise stakeholders to draw the attention of companies interested in this space by showcasing our Innovation offering.

A region that is embedded in the Natural resource economy and that offers a collective and aligned Innovation Infrastructure, offers significant value to both local and oversea companies. A large proportion of the Atlantic corridor planned jobs will be in the identified sectors: namely Marine, Agri, Creative, Tech, MedTech, Tourism and Community.

It is clear from the recent collapse of the economy that the western region has suffered a more detrimental effect because of the dependence on the self-employed and the absence of infrastructure. The net result was the accelerated migration of critical skills out of the region. In addressing this deficit today, the conjoining of the Enterprise and the Innovation into a singular framework will accelerate and scale up the opportunities for **Jobs, for Innovation, for Enterprise, for Communities, for Coastal communities and for Towns to sustainably flourish.** The Foundry approach sets out to underpin future capital programmes, investment and the buildout of enterprise and residential infrastructure to meet the changing enterprise landscape for the next 20 years.



3.3.2 Innovation - Actions

The Innovation Foundry will ensure that there is a continuous pipeline of entrepreneurs and enterprises to exploit and benefit from the re-purposed enterprise property capacity described previously. The Foundry will be supported by three sets of actions:

1. Create a regional innovation network that combines the strength and diversity of private and community led innovation centres and hubs

- Use technology and new modes of working/living to provide an integrated work environment within which all centres and hubs participate.
- Promote ease of access and movement between centres and hubs to encourage collaboration, shared use of resource and access to assets and resources.

2. Promote innovation centres and hubs as the centre point or core of sector based eco systems

- Ensure that all urban and inter-urban capacity development includes, or is linked to innovation hubs and centres.
- Strategically develop hubs to have a dual focus on technology and another domain or sector.
- Strategically develop hubs, and specifically community led innovation centres to focus on local natural resource assets or sectors relating to those assets.

3. Use the innovation network to combine diverse human resource, experience and skill

- Combine the creativity of the arts with the innovation and disruption of the technology sector
- Actively promote the development of multi-disciplined work groups within the eco system and within companies.
- Engage directly with education at all levels and in all locations

4. Role of Community, People and Skills

4.1 Community – Key Role and Actions Required

The AEC believes that there is an opportunity and a need for the direct engagement of communities in the creation of jobs. Importantly, their role in the creation and support of social or community based enterprise will cause a step change in the creation of "local" and flexible employment that is combined with quality lifestyle and that will provide additional new jobs with a low carbon footprint. Such jobs are more likely to develop in sectors that are directly or indirectly associated with the wealth of natural resource in the region. Those sectors include agri and marine food, tourism, creative arts and media, recreational and entertainment and services associated with sustaining and protecting those resources. Other sectors including healthcare, education, internet and media services and professional services will also be suited to community and cooperative enterprise.

The direct engagement of communities will also support a proactive and balanced planning process that ensures economic development and job creation complements social transformation, the elimination of unemployment and the provision of critical supports and infrastructure for smaller and rural communities.

The AEC believes that current initiatives in this area including Leader and specific rural development programmes should be supported and become a significant contributor to job creation. It also believes that the overall focus of such programs should be both economic and social and should include the overall goal of community development that is self-sustaining and supported by a build out of community assets and community trusts that can provide the long-term investment capacity for future economic development. Such capacity would ensure that communities exercise practical control over their own future.

The AEC believes that a number of immediate actions are required:

1. Refocus the community development programmes to:

- Combine community interest and groupings to bigger initiatives that are economically diverse and scalable and provide a better utilisation of community assets including enterprise hubs.
- Implement and support existing successful enterprise creation models such as SCCUL and the Burren Lowlands "Live, Work and Visit" initiative.

2. Implement a combined local government initiative to develop a community led planning process that is focussed on:

- Active engagement of all the community.
- Develop and agree practical and relevant economic goals for each community.
- Create a base of data and information that can quickly and easily identify community assets, resources, professional and specialist's capacity of each community.

3. Promote the development of social enterprise and encourage communities to invest in and participate in such cooperatives. This should be encouraged by providing a suite of initiatives including:

- Incentives to financial institutions including Credit Unions to finance such ventures.
- Transition support schemes to move people from unemployment to flexible work modelled on the Job Bridge program.
- Direct state support (SBIR)to community based enterprise and SMEs modelled on the proposed (SBIR) PCP (Pre-Commercial Purchasing) scheme.

4. Develop new models for the creation of community based trusts that hold community assets and financial resources necessary for the sustainable long-term development of that community to include:

- The legislative framework for an existing financial institution such as the Credit Union to provide a robust financial framework for the development and management of such Trusts.
- To support the ongoing contribution of members, through micro investment in the trust.
- The underwriting of loans from such trusts to support economic development on the same basis as guarantees and underwriting of commercial or EIB loan.

4.2 People and Skills – Key Role and Actions Required

The continued depopulation and outward migration of young people from the Atlantic regions (since the foundation of the state) has resulted in an inability of communities and rural business to take charge of their own future economic growth or respond positively to job investment opportunities. This requires a rebalancing of both the age and skill profile within the region ensuring that a future skill profile can support the level of economic activity necessary to sustain the regions and contribute positively to the national economic program.

The AEC also recognises both the challenges and opportunities that present from a rich base of natural resource. Such challenges include the provision of flexible work opportunities to sustain farm and fishing communities or to provide an adequate job opportunity for those engaged in the creative arts or associated sectors such as media. It is the view of the AEC that the region must develop a capacity that has the profile of skills necessary to attract mobile investment while at the same time maximising our natural resource opportunity. More importantly, we must maximise the creativity and diverse capability of the human resource. Therefore, inherent in all skill development and graduate programs must be the ability of graduates to create a job for themselves and others from their own diversity and strength. This requires a deeper engagement by HEIs in the development and upskilling of the entire workforce.

The AEC fully supports the current regional skills initiative and initiatives by Solas and the Education and Training Boards to provide unemployed and underemployed people with the skills necessary for work. Additionally, it further suggests a number of immediate actions necessary to ensure long term growth including:

1. Specific funding to HEIs, and in particular to Institutes of Technology, to engage more directly in the creation of new enterprise by:

- Providing a centre point or place for activation – i.e. the linking of skill development, research and innovation to the broader enterprise and business stakeholder cluster and eco system.
- Better utilise HEI infrastructure and assets ensuring their availability and use for enterprise creation when not fully or directly engaged in their core process of education and learning.
- Ensure that the current practice of academic progression, currently being informed by research is further extended to ”hands on” experience of economic or enterprise development.

2. Embed more fully learning and research in the apprentice development process.

- Connect undergraduates/apprentices to research throughout the full program ensuring that research informs both the innovation and activation aspects of the program
- Ensure that research, innovation and activation skills and outcomes are evident in all program levels from 6 to 10.
- Localise academic programs to ensure that research, innovation and activation aspects contribute to the economic development of the cluster/sector.

3. Explore and develop new academic programs that follow an applied form to ensure that the apprentice model is strengthened, is work based, and is continuous for each apprenctice.

- Strengthen Industry and enterprise engagement with the HEIs and develop new forms of sharing and collaboration that create a better use of state assets and provide greater access for students to work based/apprentice opportunities.
- Develop a broader local stakeholder engagement in research, that is sector specific and more likely to create local economic outcomes.

4. Invest in a distributed IOT (regional) model that is sector focussed, with unique local stakeholder engagement, and is central to local enterprise creation.

- Further strengthen the existing distributed IOT campus structure and direct additional (non education) funding to those distributed centres.
- Encourage industry and business stakeholder engagement and part ownership of such centres, particularly in respect of their activities that are innovation or activation related.
- Redesign and provide a technology led dissemination system to support on-line learning, tutorial support on demand and direct communication and engagement with students and the wider stakeholder community.

5. Economic Planning and Execution

The AEC believes that the underlying requirement for strong economic growth along the Atlantic corridor is an integrated approach to long-term economic planning. It strongly recommends that the business and industry interest is an equal partner in the development of such a plan.

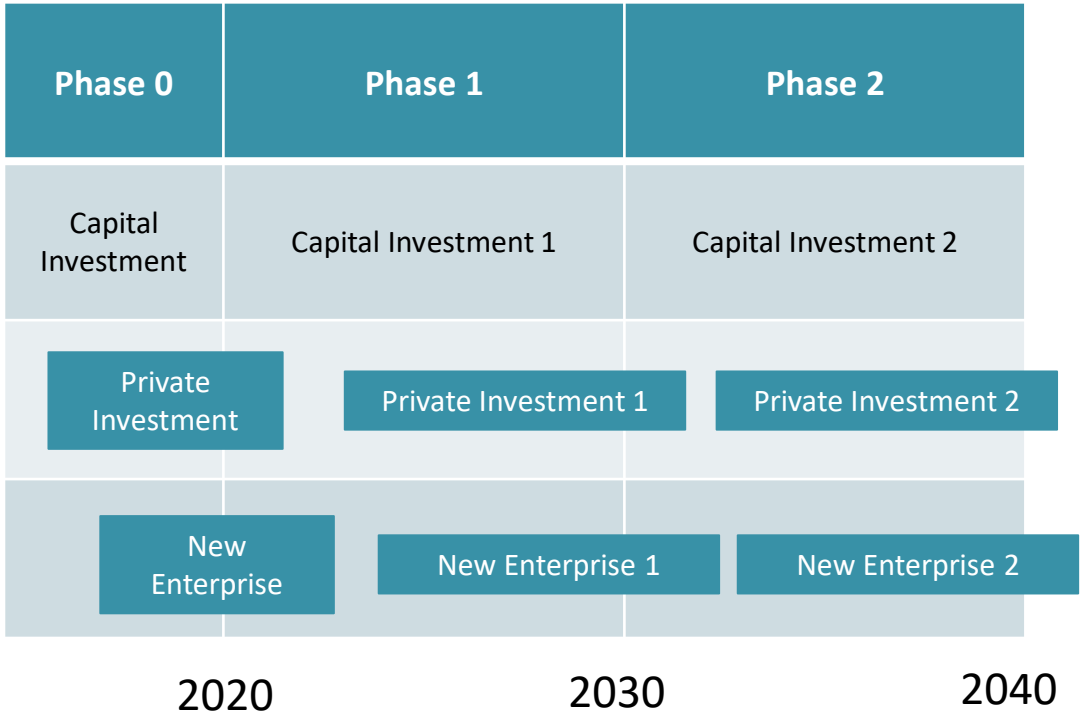
It fully endorses the proposition that the economic plan must inform the capital plan. Therefore it proposes that there is a three-phase economic plan for the Atlantic corridor region. It believes that the initial phase of this plan (set out in sections 3 to 4 above is focused on the completion of capital projects already identified. It also believes that there should be a near term focus on industry and enterprise capacity, using what already exists, to double the available capacity.

A shared approach to public and private **Economic Planning and Execution** will be required for realisation of:

- The immediate phase which through a private and public sector investment transformation programme would deliver **100,000 innovation led jobs by 2025**
- The intermediate phase, which would require a capital investment program from 2020 to 2030, should aspire to create a further **200,000 innovation lead jobs by 2035.**
- The final phase of capital investment from 2030 to 2040 should aspire to the creation of **a further 300,000 jobs**.

The focus of this phase must be to build on the development of enterprise and industry that is directly locked in to the natural resource base. Further it should focus on the change in cycles of industry and in particular the development of new technologies and materials. It should aspire to making the corridor an ideal location for large private Capital investment projects.

AEC Economic Plan



5.1 Investment Planning

The process for investment planning must be a joint activity between the public and private sector. It must be a robust process that can respond adequately to the economic plan and to create the capacity to deliver on the plan.

The overriding consideration in the investment planning process must be "certainty". Private investment will follow public investment. It is necessary therefore to ensure that the public investment in infrastructure completes to plan, is sufficient, and can attract the level of private investment necessary to deliver the employment outcomes of the economic plan.

The current planning process, including the process controlled by an Bord Pleanala does not provide the certainty necessary for the flow of private investment.

For this reason the AEC believes that three key strategic planning initiatives are required:

- A special strategic planning designation is required for the Atlantic Economic Corridor
- Strategic or Enforceable Development Zones (SDZs/EDZs) are required around specific urban areas
- Urban/Rural Development Zones (URDZs) are required to link the Atlantic Economic Corridor to the Wild Atlantic Way and Shannon Basin

1. Strategic Planning Designation for the AEC

- Prioritise infrastructure and utility investment along the North/South road (N17/N18, N11) and the Western Rail Corridor
- Identify corridor Hot Spots based on: infrastructure availability; population/urban settlement patterns; natural resource priority; urban/rural loops
- Outline planning approval for: industry; enterprise; residential; service infrastructure
- Committed % of national resources to be allocated annually
- Tax incentive programme

2. Identify, Approve and Deliver SDZ/EDZs

- Programme to develop: brownfield sites; greenfield sites/hot spots; re-purpose existing enterprise property capacity
- Full planning based on specific designation with supporting infrastructure and utilities
- Designation/planning based on long term, bankable investment proposition
- Secure state assets (e.g. NAMA) that can form part of state investment in SDZ/EDZ

3. Identify, Approve and Deliver RDZs

- Designate urban/rural development zones that link the AEC to the Wild Atlantic Way and Shannon Basin
- Base the designation on inclusion of a defined geographic cluster with a defined interest in specific natural resources and/or environmental/heritage programmes (e.g. The Burren)
- Develop infrastructure to support a low carbon, live, work, visit ethos and practice
- Introduce measures to encourage community focus on conservation and renewal
- Use RDZs to attract skilled people attracted by the life style choice of living and working in the Atlantic Economic Corridor

Appendix 1

AEC ANALYSIS OF INFRASTRUCTURE

A1. AEC Infrastructure Analysis

Infrastructure is one of the five pillars of the AEC strategy. In order to build a solid evidence base on issues and opportunities a team of infrastructure specialists across the AEC have engaged in a detailed exercise which includes:

- Preparation of baseline report
- Identification of Infrastructure deficits
- Evaluation
- Priority List for Infrastructure

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- Wild Atlantic Way/Tourism
- Green Energy

The following sections of this report highlight the key infrastructural priorities linked to the growth of these sectors in the AEC.

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Economic Sub-Region within AEC	Key Urban Areas	Population (2016 Census, prelim)	Motorway Connection	Road Connectivity Along Region	Local Road Capacity	Rail Access	Fibre Broadband	Fibre MAN	220kV Stations	220kV Line	Natural Gas	Airport within 80km	Port within 100km	Water Supply	Waste Water
Limerick / Clare	Limerick	91454	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Ennis	25360	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N
	Shannon	9673	Y	Y	Y	N	Y	N*	N	N	Y	Y	Y	Y	N
	Newcastle West	6327	N	N	Y	N	Y	N	N	N	N	Y	Y	Y	N
Galway/	Galway	76778	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
South Mayo/	Tuam	8242	Y	Y	Y	N	Y	N	N	N	Y	Y	Y	Y	Y
Roscommon	Ballinasloe	6659	Y	Y	Y	Y	Y	Y	N	N	Y	N	Y	Y	Y
	Roscommon	5693	N	N	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y
	Loughrea	5062	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y
	Athenry	3950	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Sligo/Leitrim/	Sligo	19452	N	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y
South Donegal	Castlebar	12318	N	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y
	Ballina	11086	N	Y	Y	Y	Y	Y	N	N	Y	Y	N	Y	Y
	Westport	6063	N	N	Y	Y	Y	N	N	N	Y	Y	Y	Y	N
	Carrick-on-Shannon	3980	N	N	N	Y	Y	Y	Y	Y	N	Y	N	Y	Y
North Donegal	Letterkenny	19588	N	Y	Y	N	Y	Y	N	N	N	Y	Y	Y	Y
	Ballybofey-Stranorlar	4852	N	Y	N	N	Y	Y	N	N	N	Y	Y	Y	N

A1.1 AEC Infrastructure Analysis – Wild Atlantic Way/Toursim

A1.1.1 Tourism Performance

According to Fáilte Ireland (*Regional Tourism Performance in 2015, October 2016*) the number of overseas visitors to Ireland rose from 6.045million in 2013 to 8.278 million in 2016. The majority of these came from Britain (3.335 million) and mainland Europe (2.89million) with much of the balance from North America (1.585 million).

Table A1.1: Overseas Tourism Indicators for Dublin, 2015

Dublin	Tourist Parameter	Value
	Tourists (000s)	4,937
	Tourist Revenue (€m)	1,726
	Holidaymakers (000s)	2,841

Table A1.1 above summarises the overseas tourism statistics for Dublin in 2015. Table A1.2 provides a similar summary for Wild Atlantic Way tourism. The numbers are such that the South-West, Shannon and West have the most visitors.

The North-West experiences only 43% of tourists visiting the West Region or 33% of tourists visiting the South West Region.

It is evident that the West Region has experienced the greatest increase in tourism numbers i.e. by 426,000 (from 1,164,000 to 1,590,000) which was equivalent to the total number of tourists visiting the North West in 2012.

Table A1.2: Overseas Tourism Indicators for the Wild Atlantic Way

Region	Tourism Parameter	2012	2015	Change
South West (Cork, Kerry)	Tourists (000s)	1,779	2,104	+18%
	Tourist Revenue (€m)	562.8	791.8	+41%
	Holidaymakers (000s)	1,101	1,428	+30%
Shannon (Clare, Tipp.N, Limerick, Offaly	Tourists (000s)	867	1,148	+32%
	Tourists Revenue (€m)	221.4	366.8	+66%
	Holiday makers (000s)	499	760	52%
West (Galway, Roscommon, Mayo)	Tourists (000s)	1,164	1,590	+37%
	Tourist Revenue (€m)	339	574.5	+69%
	Holidaymakers (000s)	815	1,120	+37%
North West (Cavan, Leitrim, Sligo, Donegal, Monaghan)	Tourists (000s)	428	694	+62%
	Tourist Revenue (€m)	112.6	224.1	+99%
	Holidaymakers (000s)	266	403	+51%
Totals	Tourists (000s)	4,238	5,536	+31%
	Tourist Revenue (€m)	1,235.8	1,957.2	+58%
	Holidaymakers (000s)	2,681	3,711	+38%

Table A1.3: Distribution of Visits to AEC Counties, 2015

County	Overseas Tourists (000)	Overseas Revenue €m	Irish Residents Trips to County (000)	Expenditure by Irish Residents €m
Limerick	537	212	257	32.1
Clare	597	127	410	101.2
Galway	1,354	475	895	194.1
Mayo	302	80	463	93.3
Sligo	186	51	263	61.2
Roscommon	50	20	80*	14.1
Leitrim	57	15	117**	19.75
Donegal	289	83	314	75.7
Total AEC	3,372	1,063	2,799	591.45
Total Ireland	12,963	4,266	9,125	1,725.3
% of Irish Total	26%	25%	31%	34%

*50% of Combined Roscommon/Longford

**50% of combined Cavan/Leitrim

Table A1.3 shows the distribution of visits to AEC Counties in 2015.

The Northern part of the Wild Atlantic Way is not being used to full potential.

There is a need for improved access to Mayo, Sligo, Roscommon, Leitrim and Donegal.

Good access is key to tourism. Dublin Airport is Ireland's busiest with 27.9 million passengers in 2016. Within the AEC Region, Shannon Airport had 1.74 million passengers in 2016 while Ireland West (Knock) had 0.73 million.

It is evident that a substantial portion of visitors to the AEC Region land at Dublin and drive across the Country. It is likely that part of the increase in numbers to the West Region in recent years is due to the completion of the M6 motorway in December 2009 which makes it easy to get from Dublin to Galway i.e. the middle to the Wild Atlantic Way.

Table A1.4 provides projections for growth in tourism which are considered by the AEC as being realistic for the AEC Region.

In order to develop tourism further along the Wild Atlantic Way, it is essential to improve access into the West of Ireland and also to improve connectivity up and down along the Wild Atlantic Way Region. The following infrastructural sectors are of vital importance to tourism.

- Broadband
- Airports
- Motorways and Roads
- Ports

The following sections provide an analysis of these elements of infrastructure in order to demonstrate requirements and opportunities if the tourism potential of the AEC is to be realised.

Table A1.4: Projections for Tourism Growth in the AEC

	2015	Phase 1 Nov (to 2020)	Phase 2 Near Term (2020 – 2030)	Phase 3 Medium Term (2030 – 2040)
Overseas Tourism	3,372,000	4,000,000	To 7,500,000	To 10,000,000
Irish Residents Trips	2,799,000	4,000,000	To 7,500,000	To 10,000,000

A1.1.2 Broadband

Good Broadband is essential to making bookings for accommodation and activities. The key recommendations in relation to broadband which are necessary for tourism growth are summarized below:

Table A1.5: Broadband Recommendations

Phase 1 Now (To 2020)	Phase 2 Near Term (2020-2030)	Phase 3 Medium Term (2030-2040)
Deliver the completed National Broadband Plan. Complete MANs to Ennis and Shannon. Provide MANs to Tuam, Castlebar and Westport.	Provide MANs to urban areas including Rathkeale Foynes Ennistymon, Newmarket-On-Fergus, Newcastle West Ballyhaunis, Killala, Swinford, Ballymote, Tubercurry, Collooney, Ballaghaderreen, Castlerea, Killybegs and Glenties so as to achieve 100Mbps.	

A1.1.3 Airports

There is a requirement for the National Aviation Policy (NAP) to be aligned with the National Planning Framework, in order that the provision of air connectivity in Ireland supports effective regional development outside Dublin.

Recent years have seen welcome growth in passenger traffic to Ireland, but virtually all of this growth has been at Dublin Airport. Dublin Airport has a clear monopolistic position which will require careful regulation in order to ensure that future growth in direct air connectivity outside Dublin does not fall victim to the narrow interests of Dublin Airport's operator. Continued, unregulated growth in market share of Dublin Airport will not be in the broader national interest, will impair the AEC's ability to win its share of inbound tourism and FDI and will weaken the region's indigenous businesses' ability to compete globally.

The combined passenger total for 2016 for Shannon Airport and Ireland West (Knock) airport was 2.47 million which is 8.9% of the passenger numbers for Dublin Airport. So as to facilitate the growth of the Wild Atlantic Way, it is essential that more passengers use Shannon and Ireland West Airports rather than Dublin Airport.

This can be achieved by a combination of policy, marketing and the provision of infrastructure. Much of the recommended infrastructure can be delivered in a short timeframe i.e. between now and 2020 which will be a shorter timeframe than that required for delivery of motorway infrastructure. The key recommendations are outlined in Table A1.6 overleaf.

Table A1.6: Aviation Recommendations

Phase 1 – Now (to 2020)	Phase 2 – Near Term (2020-2030)	Phase 3 – Medium Term (2030-2040)
National Aviation Policy should be aligned with the National Planning Framework encouraging effective regional development and should take account of the importance of direct regional air connectivity, rather than facilitating increased centralisation and Ireland becoming an effective one-airport country.	Provide rail link between the Limerick – Ennis line and Shannon Airport	
State to take in charge the river embankment protecting Shannon Town and Shannon Airport		
Complete the dualling of the last kilometre of the N19 into Shannon Airport, which is dual carriageway with the exception of the final kilometre. The current situation represents a serious vulnerability in the event of a traffic accident blocking the road and preventing emergency services access to the airport. The Shannon Local Area Plan provides for this dual carriageway construction and the lands required are in public ownership.		
Recognition that Brexit will result in Ireland, and especially the west coast, being significantly more isolated from the rest of Europe, and designation of the Atlantic coast of Ireland as a Peripheral Region.		
Carry out works on the main runway and aircraft parking areas at Ireland West Knock		
Designate lands in the vicinity of Ireland West Knock as a strategic development zone		

A1.1.4 Motorways and Roads

In order to achieve access into the northern part of the Wild Atlantic Way, it is essential that the N4 be developed as motorway/dual carriageway for much of its route from Dublin to Sligo. This will also facilitate additional trips by residents of the East Coast.

It is also important to have a spine of motorways/dual carriageway up and down The Wild Atlantic Way so as to allow easy access and connectivity. Key deficits exist between Limerick and Cork, Limerick and Kerry and Tuam to Sligo.

Many of TII's motorway projects within the AEC Region are "suspended". The AEC urges that these suspensions be lifted as soon as possible so as to allow for the typical 5-6 year lead in time to start of construction.

The AEC's recommended actions are categorised between planning and construction stages and are outlined in Tables A 1.7 and A1.8.

Table A1.7: Motorway/Roads Recommendations (Planning)

	Phase 1 – Now (to 2020)	Phase 2 – Near Term (2020 – 2030)	Phase 3 – Medium Term (2030 – 2040)
Planning	• M20 Limerick to Cork Motorway. • N6 Galway City Transport Project (2 Parts). • N24 Ballysimon to Pallasgreen. • M4 Mullingar to Roosky Motorway. • N21 Abbeyfeale Rathkeale. • N59 Clifden to Oughterard. • N17 Tobercurry By-Pass to Knock By-pass (includes Collooney to Charlestown). • N4 Dromod to Carrick-on-Shannon including Carrick-on-Shannon By-Pass. • N17 Tuam to Claremorris.	• Eastern Garavogue Bridge and Approach Roads Sligo. • N15 Sligo to Tullaghan. • N15 Ballybofey/ Stranorlar By-Pass. • N15 Lifford to Stranorlar. • N14/N15 to A5 link Bridge over River Finn. • N16 Sligo to Glencar (May be done in 3 Stages). • N16 Glenfarne to Glencar. • N5/N26/N58 Turlough to Bohola.	

Table A1.8: Motorway/Roads Recommendations (Construction)

	Phase 1 – Now (to 2020)	Phase 2 – Near Term (2020 – 2030)	Phase 3 – Medium Term (2030 – 2040)
Construction	• N4 Collooney to Castlebaldwin. • N5 Westport to Turlough Road (Castlebar). • N5 Ballaghaderreen to Scramoge. • Adare to Rathkeale. • N69 Rathkeale to Foynes. • Moycullen Bypass.	• M20 Limerick to Cork Motorway. • N6 Galway City Transport Project (2 Parts). • N24 Ballysimon to Pallasgreen. • M4 Mullingar to Roosky Motorway. • N21 Abbeyfeale Rathkeale. • N59 Clifden to Oughterard. • N17 Tobercurry By-Pass to Knock By-pass (includes Collooney to Charlestown). • N4 Dromod to Carrick-on-Shannon including Carrick-on-Shannon By-Pass. • N17 Tuam to Claremorris. • Eastern Garavogue Bridge and Approach Roads Sligo. • N15 Sligo to Tullaghan. • N15 Ballybofey/ Stranorlar By-Pass. • N15 Lifford to Stranorlar.	• N14/N15 to A5 link Bridge over River Finn. • N14 Letterkenny to Lifford. • N13 Letterkenny to Stranorlar. • N13 Letterkenny to Bridgend. • N16 Sligo to Glencar (May be done in 3 Stages). • N16 Glenfarne to Glencar. • N5/N26/N58 Turlough to Bohola.

A1.1.5 Ports

Cruise liners have been a feature of tourism in Cork and, more recently, in Galway and Killybegs. Foynes (or in the future Moneypoint) which are deepwater ports could accommodate cruise liners in the future. Killybegs is a designated "Fisheries Harbour Centre". Clarity is required as to the potential uses of Killybegs. The key recommendations in relation to ports are outlined in Table A1.8.

Table A1.8: Ports Recommendations

Phase 1 – Now (to 2020)	Phase 2 – Near Term (2020-2030)	Phase 3 – Medium Term (2030 – 2040)
• Prepare Feasibility Report on future of Moneypoint Port. • Complete Planning Stage for new Galway Port. • Re-open rail link to Foynes Port. • Upgrade road link to Foynes Port. • Feasibility Study on uses of Killybegs.	• Construct new Galway Port. • Planning for Moneypoint. • Improvements for Killybegs Port including extension.	• Implement recommendations for Moneypoint.

A1.2 AEC Infrastructure Analysis – Green Energy

A1.2.1 Approach

There is an abundance of renewable energy potential along the AEC region. This resource/opportunity can help to address two of the NPF key questions:

- Where will Ireland fit in a wider (geographical) context?
- What are the planning responses to key environmental challenges?

In this discussion, the AEC shows how Ireland can be a green economy with a low Carbon footprint and possibly a nett exporter of a significant quantity of energy ("green" electricity) in the wider geographical context of Europe. It also describes some of the planning responses to environmental challenges.

A1.2.2 Energy Vision

By 2040, it is anticipated that Ireland will have over one million additional inhabitants.

If the AEC Region is notionally taken as Counties Kerry, Limerick, Clare, Galway, Mayo, Sligo, Roscommon, Leitrim and Donegal, then the population of these counties (according to the 2016 census) is 1,170,853 while the population of Ireland (Republic) is 4,757,976.

Thus, the AEC Region hosts 24.6% of the national population.

For the purposes of this submission, the proposed green energy vision for the AEC is outlined in Table A1.9.

Table A1.9: AEC Green Energy Vision 2040

Vision for 2040
• Population of Notional AEC Region to be 2,000,000 or 35% of Country. • AEC region to be self-sufficient in "green" energy. • AEC Region to supply "green" energy to other parts of the Country. • All transport will be from "green" electricity.

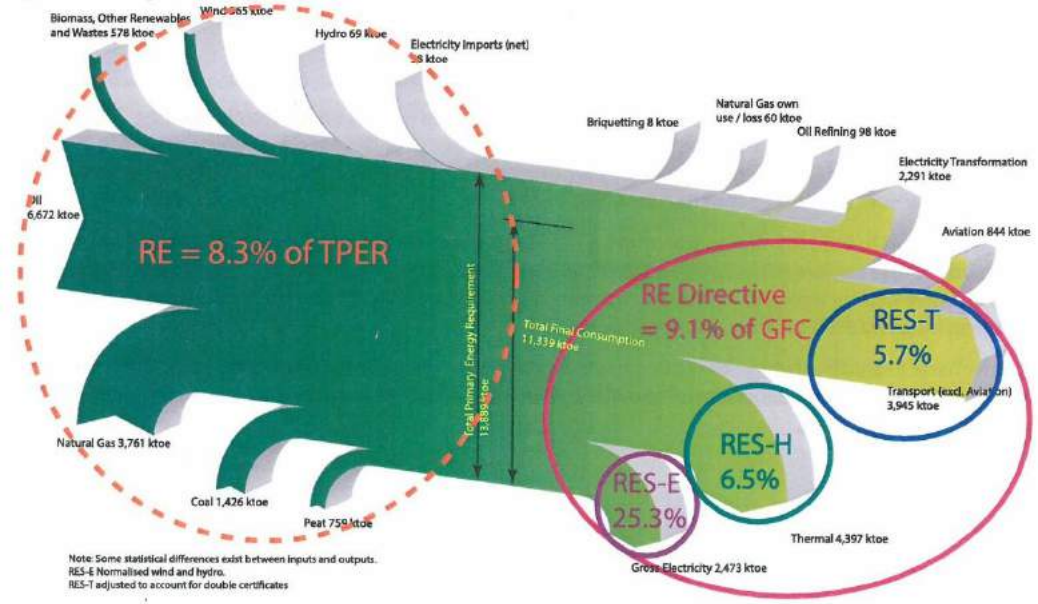
A1.2.3 Energy Balance 2015

The SEAI's Report *"Energy in Ireland 1990-2015", November 2016*, provides a record of the Country's progress in reducing and decarbonising our energy use and monitors progress against the 2020 targets. Section 2.3 of that Report presents an Energy Balance for 2015 while Section 3.1 evaluates progress against 2020 Renewable Energy Targets. These sectional targets are RES-E (electricity), RES-T (transport) and RES-H (heat). The details of progress made towards the 2020 target are outlined in Table A1.10. Figure 21 of the Report is shown here as well and illustrates progress in graphic form.

Table A1.10: AEC Green Energy Vision 2040

Progress towards Target									Target
% of each target	2000	2005	2010	2011	2012	2013	2014	2015	2020
RES-E (normalised)	4.8	7.2	14.6	17.4	19.7	21.0	22.9	25.3	40
RES-T	0	0	2.4	3.7	3.9	4.8	5.1	5.7	10
RES-H	2.4	3.5	4.5	4.9	5.1	5.5	6.6	6.5	12
Directive (2009/29/EC)	2.0	2.8	5.6	6.5	7.1	7.6	8.6	9.1	16

Figure 21 *Progress to Targets 2015*



A1.2.4 Contribution of Renewables 2015

Renewables Contributed 8.3% of Total Primary Energy Requirement in 2015 with the contribution of the main categories set out in Table A1.11. The overall breakdown is outlined in Table A1.12.

The total installed wind capacity was approx. 2,440MW.

The average capacity factor for wind was 32% while for hydro, it was 39%. This means that for each MW of wind generation installed the electricity produced is equivalent to full output for 32% of the time.

Table A1.11: Contribution of Renewables, Summary, 2015

Contribution	
Hydro	69ktoe*
Wind	565ktoe
Biomass, Other Renewables & Water	578ktoe
* Kilo tonnes of oil equivalent	

A1.2.5 AEC Regions Energy Usage, 2015

Based on 25% of national population, the AEC Region's Total Primary Energy Requirement in 2015 is estimated at 3,422.25 ktoe.

Table A1.12: Renewable Energy Contribution to Gross Electricity Consumption (RES-E normalised)

Renewable Electricity %	1990	2000	2005	2010	2011	2012	2013	2014	2015
Hydro (normalised)	5.3	3.4	2.7	2.6	2.7	2.8	2.7	2.6	2.5
Wind (normalised	0	1.0	4.0	10.9	13.5	15.3	16.6	18.4	21.1
Biomass	0	0	0	0.4	0.5	0.9	1.1	1.2	1.0
Landfill Gas	0	0.4	0.4	0.6	0.6	0.6	0.6	0.6	0.6
Biogas	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Solar PV	0	0	0	0	0	0	0	0	0.01
Overall	0	4.8	7.2	14.6	17.4	19.7	21.0	22.9	25.3

A1.2.6 Meeting RES-E 2020 Target

It is anticipated that the REFIT Renewable Energy Feed in Tariffs (which require projects to be operational by end 2019) will bring the total renewable energy generating capacity (mainly wind) to 4,500MW which will mean that Ireland will meet its RES-E target. However, there are concerns that the RES-T and RES-H targets will not be met and hence the overall target of 16% as per Directive 2009/28/EC will not be met. It is possible that Ireland could face fines of up to c. €500m annually for breach of this limit.

A1.2.7 Making up the Shortfall on RES-T

The AEC has prepared a number of recommendations which demonstrate how the Atlantic Economic Corridor can help to make up the shortfall on RES-T and these are provided in Table A1.13.

Table A1.13: AEC Recommendations to Make up RES-T Shortfall

Phase	Recommendation
Phase 1 (Now) to 2020	• Increase use of rail for freight • Increased use of compressed National Gas (CNG) for HGV's
Phase 2 Short-Term 2020-2030	• Electrification of Rail • Diesel reduced to 25% of HGV's by 2030, CNG - 50% of HGV's; Electricity – 25% of HGV's
Phase 3 Medium Term 2030-2040	• All HGV's either CNG or Electricity (diesel phased out)

Ballina, County Mayo is a hub for freight with increasing tonnages annually. Re-opening two railway lines viz: Claremorris to Athenry ; Limerick to Foynes would allow direct access to either Foynes Port or Waterford Port and thereby allow further increases in rail freight. This would facilitate a reduction in HGVs for freight traffic.

The AEC recommends that a national freight strategy and action plan be urgently progressed so as to evaluate what is viable in the short-term. This is likely to involve the construction of freight-capacity passing loops on all single track regional railway at 15km intervals.

Gas Networks Ireland is currently targeting at least 5% penetration of compressed Natural Gas (CNG) for commercial fleet operation and 10% of the bus market in Ireland by 2025. Gas Networks Ireland are proposing to develop a 70 station CNG fuelling network, co-located in existing forecourts on major routes and close to urban centres. The AEC believes that these targets are not ambitious enough and that a 10% penetration in HGV traffic by 2020 should be targeted.

In 2015, RES-T accounted for 5.7% (224.8 ktoe) of Transport demand of 3,945 ktoe. Road Freight accounted for 625ktoe energy demand in 2015 while Light Goods Vehicles accounted for 300 ktoe and Public Passenger (Road) vehicles accounted for 137 ktoe. These total 1,062 ktoe.

If 20% of Road Freight was replaced by rail and 10% of the combined total was run on CNG by 2020 this would result in a further overall oil equivalent energy reduction of approximately 250 ktoe by 2020 which would be close to our RES-T target.

A1.2.8 Electrification of Rail

Our rail rolling stock is ageing and will need to be replaced post 2025. Diesel, as a fuel, may be banned at that stage and it would be opportune to electrify our railway system. In 2015, rail had an energy demand of 39ktoe. In future, this could double to 80ktoe as a result of additional freight and increased passengers.

This is equivalent to 930,000 MWH per year. Assuming an 18-hour day the generating capacity required would be 141MW. For Wind energy at 32% capacity, the installed generation requirement would be 442MW, say 450MW. This could be provided in its entirety by wind power from North Mayo (150 turbines), backed up by peaking plants fuelled by natural gas also based in North Mayo (Bellacorrick area). Solar energy could contribute to the generation mix. As industrial scale battery storage continues to develop, such installations could also be provided.

A1.2.9 Ireland's Potential Renewable Energy Resources Beyond 2020

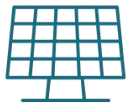
Ireland has a vast array of potential renewable energy resources. These are described briefly below.

On Shore Wind

Eirgrid anticipates an additional 180-250MW per year of installed capacity between 2020 and 2030. Many of their sites have Planning Permission and are outside the Gate 3 Grid Connection processing mechanism. The additional installed capacity is estimated at 2,000MW which, at 32% capacity, is equivalent to 482ktoe/annum.

Off Shore Wind

Some 1,555MW of offshore wind farms have approved Foreshore leases. There is another 2,595MW at application stage. The combined total for off-shore wind is 4,150MW. Assuming a capacity factor is 40%, the energy yield could be 1,250ktoe/annum.



PV Solar

In excess of 5,000MW of grid connection applications have been submitted. Many of these solar farms are going through the Planning Permission process. Assuming a capacity factor of 20%, the energy yield could be 753ktoe/annum.

Wave Energy

The 2005 Ocean Energy strategy from the DCMNR, cites Ireland as having huge Ocean Energy potential most particularly with regard to its wave resources. It estimates that the practical wave energy resource offshore is greater than 6,000 MW or 59 TWh per annum as per the public consultation document options for the development of wave energy in Ireland. The potential is there for wave energy to be a crucial contributor towards Ireland's future energy requirements in the medium to long term. Assuming a capacity factor of 30% the energy yield could be 1,350 ktoe/annum.

Bioenergy

This includes Biogas from Anaerobic Digestion, Solid Biomass and Liquid Biofuels. Biogas from Anaerobic Digestion can be generated from pig slurry, grass silage, cattle slurry and food waste. Solid biomass includes the use of willow, miscantus, straw and municipal waste. According to the SEAI, the 2035 potential is equivalent to 30% of Ireland's current energy demand. They also state that over 3,500 ktoe of indigenous resources will be available by 2050. A value of c.2,000 ktoe/annum is assumed for 2040. This has potential to attain our RES-H target.

The extent of these renewables is such as to be able to replace almost 90% of current oil usage for total energy production (including cars etc). This would facilitate almost total conversion of transport to electricity.

As Bioenergy offers the most scalable solution and can be generated by agricultural activity, it constitutes a use of natural resources (i.e. the land). The generation facilities can be located close to the point of use and heat can be harnessed as well as electricity. The AEC recommends that more should be done by Government in the promotion and development of Bioenergy. The growing of crops can also act as a carbon sink.

In order to harness this Bioenergy potential, it is considered that the electricity grid needs to be well developed.

Appendix 2

AEC PROPOSAL TO DELIVER ENTERPRISE PROPERTY CAPACITY

Appendix 2: Property Solutions for Enterprise - Issues

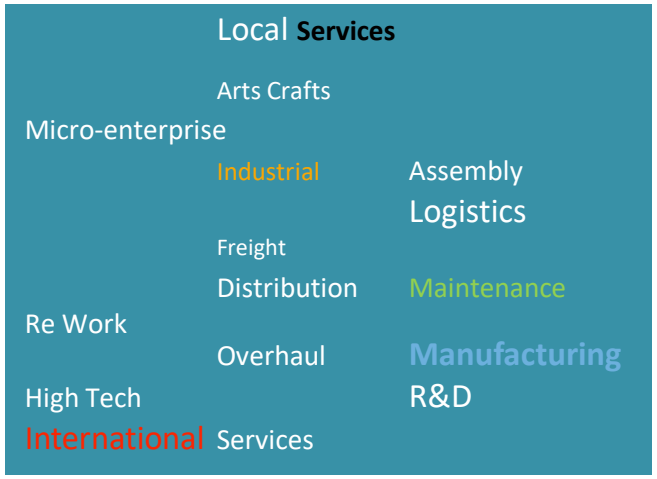
A2.1 Property Solutions for Enterprise – Issues to be Addressed

Interaction and exchange of experience amongst AEC members has highlighted three key issues of concern when it comes to the provision of property solutions for enterprise in the corridor:

- Different enterprise segments have varying property needs and there is no one size fits all solution
- As the economy develops new property solutions emerge and there is a risk that older but still relevant solutions are neglected
- Focus on austerity and financial control has resulted in property assets being treated as financial rather than economic assets.

Each issue is summarised in Sections A1.1 to A1.3 below.

Figure 1: Differentiating Features of Various Types of Enterprise Parks



Property Solutions are Intended to **Serve Business Needs**

Recent Emphasis on Austerity and Financial Control … Creates a Limited View of Properties as Little **More than Financial Assets** … to be Included in Large Sale Portfolios …

A2.1.1 Different Enterprise Segments have Different Needs

Property solutions such as individual warehouses, factories, offices or designated industrial or commercial zones or parks are intended to serve business needs. However, there are many different types of businesses and not all have the same needs.

Developing this theme further, Figure 2 provides a representation of the different types of businesses and activities and how these can be matched to particular types of property solutions in a variety of locations.

Figure 2: Property Solutions, Locations and Enterprise Types

As illustrated in the diagram the type and location of property solution for local service businesses will be very different to those intended for industrial enterprises. Similarly, the standards required by internationally trading businesses may be different from those focussing on the domestic market.

Success in the AEC requires solutions for all elements of enterprise. Isolated technology, industrial or business parks serving just one element of the business segment are not effective alone and must be seen as just one important component of a much bigger picture.

A2.1.2 Risk of Concentration on the Latest Trend

More or less concentration has been placed on particular types of property solutions at different stages of economic development. In the case of Ireland, for example, the following broad trends can be observed:

- 1960s: development of industrial estates with standard factory buildings and large units for basic manufacturing and assembly operations as Ireland commenced the move from an agricultural to an industrial economy;
- 1970s: development of enterprise centres and multi-tenant buildings to meet the needs of Irish owned SMEs developing businesses linked to the growth of multi-nationals;
- 1980s and 1990s: introduction of higher standard business parks, the first business incubators and later technology parks as the service sector became a growing and important part of Ireland's economic success;
- 2000s and onwards: campus type developments, high quality office buildings and research centres began to develop as policy focussed on research, innovation and the commercialisation of new technologies and discoveries.

This represents the necessary and continuing development of increasingly sophisticated property solutions required for success in the enterprise economy. However, there is a risk that with each evolution to the next stage of development that too much emphasis is placed on the new while forgetting that there may still be a need for the old. For example, some sub-supply and service companies may be able to operate more than adequately in industrial parks while their high-tech customers require a more visually attractive and modern campus environment. If investment is concentrated on the latter at the expense of the former the operating environment may become more difficult for the sub-supply and service sector. This reinforces the point made above that success in the AEC requires fit for purpose property solutions for all enterprise segments.

A2.1.3 Treatment of Property as a Simple Financial Asset

The financial and economic crisis of recent years has led to a situation whereby policies designed to drive financial restructuring and austerity have resulted in industrial and enterprise properties being seen primarily as financial assets. This means that the primary objective in the management and development of such properties has been on maximising financial return. The result is that little if any attention is given to the needs of the end user – the enterprise that requires use of the facility and surrounding services in order to operate a successful and sustainable business.

AEC members have highlighted the impact of inclusion of both individual enterprise buildings and entire industrial or business parks in a much larger portfolio operated or sold by the National Asset Management Agency (NAMA). In many cases the enterprise properties comprise a small element of a much larger portfolio with a range of properties of varying quality. The portfolio is often managed to generate return on particular assets which are of more interest to the owner. Unintended but very practical consequences of this from the enterprise perspective include:

- Absence of active management of industrial and business parks which is the key feature that distinguishes a basic industrial area or zone from a well-managed and fit for purpose location for modern business;
- Lack of investment in maintenance and upkeep of basis services such as roads, lighting, landscaping and general maintenance;
- Tenants or owner occupiers left in a situation of uncertainty which mitigates against and uses up time required for development and operation of the business.

A2.2 Property Solutions for Business: AEC Proposal

The first step towards resolving the issues outlined in Section A1 above is to be clear that a successful economy requires a fit for purpose operating environment for all enterprise segments as outlined in Figure 3.

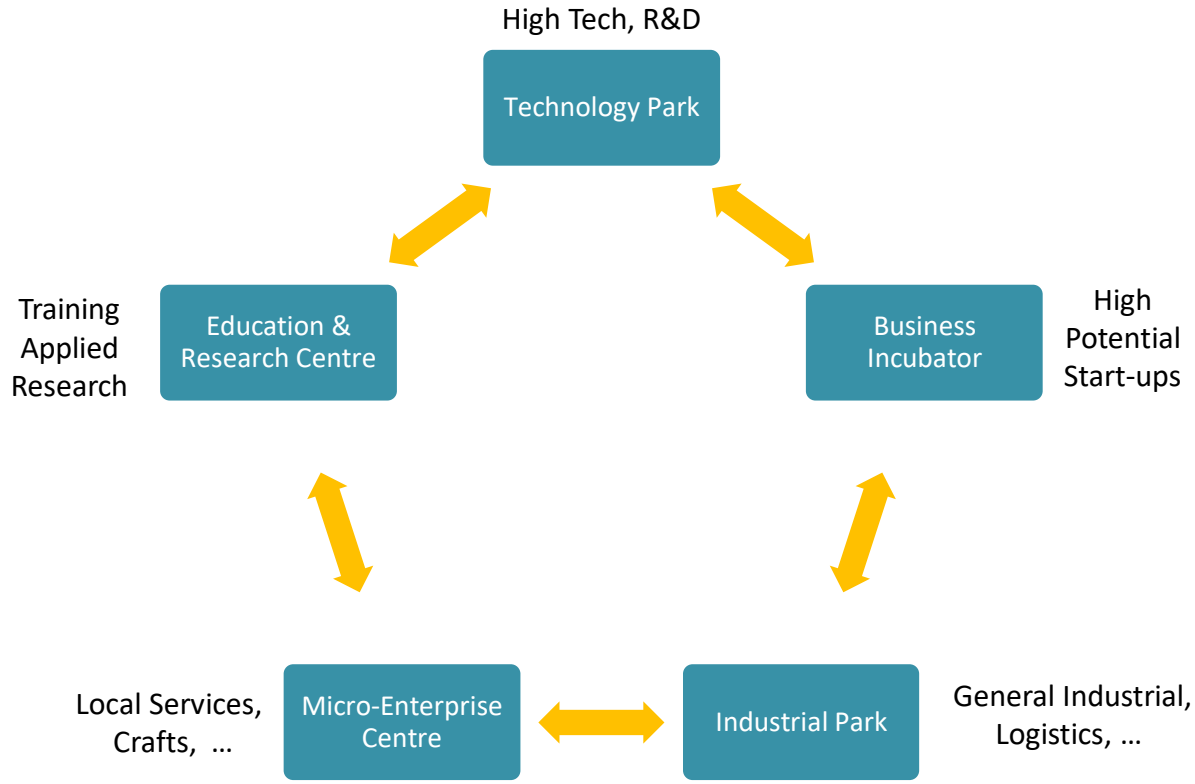
A2.2.1 Objective of the Proposal

The objective of this proposal is to ensure that the AEC is in a position to provide a network of fit for purpose property solutions for all enterprise segments.

The key concept in the AEC solution is to see each component as part of a network of property solutions designed to meet the needs of particular enterprise segments. A constant focus is required on the bigger picture not just one component.

A critical assumption is that a major part of the delivery of this network will be based on renewal or re-purposing of existing property assets. While there may be some element of greenfield investment, the local insights of AEC members indicates that there are many underutilised assets that can be re-furbished while still contributing to the overall objective.

Figure 3: A Network of Fit for Purpose Property Solutions for Business



The objective will be achieved through a series of workstreams which are outlined in the following sections.

A2.2.2 Workstream 1: Define Each Component of the Network

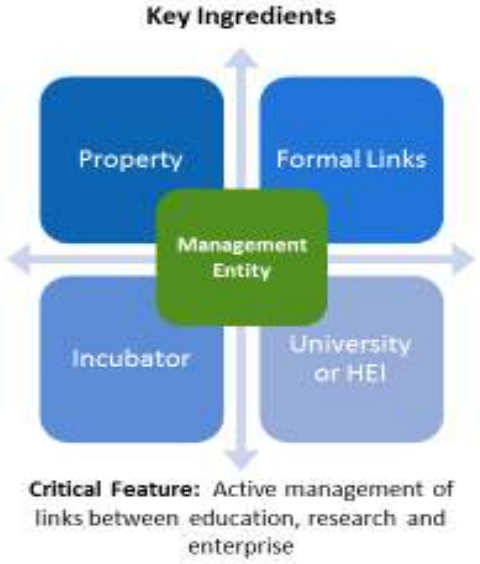
It is essential that clear definitions are prepared and agreed to ensure that there is understanding and delivery of the standards and specifications required of each component of the property solutions network. For example, Figure 4 provides a summary or headline definitions of different types of parks. This illustrates the impact of clearly defined tenant eligibility criteria on the look and feel of different types of managed enterprise environments from the more basic industrial to the tightly controlled science park.

Figure 4: Differentiating Features of Various Types of Enterprise Parks

Type of Park	Key Features & Activity
Industrial	Full serviced and managed industrial zone for manufacturing activity
Business	Light Manufacturing, Distribution and Service Activity in High Quality Location
Technology	University or Higher Education Institution (HEI) on site or in close proximity to enterprise. Focus on knowledge based business but manufacturing and production activity allowed as well as R&D
Science	University or Higher Education Institution (HEI) on site. Focus on research-based and R&D activities only. No manufacturing or production activity.

Taking just one element of Figure 4, Technology Parks, further illustrates how the presence or absence of critical sub-components in each type of park determines whether a particular development is classified as a technology park in name only or in the substance of how it is developed and managed. Shannon Development and a number of regional and national stakeholders established the National Technology Park, Ireland's first science and technology park, with the University of Limerick in the 1990s. Based on a combination of this experience and the definitions used by the International Association of Science Parks (IASP), Figure 5 provides a graphical demonstration of the key elements required to label a business park as a true technology park.

Figure 5: Key Components of a Technology Park



It is clear that definitions of the term Science/Technology Park vary throughout the world. The broad concept is one of a spatial development where the interface of research with industry and enterprise is actively promoted. The essential components in such developments as outlined in Figure 5 are:

- A property based initiative with high quality buildings, services and surroundings.
- Formal operation links with a university or higher education entity (HEI).
- A facility to incubate and grow new technology companies.
- A management entity to co-ordinate the development and actively manage the innovation process.

The property component is essential but the incubation element and active on site management of the links between education and enterprise are crucial factors. Setting up a technology park involves much more than property acquisition, development and marketing of the site.

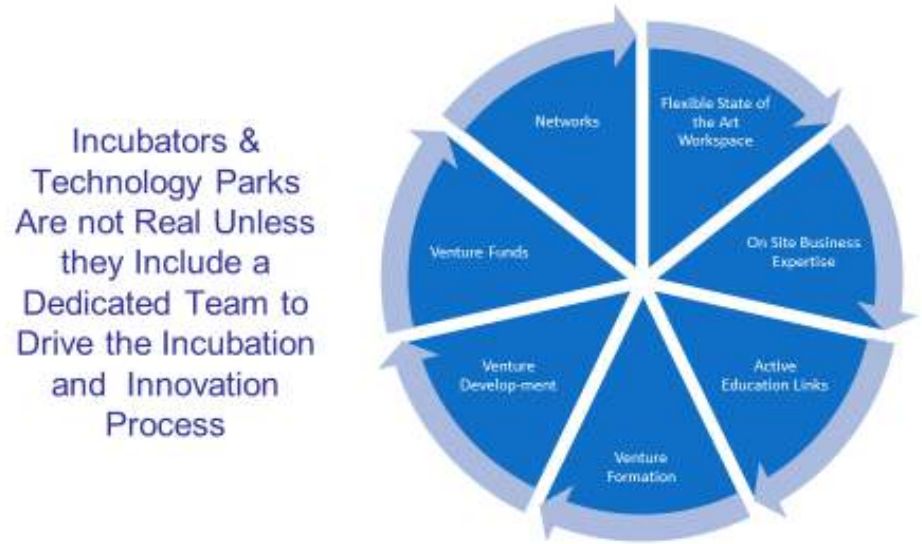
Similarly, as outlined in Figure 6, a business incubator without a dedicated team to drive the innovation and venture creation process does not add any more significant value than a multi-tenant building.

For these reasons, the first step is to develop clear definitions of what is meant by terms such as:

- Industrial, business, technology and science park
- Warehouse, light industrial unit, advanced manufacturing facility,
- Enterprise Centre
- Business Incubator

This will form the basis for the preparation of specifications and standards in Workstream 5.

Figure 6: Key Ingredients of a Business Incubator



A2.2.3 Workstream 2: Case Studies of Enterprise Property Solutions

Having defined the key components of the property network, case studies will be developed for each category to provide practical learning experiences from across the corridor. This will help to answer questions such as:

- What is working well in the range of enterprise property solutions across the AEC?
- What is not working well, where are the weaknesses, what are the barriers to enterprise growth arising from existing property solutions?
- What lessons can we learn from existing experience to ensure that the full potential of enterprise property assets across the corridor is realised?

A2.2.4 Workstream 3: Audit of Current Enterprise Property

The case study material will be complemented by a detailed stock take and audit of the current supply of enterprise property solutions at various locations across the AEC. This will be facilitated by one of the key strengths of the AEC which is the breadth and depth of expertise that exists amongst AEC members and partners. For example, each Chamber of Commerce has members who are property professionals (auctioneers, valuers, quantity surveyors, architects, engineers), property owners and developers. In addition, partnership with regional agencies and local authorities will ensure that the knowledge and expertise of the planning and valuation departments will contribute to the development of a comprehensive property database. Data from the stock take and audit of current property solutions for enterprise will facilitate answers to the following questions:

What is the volume and value of existing enterprise property capacity?

- What is the current state of this capacity? How much is occupied, available for occupancy, fit for purpose?
- Where is this capacity located? Can geographic information systems such as Ireland's www.geohive.ie service be used to make this data available in a user and enterprise friendly way?
- Are there gaps in supply? Are any business segments over or under supplied?

A2.2.5 Workstream 4: Identify Re-purposing Opportunities

Both the case study and stock take material will provide the evidence base for potential re-purposing opportunities. During this step a number of existing enterprise properties will be selected for their potential to be adapted or re-developed to the standards required for current and future needs of the various business segments highlighted in Figure 1 and Figure 2 above. Information provided during this step will:

- Provide an assessment of the potential of a number of existing properties to be adapted or transformed into a particular type of enterprise property solution
- Identify the principal actions required in order to realise this transformation
- Estimate the potential costs and future financial and economic returns

A2.2.6 Workstream 5: Set Clear Standards and Terminology

Drawing on the outcomes from previous Workstreams, this part of the exercise will set down clear standards which must be satisfied if particular properties are to be labelled or categorised as providing enterprise property solutions across the AEC. This will include definitions and standards for a range of property solutions including:

- Micro-enterprise centres
- Business incubators
- Technology Parks

It can be argued that the market is the ultimate arbiter of standards and that this approach is unnecessary or over complicated. However, there is an alternative argument that delivery of economic policy goals and the realisation of regional potential requires a supportive business environment. Availability of fit for purpose property solutions is a critical part of such an environment.

A2.2.7 Workstream 6: Incentivise Delivery to Required Standards

The final workstream will define what if any interventions are required in order to ensure that the output of Workstreams 1 to 5 are transformed into action. Action in this case means the delivery of a network of fit for purpose property solutions for enterprise across the AEC. This workstream will identify:

- Potential barriers to investment in fit for purpose property solutions
- A menu of interventions and possible incentives that could be used to overcome identified barriers to investment
- Conditions and criteria to be satisfied if such interventions and incentives are to be implemented.

A2.3. Summary and Conclusion

This proposal is intended to initiate action around one of five key areas of opportunity identified by the AEC. The objective is to ensure that the AEC is in a position to provide a network of fit for purpose property solutions for all enterprise segments. The proposal identifies the workstreams needed to achieve this objective.

The next step is to engage with public bodies on the recently established Atlantic Economic Corridor Task Force to agree the best approach and to commence delivery of the key workstreams and actions.

Appendix 3

AEC PROPOSAL TO DELIVER THE INNOVATION FOUNDRY

Appendix 3: Innovation Foundry

A3.1 Innovation– Issues to be Addressed

Implementation of the proposals in Appendix 1 will ensure that the AEC is in a position to provide a network of fit for purpose property solutions for all enterprise segments. Clarity of purpose in the development and use of existing and new assets will deliver planned urban and inter-urban enterprise property solutions.

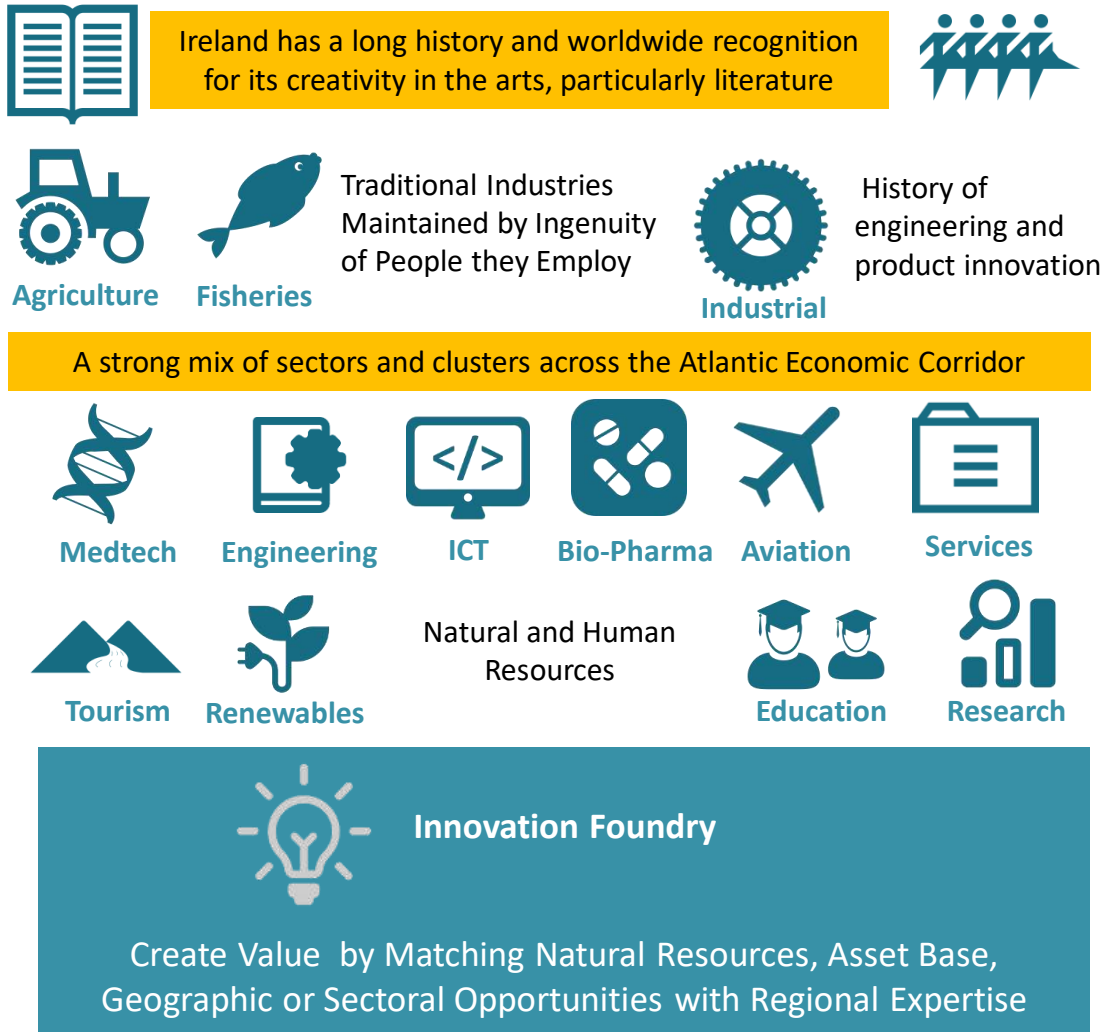
But it is also necessary to ensure that there is a continuous pipeline of entrepreneurs and enterprises to exploit and benefit from these facilities. The AEC has developed the term **Innovation Foundry** to describe the processes and networks that will be used to generate this pipeline from the:

- Creativity and ingenuity of all the people in the region
- Vast economic potential of our natural resource base
- Technologies and intellectual property developed by our higher education institutions and research community
- Strengths of existing sectors such as engineering, medtech, ICT, pharma, financial services, professional & business services, aviation, …

Our key strengths are the people working in and around the sectors, industries and educational institutions described in Figure 7. The Foundry will create an Innovation Infrastructure to drive **GVA growth and 100,000 jobs by 2025**. This will be based around three key areas of action:

- Innovation Designation for suitable enterprise property solutions
- Regional Innovation Network
- Innovation Co-Operative

Figure 7: Innovative Instincts and Strengths to Drive the AEC's Innovation Foundry



A3.1.1 Innovation Designation for Selected Enterprise Properties

Every re-purposed and standardised industrial, business or enterprise park will be fully integrated with an Innovation Designation(ID). Each Enterprise Centre can opt for one designation as part of the Regional Standard Classification:

	Regional Step Change: High Technology Focus
	Regional Major Change: Clustering, e-Working and HEI Outreach
	Local: Community and Social Enterprise Centres

This will enable existing and new Enterprise Centres to grow by building in additional value to their existing services. The ID will ensure that clusters, opportunities, and emerging R&D activities are connected into the appropriate channel of regional enterprise support. The ID in combination with the key instruments of economic development will accelerate enterprise development and growth across the region. This ID will enable the enterprise provider to connect into a support system that is focused on commercial pathways, community sustainability, critical thinking and 21st century development. The Enterprise Centres with their newly assigned designation will act as the centre point for sectoral focused ecosystems. This will:

- Provide an innovation eco-system to drive urban and inter-urban development
- Strategically develop hubs to focus on technology and another domain or sector
- Strategically develop community led innovation centres to focus on the local natural resource assets or sectors relating to those assets.

Figure 8: Innovation Designation (ID) for Selected Enterprise Properties

The Innovation Designation can also be Linked to or Overlaid on the Enterprise Property Framework set out in
Appendix 1, Figure 2: Property Solutions, Locations and Enterprise Types

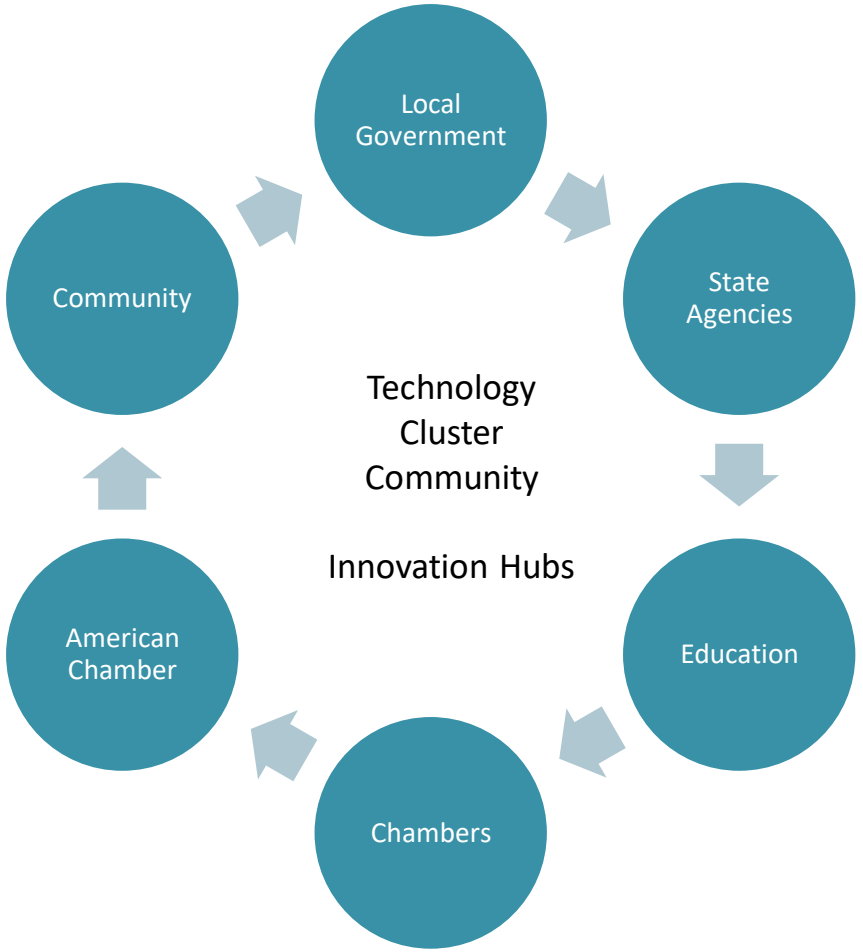
A3.1.2 Regional Innovation Network

The Foundry will create a Regional Innovation Network (RIN) in order to drive connections and collaboration, as well as the shared use of and access to assets and resources. The RIN will open up the ease of access and movement between centres and hubs across the region in the first instance. The innovation network will combine diverse human resources, experience and skill in order to develop multi-disciplined working groups within the eco system, within the enterprise centres and within our companies.

The innovation and enterprise components will weave together as issues around enterprise property solutions (e.g. ownership, poor management, …) are resolved and the Innovation Designations come on stream. Anchor tenants will include Local Government(LEO), State Agencies, Chambers, American Chambers, Education and industry setting up in the enterprise centres across the region. This will create connectivity, mobility, energy at a regional level. This RIN (knowledge ecosystem) will combine the strength and diversity of private and public systems into activated 'technology' or 'cluster' or 'community' innovation hubs.

This integrated knowledge ecosystem will be agile and responsive. The RIN will offer a platform to pilot new ways of work, new skills dispersion and new ways of living. This will enable the regional population, the enterprise base, the diaspora to combine technology and new modes of working/living to provide an integrated work environment within which all centres, hubs and population can participate. Furthermore this unified strategy will enable the private and public stakeholders to combine existing assets with a view to turning on new job creation, as well as attracting private investment and national and international projects to this region in particular.

Figure 9: Regional Innovation Network (RIN)



A3.1.3 Combine Creative and Diverse Resources and Skills

The capacity to create enterprise and jobs has rested largely with the private-sector. The 21st century economy will equally depend on the social enterprise base for employment. A balance between private and social is required in order to respond to the changing industry roadmaps and work patterns. This will require a redrawing of the employment profile. The social enterprise base requires a broad range of skills and experience and it can provide employment on a more flexible basis to a wider age profile than is currently catered for.

Old patterns of mass employment and employment for life in the public and private sector no longer apply. Employment will be for a shorter term and **employment of many by one is likely to become the employment of one by many**. This trend is already evident in work that is based on natural resource including farming, fishing, tourism and recreation. It is also evident in many of the service sectors including education, care, internet services, media among others.

The Foundry will **combine the creativity of the arts with the innovation and disruption of the technology sector**. Fundamental to success of The Foundry is enabling access to innovation and creativity throughout the region. This requires a system whereby regional residents can welcome, foster, stimulate, encourage and challenge their creativity and develop their critical thinking. Where the creative process is connected to Innovation, this can open up a commercial pathway to making those ideas reach a wider audience. Both the idea originator and his/her community can benefit from this. Innovation and Creative thinking needs to become part of the culture in the region(education) and The Foundry should be the driving force.

Ogonnelloe, Co. Clare: (similar to many towns across the region), there are individuals working with MNCs that live in the area and do not necessarily have to always be at the main site. Remote working is viable for both the company and individual. By 'centrally' locating those employees, who the company identifies as being suitable for remote working, they can resolve issues of connectivity for all with one Enterprise physical solution. A physical and identified presence in Ogonnelloe by Analog Devices would shift the perception of the people of Ogonnelloe and surrounding areas from being a Limerick based MNC, to being an MNC with local relevance. With a history of drawing employees from this area, the setting up of a physical location will have direct benefits for both the company and its employees. This can only increase company loyalty, regional CSR, economic benefits to a wider geography and stimulate further economic growth.

Living Laboratory: Toyota has used areas of Donegal for a number of years during the testing phase of new suspension development. Could Toyota be encouraged to locate an office in an Innovation Designation location in Donegal and take up more of a real presence there? Other automotive companies may also see the advantage. The Internet of Things has very significant potential in the maritime industry. The west coast of Ireland could not be a better location for the development and evaluation of products of testing real problems which are only found in real situations.

END