Awel y Môr Offshore Wind Farm

Category 6: Environmental Statement

Volume 3, Chapter 3: Socio-economics

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Offshore Wind Farm

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Glossary of Terms

TERM	DEFINITION
Baseline	Refers to existing conditions as represented by latest available survey and other data which is used as a benchmark for making comparisons to assess the impact of development.
Baseline conditions	The environment as it appears (or would appear) immediately prior to the implementation of the Proposed Development together with any known or foreseeable future changes that will take place before completion of the Proposed Development.
Code of Construction Practice (COCP)	The code sets out the standards and procedures to which developers and contractors must adhere to when undertaking construction of major projects. This will assist with managing the environmental impacts and will identify the main responsibilities and requirements of developers and contractors in constructing their projects. An outline CoCP is provided with the DCO application (application ref: 8.13)
Construction effects	Used to describe both temporary effects that arise during the construction phases as well as permanent existence effects that arise from the physical existence of development (for example new buildings).
Cumulative effects	Additional changes caused by a proposed development in conjunction with other similar developments or as a combined effect of a set of developments.
Cumulative Effects Assessment (CEA)	Assessment of impacts as a result of the incremental changes caused by other similar (often significant) infrastructure projects together with the Proposed Development.

TERM	DEFINITION
DCO Application	An application for consent to undertake a Nationally Significant Infrastructure Project made to the Planning Inspectorate who will consider the application and make a recommendation to the Secretary of State, who will decide on whether development consent should be granted for the Proposed Development.
Decommissioning	The period during which a development and its associated processes are removed from active operation.
Development Consent Order (DCO)	The form of consent for a Nationally Significant Infrastructure Project, under the Planning Act 2008.
Direct employment and gross value added	Employment and gross value added which is associated with the first round of capital expenditure, i.e. AyM's spend with prime contractors within each impact area of the study.
Order Limits (OL)	The OL combine the areas for the offshore and onshore infrastructure associated with the Proposed Development. It is defined as the area within which the Proposed Development and associated infrastructure will be located, including the temporary and permanent construction and operational work areas.
Embedded mitigation measures	Equate to 'primary environmental measures' as defined by Institute of Environmental Management and Assessment (2016). They are measures to avoid or reduce environmental effects that are directly incorporated into the design of the Proposed Development.
Environmental Impact Assessment (EIA)	The process of evaluating the likely significant environmental effects of a proposed project or development over and above the existing circumstances (or 'baseline').

TERM	DEFINITION
Environmental mitigation	Measures which are proposed to prevent, reduce and, where possible, offset any significant adverse effects (or to avoid, reduce and, if possible, remedy identified effects).
Environmental Statement (ES)	The written output presenting the full findings of the Environmental Impact Assessment.
Evidence Plan Process	A voluntary consultation process with specialist stakeholders to agree the approach and the information required to support the EIA and HRA for certain aspects.
Full-time equivalent (FTE) jobs	Full time equivalent (FTE) is a unit that indicates the workload of an employed person. An FTE of 1.0 is equivalent to one full-time employee, whilst a part-time employee working half the hours a full-time employee does would be recorded as 0.5 FTE.
Future baseline	Refers to the situation in future years without the proposed development of AyM.
Gross value added (GVA)	The measure of the value of goods and services produced in an area, industry or sector of an economy. At the level of a firm, it is broadly equivalent to employment costs plus a measure of profit.
Impact	The changes resulting from an action.
Indirect effects	Effects that result indirectly from the Proposed Development as a consequence of the direct effects, often occurring away from the site, or as a result of a sequence of interrelationships or a complex pathway. They may be separated by distance or in time from the source of the effects. Often used to describe effects on landscape character that are not a direct result of the Proposed Development, such as effects on

TERM	DEFINITION
	perceptual characteristics and qualities of the landscape.
Indirect employment and gross value added	Employment and gross value added which is associated with the suppliers of companies that supply goods and services as part of the supply chain of AyM.
Induced employment and gross value added	Employment and gross value added which is not directly caused by the expenditure associated with a project. These are impacts associated with local expenditure as a result of those whose incomes are derived from the direct and indirect impacts of the intervention.
Informal consultation	Informal consultation refers to the voluntary consultation that Awel y Môr Offshore Wind Farm Limited undertook in addition to the statutory consultation requirements under the Planning Act 2008.
Likely Significant Effects	It is a requirement of Environmental Impact Assessment Regulations to determine the likely significant effects of the Proposed Development on the environment which should relate to the level of an effect and the type of effect.
Location quotient (LQ)	Location quotient (LQ) is a measure of a region's industrial specialisation relative to a larger region (e.g. Great Britain). A LQ of 1.0 indicates that both regions have the same level of specialisation, whereas a LQ > 1.0 means that the smaller region has a higher concentration of a particular sector than is seen in the larger region.
Magnitude (of impact)	A term that combines judgements about the size and scale of the effect, the extent of the area over which it occurs, whether it is reversible or irreversible and whether it is short term or long term

TERM	DEFINITION
	in duration'. Also known as the 'degree' or 'nature' of change.
Nationally Significant Infrastructure Project (NSIP)	Nationally Significant Infrastructure Projects are major infrastructure developments in England and Wales which are consented by DCO. These include proposals for offshore renewable energy projects with an installed capacity of over100MW in England and greater than 350MW in Wales.
Planning Inspectorate (PINS)	The Planning Inspectorate deals with planning appeals, national infrastructure planning applications, examinations of local plans and other planning-related and specialist casework in England and (currently) Wales.
Preliminary Environmental Information Report (PEIR)	The PEIR presented findings of the assessment to allow an informed view to be developed of the Proposed Development, the assessment approach that was undertaken, and the preliminary conclusions on the likely significant effects of the Proposed Development and environmental measures proposed.
Proposed Development	The development that is subject to the application for development consent, as described in both the onshore and offshore project description chapters (see Volume 2, Chapter 1 Offshore Project Description (application ref: 6.2.1) and Volume 3, Chapter 1 Onshore Project Description (application ref: 6.3.1) respectively).
Receptor	These are as defined in Regulation 5(2) of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 and include population and human health, biodiversity, land, soil, water, air, climate, material assets, cultural heritage and landscape that may be at risk from

TERM	DEFINITION
	exposure to pollutants which could potentially arise as a result of the Proposed Development.
Scoping Opinion	A Scoping Opinion is adopted by the Secretary of State for a proposed development.
Scoping Report	A report that is designed to ascertain which issues the Environmental Impact Assessment process should cover.
Secretary of State (SoS)	The person who makes the decision to grant development consent.
Sensitivity	A term applied to specific receptors, combining judgements of the susceptibility of the receptor to the specific type of change or development proposed and the value associated to that receptor.
Significance	A measure of the importance of the environmental effect, defined by criteria specific to the environmental aspect.
Significant effects	It is a requirement of the EIA Regulations to determine the likely significant effects of the development on the environment which should relate to the level of an effect and the type of effect. Where possible, significant effects should be mitigated.
Temporal scope	The temporal scope covers the time period over which changes to the environment and the resultant effects are predicted to occur and are typically defined as either being temporary or permanent.
Temporary or permanent effects	Effects may be considered as temporary or permanent. In the case of socio-economics, any effects occurring during the project's construction phase are defined as temporary, whilst any effects

TERM	DEFINITION
	occurring over the project's assumed 25-year lifetime are defined as permanent.
Zone of Influence (ZOI)	The area surrounding the Proposed Development which could result in likely significant effects.

Abbreviations and Acronyms

TERM	DEFINITION
A&E	Accident and Emergency
AI	Artificial Intelligence
AyM OWF	Awel y Môr Offshore Wind Farm
CAPEX	Construction Expenditure
CfD	Contracts for Difference
CoCP	Code of Construction Practice
DEVEX	Development Expenditure
OL	Order Limits
EIA	Environmental Impact Assessment
EN-1	Overarching National Policy Statement for Energy
EN-3	National Policy Statement for Renewable Energy Infrastructure
EN-5	National Policy Statement for Electricity Networks Infrastructure
ES	Environmental Statement
ETG	Expert Topic Group
FTE	Full-time equivalent
GP	General Practitioner

TERM	DEFINITION
GVA	Gross Value Added
GyM	Gwynt y Môr
LAI	Local Area of Influence
LQ	Location Quotient
LSA	Local Study Area
LSOA	Lower Layer Super Output Area
MDS	Maximum Design Scenario
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Projects
O&M	Operation and Maintenance
ONS	Office for National Statistics
Onshore ECC	Onshore Export Cable Corridor
OPEX	Operations Expenditure
OWGP	Offshore Wind Growth Partnership
PEIR	Preliminary Environmental Information Report
PPW	Planning Policy Wales
R&D	Research and Development
SO	Spatial Objectives (relevant for Conwy County Borough Council)
TAN	Technical Advice Note
UK	United Kingdom
WIMD	Welsh Index of Multiple Deprivation
WTG	Wind Turbine Generator

Units

UNIT	DEFINITION
FTE	Full-Time Equivalent
GW	Gigawatt
m	Metres
MW	Megawatt

3 Socio-Economics

3.1 Introduction

1 This chapter of the Environmental Statement (ES) presents the results of the assessment of the likely significant effects of the Awel y Môr Offshore Wind Farm (AyM OWF) with respect to socio-economics including jobs and economic output, in addition the impact on community and health facilities.

2 This chapter has been informed by, and should be read in conjunction with, both the offshore and onshore project descriptions (see Volume 2, Chapter 1 (application ref: 6.2.1) and Volume 3, Chapter 1 (application ref: 6.3.1) respectively) and the following ES chapters:

- Volume 3, Chapter 4 Tourism and Recreation (application ref: 6.3.4);
- Volume 3, Chapter 6 Ground Conditions and Land Use (application ref: 6.3.6);
- Volume 3, Chapter 9 Traffic and Transport (application ref: 6.3.9);
- Volume 3, Chapter 10 Noise and Vibration (application ref: 6.3.10);
- Volume 3, Chapter 11 Air Quality (application ref: 6.3.11); and
- Volume 3, Chapter 12 Public Health (application ref: 6.3.12).

3 This chapter describes:

- The legislation, planning policy and other documentation that has informed the assessment (see Section 3.2);
- The outcome of consultation and engagement that has been undertaken to date (see Section 3.3);
- The scope of the assessment for socio-economics (see Section 3.4);
- The assessment methods used for the assessment (see Sections 3.5 and 0);
- The current baseline environment (see Section 3.7);
- The assessment of socio-economic effects (see Sections 3.10, 3.11 and 3.12 respectively);

- Consideration of AyM's impact on socio-economic receptors alongside other (i.e., cumulative) projects (see Section 3.13);
- Consideration of inter-related effects (see Section 3.14);
- Consideration of transboundary effects (see Section 3.15); and
- A summary of residual effects for socio-economics (see Section 3.16).

3.2 Statutory and policy context

4 This section identifies the legislation, policy and other documentation that has informed the assessment of effects with respect to socio-economics.

5 Economic development policy is mostly devolved to the Welsh Government (although some uncertainty remains due to the implications of EU Exit, replacements of EU funding and exact details of Shared Prosperity Fund). A research briefing on the UK Shared Prosperity Fund (House of Commons Library, November 2021) recognises that, although the commitment to "at a minimum, match current levels of funding to each nation from EU structural funds" made in the March 2020 Budget was not repeated in the 2020 Spending Review (emphasising the UK-wide nature of the fund instead), it did reappear in the Autumn 2021 Budget and Spending Review. However, the Autumn 2021 Budget and Spending Review did not mention any formal role for the devolved administrations with regards to the administration of the funds.

6 However, responsibility for energy policy is split between UK and Welsh governments. Major infrastructure is the responsibility of the UK Government, however some policy and consenting sits with the Welsh Government.

3.2.1 Legislation

Wellbeing of Future Generations Act

7 The *Wellbeing of Future Generations Act 2015* came into effect on the 1st of April 2016, and seeks to make Wales a better place to live now, and for people in the future. The Act states that public bodies in Wales must think about people now and in the future when they make their decisions, especially when focussing on challenges such as climate change, addressing poverty, health and employment opportunities. The Act has seven goals that all public bodies must work towards:

- A globally responsible Wales;
- A prosperous Wales;
- A resilient Wales;
- A healthier Wales;
- A more equal Wales;
- A Wales of cohesive communities; and
- A Wales of vibrant culture and thriving Welsh language.

3.2.2 UK Policy

8 The assessment of potential impacts on socio-economics is undertaken with specific reference to the relevant National Policy Statements (NPS). These are the principal decision-making documents for Nationally Significant Infrastructure Projects (NSIP), which include:

- Overarching NPS for Energy (EN-1) (Department of Energy and Climate Change (DECC, 2011c));
- NPS for Renewable Energy Infrastructure (EN-3) (DECC, 2011b);
- NPS for Electricity Networks Infrastructure (EN-5) (DECC, 2011a).

9 In addition to the current NPSs, draft NPSs were consulted upon from September to November 2021. The draft NPSs have been reviewed to determine the emerging expectations and changes from previous iterations of the NPSs. This includes the Draft Overarching NPS EN-1 (DECC, 2021a), EN-3 (DECC, 2021b) and EN-5 (DECC, 2021c).

10 The *Energy White Paper* (HM Government, 2020a) announced that the Energy NPSs would be reviewed such that they reflect its policies and broader strategic approach and facilitate the infrastructure required for the transition to Net Zero. The transition to Net Zero refers to the UK Government's commitment to achieve net zero emissions by 2050 and the transition required to achieve this commitment.

11 For socio-economics, there is very limited guidance on assessing the effects of major infrastructure projects (such as AyM) on national and local economies. Table 1 below lists the relevant sections from EN-1 which provide guidance on the socio-economic matters that need to be considered in the assessment of major infrastructure projects, and the relevant sections where each is addressed within this assessment.

Table 1: Aspects of National Policy Statement relevant to the socio-economics assessment of offshore wind farms.

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
Overarching National Policy Statement for Energy (EN-1)	*(paragraph 5.12.3) - Creation of job and training opportunities.*	*The construction, operation and decommissioning of AyM has potential to support employment through project expenditure with supply chain businesses located in North Wales and wider Wales. The direct and indirect impact generated by local expenditure associated with the proposed development is considered in Section 3.10 for construction, Section 3.11 for operations and Section 3.12 for the decommissioning phase.*
Draft Overarching National Policy Statement for Energy (EN-1)	*(Paragraph 5.13.3)- Creation of job and training opportunities.*	*See above response for NPS EN-1 paragraph 5.12.3 -Creation of job and training opportunities.*
Draft NPS EN-1	(paragraph 5.13.3) - the contribution to the development of low-carbon industries at the local and regional level as well as nationally.	*The construction, operation and decommissioning of AyM has potential to support the development of low carbon industries (wind energy in particular, but also other energy types with similar supply chains), including associated supply chains. The potential contribution of the proposed development is considered in Section 3.10 for*

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
		construction, Section 3.11 for operations and Section 3.12 for the decommissioning phase.
Draft NPS EN-1	Draft NPS EN-1 (paragraph 5.13.3) - any indirect beneficial impacts for the region hosting the infrastructure, in particular in relation to use of local support services and supply chains.	*The construction, operation and decommissioning of AyM has potential to support supply chain businesses located in North Wales and wider Wales. The indirect impact generated by local expenditure associated with the proposed development is considered in Section 3.10 for construction, Section 3.11 for operations and Section 3.12 for the decommissioning phase.*
NPS EN-1	*(paragraph 5.12.3) - The provision of additional local services and improvements to local infrastructure (including educational and/ or visitor facilities).*	*The EIA Scoping Report (innogy Renewables UK, 2020) found that, whilst construction, operations and decommissioning of AyM is likely to generate increased demand for temporary housing and accommodation, in addition to local services, this is not likely to be significant. As a result, the demand for additional housing needs and improvements to local infrastructure has been scoped out of the assessment.*
Draft NPS EN-1	*Draft NPS EN-1 (paragraph 5.13.3) - The provision of additional local services and improvements to*	See above response for *NPS EN-1 paragraph 5.12.3 - The provision of additional local services*

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
	local infrastructure (including educational and/ or visitor facilities).	*and improvements to local infrastructure (including educational and/ or visitor facilities.*
NPS EN-1	*(paragraph 5.12.3)- The effects on tourism.*	*The effects of AyM on tourism and (onshore and offshore) recreation are addressed Volume 3, Chapter 4 Tourism and Recreation (application ref: 6.3.4).*
Draft NPS EN-1	*Draft NPS EN-1 (paragraph 5.13.3) - The effects on tourism.*	See above response for *NPS EN-1 paragraph 5.13.3 - The effects on tourism.*
NPS EN-1	*(paragraph 5.12.3) - Impact of a changing influx of workers during construction, operations and maintenance, and decommissioning phases.*	*Whilst it is acknowledged that construction and decommissioning activity will lead to some temporary relocation of construction workers to the area (primarily into the North Wales impact area), this is not likely to be of key significance to the local receptor. That being said, this socio-economic assessment considers the impact of AyM on healthcare services for both construction and decommissioning phases. These are considered in Section 3.10 and Section 3.12 respectively.*
Draft NPS EN-1	*Draft NPS EN-1 (paragraph 5.13.3 - Impact of a changing influx of*	See above response for *NPS EN-1 paragraph 5.12.3 - Impact of a changing influx of workers*

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
	workers during construction, operations and maintenance, and decommissioning phases).	*during construction, operations and maintenance, and decommissioning phases).*
NPS EN-1	*(paragraph 5.12.3)- Cumulative effects.*	*Alongside other projects, the construction, operations and decommissioning of AyM is likely to generate cumulative effects on the various receptors identified in this assessment. As such, the cumulative effects of AyM are considered in Section 3.13.*
Draft NPS EN-1	*Draft NPS EN-1 (paragraph 5.13.3) - Cumulative effects.*	See above response for *NPS EN-1 paragraph 5.12.3 - Cumulative effects.*
NPS EN-1	*(paragraph 5.12.4)- The assessment should describe the existing socio-economic conditions in the areas surrounding the proposed development and should also refer to how the proposal's socio-economic impacts correlate with local planning policies.*	*The current baseline conditions, against which the effects of AyM are considered, are presented in Section 3.7. Detail on the methodology for baseline data gathering and datasets used is provided in Section 3.4.*

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
Draft NPS EN-1	*Draft NPS EN-1 (paragraph 5.13.4) - The assessment should describe the existing socio-economic conditions in the areas surrounding the proposed development and should also refer to how the proposal's socio-economic impacts correlate with local planning policies.*	See above response for *NPS EN-1 paragraph 5.12.4 - The assessment should describe the existing socio-economic conditions in the areas surrounding the proposed development and should also refer to how the proposal's socio-economic impacts correlate with local planning policies.*
NPS EN-1	*(paragraph 5.12.5)- The inter-relationships of socio-economic impacts with other impacts should also be considered.*	*The inter-relationship of socio-economics with other effects are considered in Section 3.14.*
Draft NPS EN-1	*Draft NPS EN-1 (paragraph 5.13.5)- The inter-relationships of socio-economic impacts with other impacts should also be considered.*	See above response for *NPS EN-1 paragraph 5.13.5 - The inter-relationships of socio-economic impacts with other impacts should also be considered.*
Draft NPS EN-1	*Draft NPS EN-1 (paragraph 5.13.6)- Accommodation strategies should be developed where appropriate, especially during construction and*	*The EIA Scoping Report (innogy Renewables UK, 2020) found that, whilst construction, operations and decommissioning of AyM is likely to generate increased demand for accommodation, the*

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
	decommissioning phases, that would include for the need to provide temporary accommodation for construction workers if required.	*demand for additional housing needs and improvements to local infrastructure has been scoped out of the assessment (although if should be noted the tourism assessment considered the potential for non-local construction workers to displace holidaymakers through taking serviced and non-serviced accommodation). Given that the impact of construction on demand for housing and schools was also scoped out of the assessment in the EIA Scoping Report it is not considered appropriate to develop an accommodation strategy.*
NPS EN-1	*(paragraph 5.12.8) - The assessment should consider any relevant positive provisions the applicant has made or is proposing to make to mitigate impacts (for example through planning obligations) and any legacy benefits that may arise as well as any options for phasing*	*Provisions made to retain beneficial socio-economic effects within the local area are outlined in Section 3.8. Further detail is provided in Table 24.*

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
	development in relation to socio-economic impacts.	
Draft NPS EN-1	*(paragraph 5.13.9) - The Secretary of State may wish to include a requirement that specifies the approval by the local authority of an employment and skills plan detailing arrangements to promote local employment and skills development opportunities, including apprenticeships, education, engagement with local schools and colleges and training programmes to be enacted.*	*As is laid out in Table 3, it is proposed following consent that proposed actions to ensure the skills and employment benefits that AyM can help deliver locally and nationally are considered within the Supply Chain Plan required under the CfD supply chain process.*
NPS EN-1	*(paragraph 5.5.7) - Effects of the proposed project on maintaining coastal recreation sites and features.*	*This matter is considered as part of the tourism and recreation assessment (see Volume 3, Chapter 4 Tourism and Recreation (application ref: 6.3.4)).*
Draft NPS EN-1	*Draft NPS EN-1 (paragraph 5.6.7) - Effects of the proposed project on*	See above response for *NPS EN-1 paragraph 5.5.7 - Effects of the proposed project on maintaining coastal recreation sites and features.*

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
	maintaining coastal recreation sites and features.	

12 The Draft National Policy Statement for Renewable Energy Infrastructure (EN-3) (BEIS 2021) provides guidance on how seascapes should be assessed and in particular the need for the assessment to cover how people perceive and interact with the coast and seascape.

13 The construction and decommissioning (and, much less so, operation and maintenance phase) have the potential to impact how people perceive and interact with the coast and seascape which, in turn, can affect the tourism economy. As such, the effect of construction, operation and maintenance and decommissioning on how people perceive and interact with the coast and seascape in the context of the tourism economy are considered in Sections 18.9, 18.10 and 18.11 of this ES chapter respectively.

14 In addition to the above, the socio-economic assessment also draws on *The Green Book* (HM Treasury, 2020b) for guidance on the assessment of socio-economic impacts on the economy (including jobs and gross value added (GVA).

15 National policy is constantly evolving and, following the March 2021 budget, it was announced that the *UK Industrial Strategy* (HM Government, 2017a) would be withdrawn and replaced by a new *Plan for Growth* (HM Treasury, 2021a) which, whilst still retaining the ambition to create and support jobs, also helps to drive growth in existing, new and emerging industries through investment in infrastructure, skills and innovation. The measures announced in the Autumn 2021 Budget and Spending Review, including £380m for the offshore wind sector to support the building back greener agenda, reflect the priorities of the new *Plan for Growth*.

Build Back Better: Our Plan for Growth

16 The *Build Back Better: Our Plan for Growth* (HM Treasury, 2021a) policy paper sets out the UK Government's plan *'to deliver growth that creates high-quality jobs across the UK'* by building on the three core pillars of infrastructure, skills and innovation. The plan also identifies three priorities for the UK Government, among which is supporting the transition to net zero.

17 The *Plan for Growth* states that the UK Government will focus on delivering *The Ten Point Plan for Green Industrial Revolution* (HM Government, 2020b), which commits £12 billion of UK Government investment with the ambition of leveraging three-fold that amount of private investment by 2030. Point 1 of the plan is advancing offshore wind, the objective being to quadruple offshore wind capacity to 40 GW by 2030, supporting up to 60,000 jobs along the way.

18 A suite of deliverable plans, including the Energy White Paper (HM Government, 2020a) and the Net Zero Review: Interim report (HM Treasury, 2020a) were published in late 2020. Following the publication of these plans the Net Zero Review: Final Report (HM Treasury, 2021b) was published in 2021. These build on the Ten Point Plan (HM Government, 2020b), and seek to examine how the economic benefits of the transition to net zero can be maximised.

19 The proposed development will generate opportunities to create jobs in the sector, as the UK builds offshore wind capacity up to 40GW by 2030.

Energy White Paper

20 The *Energy White Paper* (HM Government, 2020a) puts net zero and the UK's effort to fight climate change at its core following the Prime Minister's Ten Point Plan. The White Paper presents a vision of how the UK makes the transition to clean energy by 2050, and what this will mean to consumers of energy at home and places of work, or for how businesses use energy to produce goods and services.

21 The Energy White Paper sets out the changes required to achieve net zero, and argues that taking action now will help ensure not just that the UK ends its contribution to climate change, but also help position UK companies to seize the business opportunities which flow from it, creating jobs and wealth.

22 The Energy White Paper follows on from the Prime Minister's Ten Point Plan, provides further clarity on the measures required, and puts in place a strategy for the wider energy system that:

- Transforms energy, building a cleaner, greener future for the UK, people and the planet;

- Supports a green recovery, growing the UK's economy and supporting thousands of green jobs across the country in new green industry and leveraging new green export opportunities; and
- Creates a fair deal for consumers, protecting the fuel poor, providing opportunities to save money on bills, giving people warmer, more comfortable homes and balancing investment against bill impacts.

23 Local, national and UK supply chain expenditure generated as a result of AyM will support the UK Government's ambition for a green recovery and help create employment in a nascent green industry.

Net Zero Review (interim and final reports)

24 The *Net Zero Review: Interim report* (HM Treasury, 2020a) starts by arguing that, whilst the UK has made significant progress in decarbonising its economy, it needs to go much further to achieve net zero. Achieving net zero will be a collective effort, requiring changes from households, businesses and the UK Government. It will require substantial investment and significant changes to how people live their lives.

25 This transformation will also create opportunities for the UK economy. New industries and jobs will emerge as existing sectors decarbonise or give way to low carbon equivalents. The interim report presents a summary of findings, some of which are outlined below.

- The combined effect of UK and global climate action on UK economic growth is likely to be relatively small;
- The costs of the transition to net zero are uncertain, and depend on policy choices;
- Government needs to use a mix of policy levers to address multiple market failures and support decarbonisation;
- Well-designed policy can reduce costs and risks for investors, support innovation and the deployment of new technologies;
- The risk of carbon leakage will increase with efforts to reduce emissions; and
- Households are exposed to the transition through their consumption, labour market participation and asset holdings.

26 The final report of HM Treasury's *Net Zero Review* (HM Treasury, 2021b) was published in October 2021. Its key insights are summarised below.

- Current economic analysis could understate the economic costs of climate change to the UK. Climate action could provide a boost to the UK economy and the required investment could contribute to growth. Co-benefits, such as improved air quality, could also be seen.
- As UK is integrated in the global economy, there are opportunities to build on its strengths but also risks in some high-emission and trade-exposed sectors.
- Household characteristics drive a household's exposure to the net zero transition.
- Within each technology transition, there are a range of factors that affect the degree to which a household could be exposed to costs and how soon they could experience the benefits of the new, low carbon economy.
- Policy to support the transition can help make the most of the opportunities and keep costs down.
- The transition has implications for current and future taxpayers.

27 The current focus on the green growth agenda aligns with the UK Industrial Strategy and Clean Growth Strategy described in the following sections.

Net Zero Strategy: Build Back Greener

28 Over the last decade the UK's commitments to reducing UK GHG emissions levels have strengthened this has made more apparent the need to shift towards a greener energy mix in order to deliver on the UK's targets.

29 In June 2019 the UK became the first major economy in the world to pass a national net zero emissions law. The new 2020 Nationally Determined Contributions (NDCs) committed the UK to reducing economy-wide greenhouse gas emissions by at least 68% by 2030 (compared to 1990 levels). In June 2021 the UK Government went further on its commitments by setting a new target to cut emissions by 78% by 2035 compared to 1990 levels.

30 In October 2021, the UK government published its The *Net Zero Strategy: Build Back Greener* (HM Government, 2021). The strategy sets out how the UK will deliver on its commitment to reach net zero emissions by 2050. To fully decarbonise the power system by 2035, the strategy looks to deliver 40GW of offshore wind, including 1GW of innovative floating offshore wind by 2030, among others.

31 While the UK Government's net zero target covers the entire UK, the challenges each nation faces are different depending on the composition of emissions from hard-to-treat sectors. As such, the devolved administrations of Scotland and Wales have developed legislative frameworks outlining their emission reduction targets along the path to net zero, while a Climate Change Act for Northern Ireland is being progressed.

Clean Growth Strategy

32 Connected to the UK Industrial Strategy, the UK Government has also developed a *Clean Growth Strategy* (HM Government, 2017b) to ensure economic growth goes hand in hand with greater protection for the natural environment. Within this is a commitment to help businesses and entrepreneurs seize opportunities of a low carbon economy, and specifically offshore wind. This is driven by policies and processes to improve the route to market for renewable technologies such as offshore wind. Examples include up to £557 million for further Pot 2 Contracts for Difference (CfD) auctions and working with industry to develop an ambitious sector deal for offshore wind.

33 Under its ambition to deliver clean, smart and flexible power the Clean Growth Strategy seeks to deliver a diverse electricity system that supplies homes and businesses with secure, affordable and clean power. The Strategy seeks to deliver this through the development of low carbon sources of electricity (including renewables) and acknowledges that the UK is well-placed to benefit and become one of the most advanced economics for smart energy and technologies.

34 The Strategy also outlined plans by the UK Government to invest around £900 million of public funds between 2015 and 2021 in research and innovation in the power sector. This includes around £177 million aimed at reducing the cost of renewables, including innovation in offshore wind turbine blade technology and foundations. New innovation opportunities are likely to arise across several areas, including floating offshore wind platforms.

35 The proposed development will support the UK Government's aspirations for clean growth.

UK Industrial Strategy: Offshore Wind Sector Deal

36 The UK Government and the Offshore Wind Industry have committed to a *Sector Deal* (HM Government, 2019) to help the industry raise the productivity and competitiveness of UK companies to ensure the UK continues to play a leading role as the global market grows in the decades to 2050. Key commitments include:

- Increasing UK content to 60% of value associated with offshore windfarm activity by 2030;
- £250 million industry investment in building a stronger UK supply chain to support productivity and increase competitiveness;
- Providing forward visibility of future CfD rounds with support of up to £557 million;
- Increasing exports fivefold to £2.6 billion by 2030; and
- Increasing the representation of women in the offshore wind workforce to at least a third by 2030.

37 At the start of March 2020, the UK Government issued a one-year progress note (BEIS, 2020) on the *Sector Deal*, highlighting a number of major developments in the sector such as:

- Development and establishment of the Offshore Wind Growth Partnership (OWGP) – A long-term business transformation programme aimed at promoting closer collaboration across the sector's supply chain, implement productivity improvement programmes, and facilitating shared growth opportunities between developers and the supply chain. The OWGP's objective is to maximise the economic benefits of the UK's world-leading position in offshore wind by delivering increased productivity and competitiveness. To date, the OWGP has completed an in-depth assessment of capacity in the delivery of offshore wind foundations and made recommendations on how barriers to growth can be overcome.
- Development of regional clusters – clusters are a collaboration between developers and regional supply chain, public sector and education bodies, with the ambition to increase productivity, competitiveness and innovation, whilst also helping to grow coastal economies. North Wales is part of an offshore wind cluster along the British coast, known as the Offshore Energy Alliance covering North Wales and the North West England.
- Appointment of a Diversity Champion – the sector has introduced a workforce and skills model developed by the National Skills Academy for Rail to track and report on workforce data. The offshore wind sector has identified a challenging target to increase the number of black, Asian and minority ethnic (BAME) workers to 9% (but with the aspiration to target 12%) by 2030 (up from 5%). In addition, the industry has also set a target that 2.5% of the employed workforce will be apprentices.

38 The progress note highlights that since publication of the Sector Deal, the costs of offshore wind have continued to fall reaching £39.65/MWh (2012-pricing) for offshore wind farms to be delivered in 2023/24. This represents an overall decrease of around 65% when compared with projects in the 2015 auction.

39 Furthermore, the note indicates that whilst the *Sector Deal* is progressing well, the UK Government seeks to be more ambitious in order to achieve net zero carbon by 2050. This is likely to require higher volumes of offshore wind deployment than previously envisaged to meet greater levels of electrification across the economy.

40 Shortly following publication of the *Sector Deal* progress note, the UK went in lockdown and it was announced the UK had entered economic recession in August 2020. However, the UK economy has steadily grown since then. The recession did not appear to have major impacts on the ongoing development of the offshore wind sector. There is does not appear that there will be an impact on the implementation (and indeed delivery) of the *Sector Deal*.

41 AyM will support the Government's ambition to grow the offshore wind sector, increase UK content and build a stronger and more productive supply chain. Whilst AyM does not directly contribute towards increasing UK exports, it will support this ambition through the development (and increased capability) of the offshore wind sector's local, national and UK-based supply chains.

3.2.3 National Policy

Future Wales – The National Plan 2040

42 *Future Wales – The National Plan 2040* (Welsh Government, 2021a) sets out a strategy for addressing key national priorities through the planning system, including sustaining and developing a vibrant economy, achieving decarbonisation and climate-resilience, developing strong ecosystems and improving the health and well-being of communities (such as Rhyl which identified as a growth area within The National Plan). Relevant policies include:

- Policy 17 – Renewable and Low Carbon Energy and Associated Infrastructure demonstrates the Government's support in principle for all renewable energy projects and technologies. Proposals should ensure there is no significant unacceptable detrimental impact on the surrounding natural environment and local communities and that the development delivers positive social, environmental, cultural and economic benefits.

- Policy 18 – Renewable and Low Carbon Energy Developments of National Significance provides a decision-making framework for renewable and low carbon energy technologies. The planning system sets policy and takes decisions on onshore schemes. The Welsh Government is supportive of offshore proposals and sees them as an important part of our future energy mix but they do not fall within the remit of *Future Wales – The National Plan 2040*. The on-shore development aspects of off-shore schemes are supported, for example cable landfall infrastructure. Strategic and Local Development Plans should identify and enable appropriate onshore development to support such schemes. *Future Wales* and the *Welsh National Marine Plan* address energy and reflect the energy hierarchy as set out in *Planning Policy Wales*. Both plans recognise that there are a number of opportunities to generate renewable energy across a variety of technologies both on-shore and off-shore which should be maximised to help meet the targets.
- Policy 24 – *North West Wales and Energy* states that the Welsh Government supports North West Wales as a location for new energy development and investment. Proposed developments associated with the Isle of Anglesey Energy Island Programme, Wylfa Newydd and Trawsfynydd will be supported in principle as a means to create significant economic benefits for the area as well as generating renewable or low carbon energy. New energy-related development in the region should support local and regional communities; provide jobs and investment in training and skills; and work with universities and businesses across the North West Wales region to co-ordinate and maximise new investment to support the wider region. Onshore developments associated with offshore renewable energy projects will be supported in principle.

43 This socio-economic assessment of AyM considers the proposed development's impact on local communities along the North Wales coast. In addition, the assessment seeks to measure and quantify the impacts created at the North Wales level and identifies how the AyM project will support local and regional communities to provide jobs and investment training, and maximise new investment to support the wider (i.e. North Wales) region.

Planning Policy Wales, Edition 11

44 *Planning Policy Wales* (PPW) (Welsh Government, 2021b) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales. PPW, the TANs and policy clarification letters comprise national planning policy.

45 PPW's primary objective is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural wellbeing of Wales.

46 PPW states (in paragraph 5.9.16) that Wales has an abundant wind resource and, as a result, wind energy forms a key part of meeting the Welsh Government's vision for future renewable energy production.

47 This assessment of the socio-economic impacts of AyM seeks to (wherever possible) quantify the economic benefits created (i.e. impact on jobs and GVA), in addition to any impacts it may have on local communities (such as increased demand for health services and disruption to community facilities).

Technical Advice Note 23: Economic Development

48 Technical Advice Note 23 (TAN 23) defines economic development as any form of development that generates wealth, jobs and income, and argues that *'it is important that the planning system recognises the economic aspects of all development and that planning decisions are made in a sustainable way which balance social, environmental and economic considerations'*.

49 TAN 23 acknowledges that market forces do not respect local authority boundaries and suggests that the planning system should steer development to the most efficient and sustainable locations, whilst encouraging local authority areas to work jointly (in regional groups) to prepare regional economy evidence bases and prepare strategies.

50 It provides advice on weighing economic benefit and suggests that '*it should not be assumed that economic objectives are necessarily in conflict with social and environmental objectives'*. It argues that, whilst 'win-win' outcomes within the planning system are desirable, this may not always be possible. Furthermore, it recognises that quantifying the economic impact is not always straight-forward, and puts forward alternative approaches based on qualitative assessment (such as consideration of alternatives, quantifying the number of jobs accommodated, and taking account of a project's contribution to policy objectives).

51 This assessment of the socio-economic impacts of AyM seeks to quantify the economic benefits generated as a result of local and national expenditure. Where not possible to quantify, impacts are assessed qualitatively, with the assessment of any adverse impacts weighed against the overall economic benefits created.

Welsh National Marine Plan

52 The *Welsh National Marine Plan* (Welsh Government, 2019b) intends to guide the sustainable development of inshore and offshore marine areas by setting out how proposals will be considered by decision makers.

53 The vision of the plan states that, through Blue Growth (defined as economic growth and development which supports social equity whilst ensuring that natural assets can continue to provide the resources and environmental benefits on which well-being relies) more jobs and wealth are being created and are helping coastal communities become more resilient, prosperous and equitable with a vibrant culture.

54 According to Objective 3, the Plan supports the opportunity to sustainably develop marine renewable energy resources with the right development in the right place, helping to achieve the UK's energy security and carbon reduction objectives, whilst fully considering other's interests, and ecosystem resilience.

55 Sector supporting policy ELC_01 Low carbon energy (supporting) wind states:

- ELC_01 a: Proposals for wind >350 MW will be considered by UK Government in accordance with relevant national policy. In determining an NSIP for a wind proposal, the decision maker will have regard to this plan. Any determination in relation to energy developments of any scale will be taken in accordance with this plan alongside any other relevant considerations.
- ELC_01 b: In order to understand future opportunities for offshore wind development, including floating technologies, this plan supports strategic planning for the sector. Relevant public authorities and the sector are encouraged, in liaison with other interested parties, to collaborate to understand opportunities for the sustainable use of wind energy resources.

56 This assessment seeks to quantify the socio-economic benefits of AyM in line with the guidance set out by the UK Government and the relevant Wales national policy.

Prosperity for All

57 *Prosperity for All: The National Strategy* (Welsh Government, 2017) sets out the Welsh Government's key commitments in a long-term context and explains their role in wider public service work seeking to lay the foundations for achieving prosperity for all. The strategy rests on four themes and five priority areas, which are guided by the *Well-being of Future Generations (Wales) Act 2015*. The wellbeing objectives under the 'prosperous and secure' theme include sustainable growth and combating climate change.

58 The *Prosperity for All: A Low Carbon Wales* (Welsh Government, 2019a) delivery plan outlines the actions undertaken to meet the first carbon budget (2016-2020) and subsequent 2020 interim target. Accelerating the deployment of renewable generation is among the intended policy outcomes of the plan. The potential opportunities for offshore wind identified through Welsh Government research are outlined in the document.

59 This assessment considers how jobs and economic wealth can be created so that coastal communities (i.e. local authorities along the North Wales coast) can be more resilient, prosperous and equitable.

Net Zero Wales

60 Following on from *Prosperity for All: A Low Carbon Wales* (Welsh Government, 2019a), the *Net Zero Wales* (Welsh Government, 2021c) plan covers the second carbon budget (2021-25). The suite of regulations passed by the Senedd in March 2021 increased the Welsh decadal emissions targets from their 2018 level and set Carbon Budgets 2 and 3 in line with them. The targets and budgets set in law are:

- Carbon Budget 2 (2021-25): 37% average reduction with a 0% offset limit
- Carbon Budget 3 (2026-30): 58% average reduction
- 2030: 63% reduction
- 2040: 89% reduction
- 2050: at least 100% reduction (net zero).

61 The plan focuses on the need to outperform the second carbon budget (of 37% average reduction in emissions) to build the foundations necessary to meet the significant step change (of 58% average reduction) required by the third carbon budget (2026-30).

62 The plan contains 123 policies and proposals across all ministerial portfolios, including:

- Policy 24 – Marine evidence, planning and licencing: supporting offshore and marine renewable energy deployment
- Policy 27 – Maximising Welsh benefit from commercially operated infrastructure projects in Wales (stating that in the offshore wind and floating offshore wind sectors, the government will work with the owners of major infrastructure to develop local supply chains).

3.2.4 Local Planning and Economic Policy

63 The most relevant planning policy context is that found in NPS EN-1, NPS EN-3 and NPS EN-5. However, local planning policy also includes material considerations which are relevant to offshore wind farm developments, their relationship to local economic developments and the assessment of socio-economic impacts associated with such schemes. As such, statements in relevant local plans in relation to major infrastructure, and particularly offshore wind, are also relevant here.

64 The *Growth Deal for North Wales* (North Wales Growth Board, 2020) was signed in December 2020. The multi-billion pound Deal, which is led by the North Wales Economic Ambition Board, will fund five programmes covering fourteen projects, among which is low carbon energy.

65 The following sections summarise relevant local and economic policy for local planning authorities in North Wales, and which are likely to experience some of the benefits generated as a result of construction, operation and decommissioning of AyM. For more detail about the spatial scope of the assessment, please refer to Section 3.4.2 and Figure 1.

Denbighshire County Council

66 The *Denbighshire Local Development Plan 2006-21* (Denbighshire County Council, 2013) envisions that the county will have *"a vibrant urban coast, with thriving market towns and rural areas"* through sustainable development. Renewable energy technologies will be promoted so that Denbighshire makes a substantial contribution to managing climate change. In addition to being an attractive place to live and work, Rhyl's role as a sub-regional shopping centre will be reinforced through improvements to its retail performance. The following objectives are set out with respect to:

- Economy and jobs – economically viable/well-planned strategic employment sites in areas of highest demand/where sustainable development is supported (objective 2) and sufficient flexibility in the provision of local employment opportunities, especially in rural areas (objective 3).
- Infrastructure – adequate levels of physical/community infrastructure alongside new developments (objective 12).

67 A *Draft Preferred Strategy* (Denbighshire County Council, 2019) has been developed for the Replacement Local Development Plan 2018-2033. The strategic objectives set out reflect the continued relevance of the adopted Local Development Plan's vision and include among others:

- Objective 3 – *'protecting, enhancing and sustainably developing Denbighshire's natural resources including green and blue infrastructure, renewable energy and mineral resources'*

- Objective 5 – *'supporting the provision, operation and development of infrastructure and services'*
- Objective 6 – *'supporting a healthy economy including proposals for strategic growth, key economic sectors and the rural economy'*

68 Given that all of the onshore infrastructure of AyM will be located within Denbighshire, the socio-economic assessment seeks to objectively weigh the overall benefits created by the proposed development (through local supply chain expenditure) against likely impacts, mostly anticipated to be felt at the local level (such as increased demand on healthcare services and on community facilities).

Conwy County Borough Council

69 *The Conwy Local Development Plan 2007-22* (Conwy County Borough Council, 2013), adopted in October 2013, envisions that, '*By 2022, the communities of Conwy will be more sustainable, offer a higher quality of life and be supported by a more balanced age structure*'. Relevant spatial objectives (SO) include:

- SO4 – 'identify and safeguard land to meet the community's needs for more jobs and greater economic prosperity […] focusing, in particular on higher value employment opportunities and skills development […].'
- SO11 – 'reduce energy consumption through […] the promotion of renewable energy developments where they have prospects of being economically attractive and environmentally and socially acceptable.'
- SO13 – 'to protect and improve accessibility to essential services and facilities, including open space, allotments, health, education and leisure.'

70 Conwy County Borough Council is undertaking a full review of the Plan. As part of the process, a *Preferred Strategy* (Conwy Borough Council, 2019) was produced setting out the broad approach of the *Replacement Local Development Plan 2018-2033*. The strategic objectives identified in the strategy aim to promote sustainable placemaking and deliver healthy & social, prosperous and natural & cultural places in the Conwy County Borough Council area. In addition to supporting long-term economic growth, prosperity, diversification and regeneration (objective 7), the strategy aims to secure a mix of energy provision – including the promotion of a new Tidal Lagoon (objective 10). Through a mix of facilities, green spaces and recreation facilities (objectives 4 & 5), it also aims to create a sense of place and promote wellbeing.

71 This socio-economics assessment considers the impacts (as well as how) the construction, operation and decommissioning of AyM may contribute towards a higher quality of life experienced by local communities, by considering the economic benefits, as well as any (adverse) impacts, on health and community facilities.

Flintshire County Council

72 Although the *Flintshire Unitary Development Plan 2000-2015* (Flintshire County Council, 2011) expired at the end of 2015, it remains the adopted development plan for the county. Among the four themes underpinning the Plan are sustainable development and meeting the economic, social and cultural needs of all members of the community. Hence, the strategic aims of the plan feature:

> *"a. economy – to create a thriving and sustainable economy providing a wide range of quality employment opportunities for local people.*
>
> *"b. social and welfare – to enable all local residents the opportunity to have access to quality housing, services, shops and leisure, recreational and sports facilities."*
>
> *"g. energy – to stabilise and ultimately reduce non-renewable energy consumption and encourage appropriate renewable energy."*

73 The *Flintshire Deposit Local Development Plan 2015-2030* (Flintshire County Council, 2019) was submitted for examination in October 2020. The strategic objectives of the Deposit Plan fall within three themes. To enhance community life, objective 1 aims to *'ensure communities have access to a mix of services and facilities, such as education and health'*. To deliver growth and prosperity, objective 8 aims to *'facilitate growth and diversification of the local economy and an increase in skilled high value employment in key sectors'*. Finally, to safeguard the environment, objective 15 aims 'to minimise the causes and impacts of climate change and pollution'.

74 This socio-economic assessment considers the impact the construction, operation and decommissioning of AyM will have on the local economy, both in terms of the short-term (and temporary) impacts (i.e. in terms of jobs and GVA) generated during construction, in addition to the long-term (and permanent) impact throughout its operational lifetime.

Gwynedd Council & Isle of Anglesey County Council

75 A Joint Planning Policy Unit was established in May 2011, merging the Gwynedd Council and Isle of Anglesey County Council Planning Policy Units. In July 2017, the *Anglesey and Gwynedd Joint Local Development Plan 2011-2026* (Anglesey County Council and Gwynedd Council, 2017) was adopted. It guides decisions on land use planning in the two districts, excluding the Snowdonia National Park area. The vision it sets out aligns with the *Single Integrated Plan* (2014) and the vision for the Wylfa Newydd project (driven by the Anglesey Energy Island Programme).

76 It is envisioned that the Joint Local Development Plan area adapts and responds to climate change challenges and becomes a leading location for a range of low carbon and renewable energy sectors and knowledge-based industries. As such, strategic objective 6 encompasses the promotion of low carbon and renewable energy production within the area, among others.

77 The Plan also aspires to an appropriately skilled workforce by securing opportunities to improve its skills and education (strategic objective 11) and a varied, well-connected sustainable and broad economic base. To support the area's growing sectors, attract investment and retain and increase local jobs, strategic objective 10 aims to ensure a network of premises and employment sites of adequate quality and size in sustainable locations. Strategic objective 2 ensures that appropriate community or physical infrastructure is available or can be provided to create and support vibrant healthy communities.

78 The process of reviewing the Anglesey and Gwynedd Joint Local Development Plan has commenced. The *Draft Review Report* (Anglesey County Council and Gwynedd Council, 2021) concludes that contextual changes and issues like Brexit, the Covid pandemic, household and population projections and uncertainty over Wylfa Newydd necessitate a Full Plan Review.

79 This socio-economic assessment considers the extent to which North Wales and the local authorities within it have capacity to secure project-based expenditure, drawing upon evidence of skills and qualifications within the local labour market.

Wrexham County Borough Council

80 The current development plan is the *Wrexham Unitary Development Plan 1996-2011* (Wrexham County Borough Council, 2005). It envisions a robust modern economy across all sectors, improved quality of life for residents focusing on access to employment and education opportunities (among others) and institutions of increasing significance (such as NEWI, Yale College and Wrexham Maelor Hospital).

81 With respect to renewable energy, strategic policy PS12 states 'Proposals for the generation of energy from renewable sources will be supported provided that the wider environmental benefits are not outweighed by any detrimental impacts of the proposed development (including any electricity transmission facilities needed) on the landscape, public safety and the local environment'.

82 The adopted Unitary Development Plan is to be replaced by the Wrexham Local Development Plan 2 2013 to 2028, for which a Deposit Plan (March 2018) has been submitted. The vision aspires for Wrexham's economy to be *'strong, resilient and responsive to our gateway location within Wales'* by 2028. Relevant strategic objectives include:

- *"SO2: Support a vibrant, diverse and competitive local economy that provides a range of job opportunities to enable new and existing businesses to grow in Wrexham County Borough with strategic growth in Wrexham Town and Wrexham Industrial Estate."*
- *"SO8: Ensure all development is supported by the necessary provision of, or improvements to infrastructure, services and facilities."*
- *"SO10: Reduce carbon emissions and maximise our resilience to and mitigate and adapt to the impact of climate change"* through the use of low carbon technology and renewable energy resources (among others).

83 The construction, operation and decommissioning of AyM will create opportunities for local businesses to compete for and secure contracts as part of the project. This will bring wider benefits locally and support the creation of a robust and modern economy, whilst also improving local residents' quality of life.

3.3 Consultation and scoping

84 This section describes the outcome of, and response to, the Scoping Opinion provided by The Planning Inspectorate (2020) in relation to the socio-economics assessment, and also provides details of the consultations that have been undertaken with stakeholders and individuals.

85 AyM statutory consultation, under section 42 of the Planning Act 2008, ran for a period of six weeks from 31 August to 11 October 2021. A Preliminary Environmental Information Report (PEIR) was published as part of formal consultation which provided preliminary information on socio-economics within Volume 3, Chapter 3: Socio-Economics.

86 Given the restrictions which have been in place due to the COVID-19 pandemic whilst undertaking the EIA, all stakeholder consultation (i.e. consultation under the auspices of the EIA evidence plan as well as informal discussions) has taken the form of conference calls, video conferencing using MS Teams and/ or phone calls rather than face-to-face.

3.3.1 Scoping opinion

87 Awel y Môr Offshore Wind Farm Limited (the Applicant) submitted a Scoping Report and request for a Scoping Opinion for the proposed development of AyM to the Secretary of State (administered by The Planning Inspectorate) in March 2020. Due to the Covid-19 situation at the time, AyM also provided extra informal time for stakeholders to review the Scoping Report ahead of submission to The Planning Inspectorate and the statutory review period. A Scoping Opinion response was issued by The Planning Inspectorate in July 2020.

88 The Scoping Report sets out the proposed approach to the assessment of socio-economic impacts, including the assessment methodology, outline of the baseline data collected, and scope of the assessment. Table 2 below sets out the comments received from The Planning Inspectorate and identifies the section(s) where each comment is addressed.

Table 2: The Planning Inspectorate's Scoping Opinion response for the socio-economics assessment

THE PLANNING INSPECTORATE ID NUMBER	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
4.21.2	*"The Inspectorate does not consider that sufficient evidence has been provided to support scoping [the demand for healthcare within the Local Study Area (LSA) during construction] out from the assessment. The Applicant should make effort to agree the approach to the assessment with relevant consultation bodies ensuring that the assessment is both proportionate and robust."*	The impact of construction activity on increased demand for healthcare services within the LSA is considered in Section 3.10.
4.21.3	*"The Inspectorate does not consider that sufficient evidence has been provided to support scoping [the economy, labour market and GVA) including local supply chain within the LSA during operations] out from the assessment. The Applicant should make effort to agree the approach to the assessment with relevant consultation bodies ensuring that the assessment is both proportionate and robust."*	The impacts of the operational phase of AyM on the economy (including the labour market and GVA) is considered in Section 3.11. The approach to the impact is similar to that adopted for the assessment of AyM's impact during the construction phase (see Section 3.10) and is outlined in more detail in Section 3.4.

THE PLANNING INSPECTORATE ID NUMBER	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
		Consultation with key stakeholders, in addition a review of local and national policy, has highlighted the relevance of including the operational impact of AyM to the economy of North Wales (and Wales more generally). That being said, consultees acknowledge that the magnitude of impact during operation of AyM is likely to be limited in scale (and hence also limited in significance) in EIA terms.
4.21.6	*"The Scoping Report assumes that effects arising from decommissioning are likely to be of a similar nature to construction but smaller in scale and extent. However, since the impacts during construction have yet to be assessed it seems premature to assume that the decommissioning effects would not be significant. The Inspectorate does not consider that sufficient evidence has been provided to support scoping these matters out from the assessment. The Applicant should make efforts*	The socio-economics assessment retains the assumption that the effects arising from decommissioning are likely to be of a similar nature to the impacts of construction, albeit smaller in scale and extent. This is based on the assumption that decommissioning will follow construction, but in reverse order as outlined within the Maximum Design Scenario (MDS) (see Table 23). The socio-economics assessment acknowledges that it is premature to assume

THE PLANNING INSPECTORATE ID NUMBER	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	to agree the approach to the assessment with relevant consultation bodies ensuring that the assessment is both proportionate and robust."	that the effects of decommissioning would not be significant, and hence to scope the decommissioning phase out of the assessment. On this basis, this chapter undertakes a high-level assessment of the impacts of decommissioning in Section 3.12.
4..21.7	*"The Scoping Report states that receptors will be identified but does not explain how this will happen or the likely range of receptors under consideration. The ES should explain how receptors have been selected and effort should be made to agree the approach with relevant consultation bodies."*	The receptors (and specific indicators) considered as part of the assessment have been identified (see Table 7) based on the Scoping Report, Scoping Opinion response, inputs from consultations with key stakeholders and professional judgement. The approach to scoping and methodology of the socio-economics assessment is detailed in Section 3.4. Following Statutory Consultation between August and October 2021, no further receptors have been identified.

THE PLANNING INSPECTORATE ID NUMBER	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
4.21.8	*"It appears from the figures in the Scoping Report that the cable route is likely to affect agricultural land but there is no reference in the report to likely effects on agricultural holdings and potential effects on the viability of such operations. The ES should assess any likely significant effects to agricultural operations."*	As stated in Volume 3, Chapter 6 Ground Conditions and Land Use (application ref: 6.3.6), the onshore export cable corridor (onshore ECC) does, indeed, route through areas of predominantly agricultural land. Whilst there will be an impact upon agricultural operations during the construction phase, the reinstatement of land above the buried cable will allow agricultural operations to re-commence once the cable has been installed. The outline CoCP, provided in Volume 8, Document 3 (application ref 8.13), established the principles that will be used in development of the CoCP with regard to agricultural operations during construction. As such, significant effects to agricultural operations are not anticipated.

3.3.2 Stakeholder consultation and engagement

89 The EIA Evidence Plan Process (via Expert Topic Groups) was set up to provide a formal, non-legally binding forum to agree the scope of the assessment, and the evidence required to support the DCO application. This process was initiated with relevant stakeholders at an early project stage with an ongoing and regular approach as required throughout the project consent and development phase to date. For socio-economics, further engagement was undertaken post-EIA scoping via three expert topic groups (ETG). The first two ETGs were held before the PEIR was published, in November 2020 and May 2021. This provided consultees, including Denbighshire County Council, Flintshire County Council, Conwy County Borough Council, Gwynedd Council and Isle of Anglesey Council, with an explanation of the approach and methodology that has been used in this assessment alongside the opportunity to raise any concerns. The final ETG, prior to submission, was held in November 2021 and provided consultees the opportunity to discuss section 42 comments they had raised in response to Statutory Consultation and the PEIR socio-economics chapter.

90 Table 3 provides a summary of the Section 42 consultation feedback in relation to socio-economics and outlines how the feedback has been considered in this ES chapter.

Table 3: Section 42 Consultation feedback

STAKEHOLDER	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
Welsh Government	Welsh Government recognises the potential that Awel y Môr has to create high value jobs and improve local skills so that young people can continue to live or return to their local communities. Therefore, further evidence on your assertion to what proportion of the workforce is likely to be local would be useful.	The assessment laid out in sections 3.10 and 3.11 quantifies the potential level of employment supported by AyM. However, it is difficult to more accurately assess the proportion of local workers at this stage given that procurement has not been completed. The Supply Chain Plan (required under the CfD supply chain process that must be approved by the SoS) will consider what proportion of the workforce will be local in further detail.
Welsh Government	Welsh Government notes that given the scale of the workforce required and the potential impact that this will have on the wider North Wales economy, further clarification is required on the skills requirements and the associated training plans. Welsh Government and the Regional Skills Partnership is looking forward to working with RWE and other	Opportunities to maximise local socio-economic benefits will be presented in more detail post-consent. The Supply Chain Plan (required under the CfD supply chain process that must be approved by the SoS) will consider the skills and training requirements of AyM.

STAKEHOLDER	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	stakeholders to developing future opportunities. Greater clarity on what RWE's plans in relation to future skill opportunities would be welcomed.	
Welsh Government	Welsh Government note that consideration should be given to such issues as the displacement of existing skills and the ancillary workforce required – how many will these be and how will these effects be mitigated/ minimised.	AyM will help create temporary demand for construction and marine workers which will help to balance the fall in demand as other construction projects come to an end. The Supply Chain Plan (required under the CfD supply chain process that must be approved by the SoS) will consider these issues further and RWE will work with training providers and employers to better understand the need for workers and workforce development activities
Welsh Government	Welsh Government is fully supportive of RWE's desire to maximise the benefits for business in the UK through the aspiration to spend 60% of their investment in the local (UK) supply chain and this will have to be	Opportunities to maximise local socio-economic benefits will be presented in more detail post- consent. The Supply Chain Plan (required under the CfD supply chain process that must be approved by

STAKEHOLDER	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	included in the Supply Chain plan if competing for Contract for Difference. Welsh Government would welcome the opportunity to work on this with RWE.	the SoS) represents an opportunity to maximise employment and GVA benefits set out in sections 3.10 and 3.11 .
Welsh Government	Welsh Government requested an explanation of how the project could impact the Welsh language either positively or negatively.	A Community and Linguistic Statement is provided (application ref: 8.16), that considers the potential impact and effects of AyM on the Welsh language and culture and, how the proposed development will protect, promote and enhance the Welsh language
Denbighshire County Council	No specific observations to make.	This comment is acknowledged.
Mostyn Estates	Mostyn Estates believe that the Socio Economic Chapter of the PEIR appears to deal solely with the impacts of the onshore elements of the development and not the potential significant impacts of the proposal overall, both offshore and onshore, on communities and businesses	The PEIR assessed effects on economy, tourism economy and community facilities at spatial levels which are considered appropriate to each receptor. This rationale was tested in the Scoping Report and its suitability was not questioned in the Scoping Opinion. The assessment follows best practice as laid out in Section 3.4.

STAKEHOLDER	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	along the coastline, particularly in Llandudno. Mostyn Estates also note that the PEIR chapter only identifies 10 community facilities, such as schools, health facilities, leisure amenities and churches within 500m of the Draft Order Limits as likely to be impacted.	
Isle of Anglesey County Council	The Council would welcome a further breakdown of jobs by sector over the duration of the construction period. This would enable the Councils (across North Wales) to identify the skills requirements for each stage and allow local people and companies to target their opportunities. It would also enable education providers to identify and target apprenticeship and work placement opportunities for local young people. The Council also notes that the assessment splits the construction phase into scenarios	Opportunities to maximise local socio-economic benefits will be presented in more detail post- consent. Following consent, a skills and employment strategy will also be produced for approval and will be produced in accordance with the Supply Chain Plan required under the CfD supply chain process that must be approved by the SoS, and against which the Applicant will be required to demonstrate progress in terms of implementing. Therefore comments relating to more detail on maximising socio-economic benefits are not

STAKEHOLDER	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	which is dependent on the proposed port locations – a 'no local construction port scenario' and a 'local port construction scenario'. The Council welcomes this approach and trusts that this scenario will be updated as more information and choices are made regarding the use of the construction port.	addressed here but are acknowledged as an important point that will be explored following consent.
	The council note the GVA impacts at PEIR rise given the local port scenario vs the non-local port scenario. The Council strongly believes that a significant proportion of construction jobs should come from the local region and would encourage RWE to consider these opportunities now to enable local people and companies to train or upskill to capitalise on these opportunities. The Council would also like to see minimum local employment targets as well as the	As above, opportunities to maximise local socio-economic benefits will be presented in more detail post- consent. Following consent, a skills and employment strategy will be produced for approval under the CfD supply chain process. Therefore comments relating to more detail on maximising socio-economic benefits are not addressed here but are acknowledged as an important point that will be explored following consent.

STAKEHOLDER	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	provision of apprenticeship and work placement opportunities to ensure that local young people can capitalise on the opportunities during both construction and operation.	

3.4 Scope and methodology

91 This section sets out the approach of the socio-economic assessment and seeks to respond to feedback received to date as outlined in Section 3.3 above.

3.4.1 Socio-Economics Receptors

92 The socio-economic receptors and the phases (i.e. construction, operation and decommissioning) of AyM these are assessed against are outlined in Table 4 below.

Table 4: Summary of receptor groups and phases against which each receptor is assessed.

RECEPTOR	CONSTRUCTION	OPERATION	DECOMMISSIONING
Economy (jobs and GVA)	Y	Y	Y
Community facilities	Y	N	Y
Healthcare services	Y	N	Y

93 The receptors identified in Table 4 are adapted from those presented within the Scoping Report. Scoping for AyM was undertaken on the basis of combined consideration of socio-economics, as well as tourism and recreation. However, given the length of the assessments and the greater clarity afforded by splitting the matter into two separate chapters, this is how PEIR was, and the ES is presented.

94 To ensure that all receptors identified in the Scoping Report are, in effect considered within this (or the tourism and recreation) assessment, the following table provides an overview of where each is addressed.

Table 5: Scoping Report receptors and location where each is addressed.

SCOPING REPORT RECEPTOR	SECTION WHERE EACH RECEPTOR IS CONSIDERED
Construction	
Beneficial effects on economy (labour market and gross value added (GVA)) within the Local Study Area (LSA), including local supply chain.	The benefits to the economy (in terms of labour market and GVA) as a result of construction activity, are considered in Sections 3.10.1 and 3.10.2 respectively. The assessment also considers the project's benefits to the economy as a result of decommissioning activity in Section 3.12.
Disruption to community and tourism receptors within the Local Area of Influence (LAI)	An assessment of the impact of construction activity on community facilities within the LAI is presented in Section 3.10.3. The assessment of disruption arising from construction activity on tourism receptors is considered within the tourism and recreation chapter (see Volume 3, Chapter 4 (application ref: 6.3.4)).
Displacement of tourism visitors within the LSA	This matter is addressed within the tourism and recreation chapter (see Volume 3, Chapter 4 (application ref: 6.3.4)).
Demand for healthcare services within the LSA	The additional demand on healthcare services within the LSA as a result of construction activity is considered in Section 3.10.4. The assessment also considers the additional demand on healthcare services as a result of decommissioning activity in Section 3.12.
Impact on tourism receptors and tourism economy within the	This matter is addressed within the tourism and recreation chapter (see Volume 3, Chapter 4 (application ref: 6.3.4)).

SCOPING REPORT RECEPTOR	SECTION WHERE EACH RECEPTOR IS CONSIDERED
Wider Study Area (WSA)	
Operation	
Economy (labour market and GVA) including local supply chain within the LSA	The benefits to the economy (in terms of labour market and GVA) as a result of activity during operation are considered in Sections 3.11.1 and 3.11.2 respectively.
Long term impact on tourism receptors and tourism economy within the WSA	The long-term impact of activity during operation on tourism receptors and the tourism economy is considered as part of the tourism and recreation chapter (see Volume 3, Chapter 4 (application ref: 6.3.4)).

3.4.2 Spatial scope and study areas

95 Table 6 sets out the spatial scope used in the socio-economics assessment. It shows that the project's effect on economic receptors (i.e. jobs and GVA) is assessed at the Wales and North Wales levels, whilst the effect related to the disruption to community facilities and demand for healthcare services is assessed at a much more local level.

96 Given that most of the impacts affecting community facilities are likely to be localised (such as noise, traffic and air quality), the assessment of the project's impact on community facilities is assessed at the local area of influence (LAI) which consists of a 500m buffer from the Order Limits (OL) (as outlined in Figure 1) and relates to the onshore elements of AyM.

97 Any increased demand for healthcare services during the project's construction, operations and decommissioning phases is likely to be concentrated within close proximity either to where onshore works are taking place (i.e. Conwy, Denbighshire and/ or Flintshire) or within close proximity of the chosen construction port (typically a 60-minute drive time distance from the port and which could include locations in North Wales such as Mostyn, Rhyl, Conwy, Port Penrhyn and Holyhead).).

98 Given the current uncertainty with regards to AyM's construction port, the socio-economics assessment considers the project's impacts on demand for healthcare services at the North Wales area, which roughly aligns with the labour catchment area. However, it is acknowledged that, whilst the assessment is based on the (wider) North Wales impact area, the impact has the potential to be concentrated locally, around areas of construction or port activity (i.e. Denbighshire for onshore construction, and around the selected port, should one be located within North Wales).

99 An overview of the spatial areas referenced in the socio-economics assessment is presented in Figure 1.

Table 6: Summary of receptor groups and study areas used.

RECEPTOR	WALES	NORTH WALES*	LAI**
Economy (jobs and GVA)	✓	✓	
Community facilities			✓
Healthcare services		✓	

North Wales* is defined as Isle of Anglesey, Conwy, Gwynedd, Denbighshire, Wrexham and Flintshire.

LAI** = local area of influence is defined as a 500 m buffer from the OL.

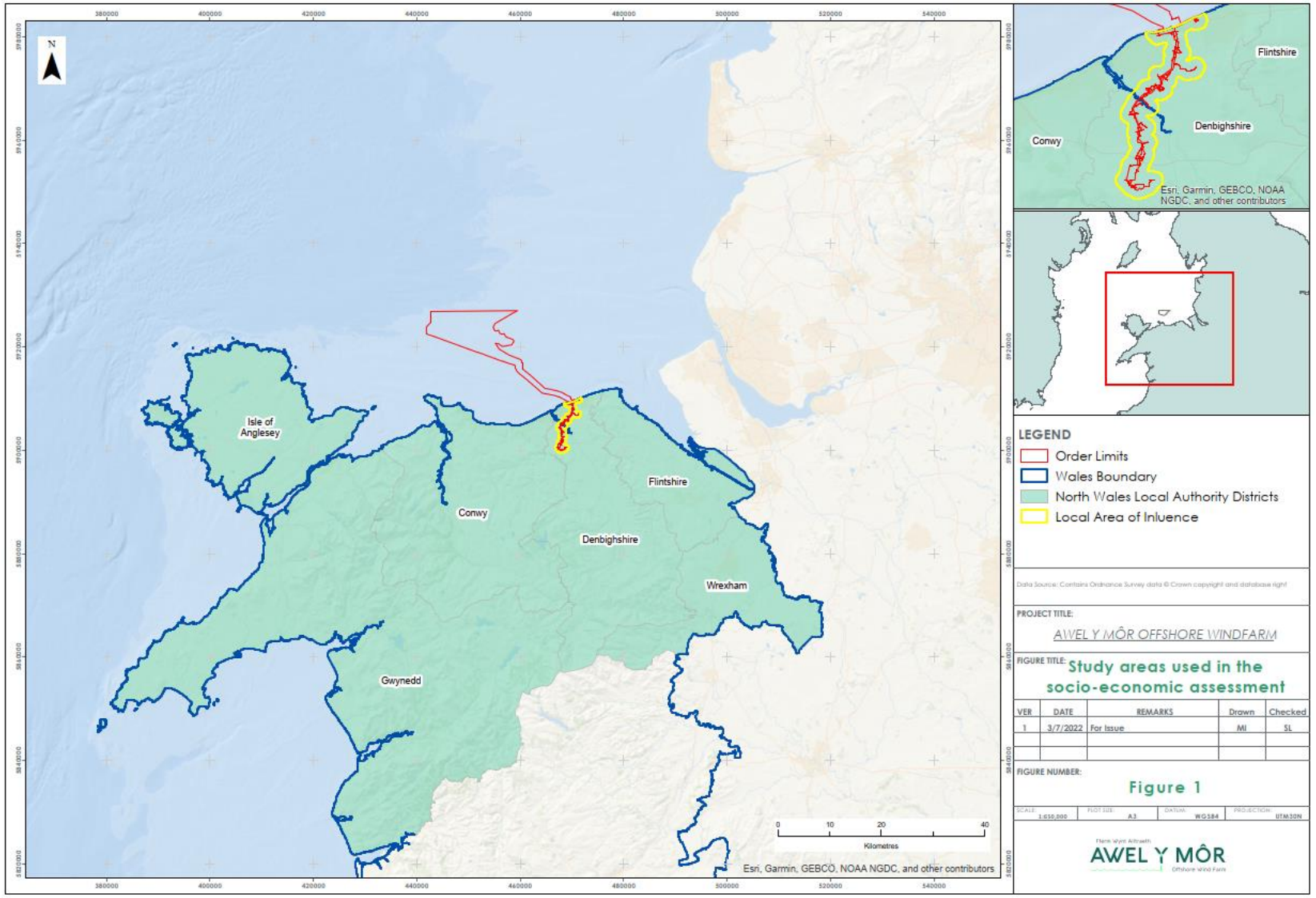

Figure 1: Study areas used in the socio-economic assessment.

3.4.3 Temporal scope

100 The temporal scope of the socio-economics assessment encompasses the construction, operational and decommissioning phases of AyM.

101 It is anticipated that the development and construction phase of AyM will take up to five years from commencement to completion (including demobilisation and onshore commissioning (which can take up to 12-months)), starting in 2026.

102 For the purposes of the assessment, the operational lifetime of AyM is assumed to be 25 years. The assessment of the project's decommissioning phase is undertaken qualitatively and is based on the assumption that the effects will be similar to those experienced throughout construction, albeit at a smaller magnitude.

3.4.4 Socio-economic receptors

103 The spatial and temporal scope of the assessment enables the identification of the receptors which may experience a change as a result of AyM. The identified receptor groups that may potentially experience likely significant socio-economics effects are outlined in Table 7.

Table 7: Receptors requiring assessment for socio-economics

RECEPTOR	RECEPTORS INCLUDED WITHIN RECEPTOR GROUP
Economy	Full time equivalent (FTE) jobs and GVA
Community facilities	This includes community facilities (such as churches, education facilities and healthcare services and leisure) which are located within a 500 m buffer from the OL. A list of key community assets considered in the assessment is included in Section 3.7, and shown in Figure 5.
Healthcare services	This includes primary and emergency healthcare services located across the North Wales study area.

RECEPTOR	RECEPTORS INCLUDED WITHIN RECEPTOR GROUP
	A list of relevant healthcare assets is presented in Section 3.7, and shown in Figure 5.

104 The list of receptors was kept under review throughout the EIA. Following consultation on the PEIR, no further receptors were identified.

3.4.5 Potential effects

105 The potential effects on socio-economic receptors that have been scoped in for assessment are summarised in Table 8.

Table 8: Potential effects on socio-economic receptors scoped in for further assessment.

RECEPTOR	ACTIVITY/ IMPACT	POTENTIAL EFFECT
CONSTRUCTION		
Economy	Impact on employment as a consequence of construction of AyM	Potential for expenditure on the construction of AyM with businesses based in North Wales and Wales that are directly engaged in its construction supply chain. This includes direct and indirect employment and GVA created through businesses' wider supply chains.
	Impact on GVA as a consequence of construction of AyM	
Community facilities		There is potential for community facilities to be impacted as a result of construction of the onshore infrastructure created by the temporary severance of access routes, increased noise and vibration and/ or visual impacts.
Healthcare services		There is potential for some temporary relocation of

RECEPTOR	ACTIVITY/ IMPACT	POTENTIAL EFFECT
		construction workers to the area (who are not resident within the study area but are staying in temporary accommodation) during the construction phase to generate demand for local healthcare services that may lead to increased demand.
OPERATIONS AND MAINTENANCE		
Economy	Impact on employment as a consequence of O&M activity and supply chain expenditure	Potential for expenditure on goods and services to support employment and GVA with companies based in North Wales that are directly engaged in the project's O&M supply chain. AyM could also go on to support employment and GVA indirectly within the project's wider supply chain.
	Impact on GVA supported as a consequence of O&M activity.	
DECOMMISSIONING		
It is assumed that the decommissioning phase of AyM will be similar in nature but no worse than, the construction phase.		

3.4.6 Impacts scoped out of the assessment

106 A number of potential effects have been scoped out from further consideration within the assessment, resulting from a conclusion of no likely significant effect, and in agreement with the Scoping Opinion and other stakeholders as part of the Evidence Plan Process. These conclusions have been made based on the knowledge of the baseline environment, the nature of planned works and the wealth of evidence on the potential for impact from offshore wind farm projects more widely. These conclusions follow existing best practice.

107 Each scoped out activity and/or impact is considered below, as is the rationale for scoping out said activity and/ or impact from the tourism and recreation assessment.

Table 9: Activities or impacts scoped out of the socio-economics assessment.

ACTIVITY OR IMPACT	RATIONALE FOR SCOPING OUT
Impact to community facilities during operations phase	The onshore project description (see Volume 3 Chapter 1 (application ref: 6.3.1)) confirms that original conditions will be reinstated once construction of the onshore ECC of AyM is completed, with the above ground presence of the onshore infrastructure during the operational phase being restricted to the substation. This will have a limited sphere of influence on community facilities in terms of visual impact, noise and vibration, and/ or traffic. Impacts on any community facilities within proximity of the proposed onshore substation will be reduced by the proposed mitigation measures.
Impact of increased demand on healthcare services during operations phase	The impact of increased demand on healthcare services during the operational phase of AyM will be of a smaller scale than that identified for either construction and/ or decommissioning phases. Early estimates by the Applicant indicate that between 40 to 50 FTE jobs will be required to support operations of AyM. This represents a small increase over and above the current baseline, which can easily be accommodated within the planned/ anticipated growth within the local labour market/ population.
Impact of construction, operations and decommissioning phases on demand	The construction and decommissioning phases of AyM will be relatively short-term activities that would not lead to workers relocating to the area with their families. As such, it is not expected that the construction and decommissioning of AyM will

ACTIVITY OR IMPACT	RATIONALE FOR SCOPING OUT
for housing and schools.	create an influx of workers seeking housing and schools' services within the LSA. Whilst employment supported as a result of operations of AyM will be long-term, the absolute number of direct jobs supported by AyM (i.e. in the region of 40 to 50 FTE jobs) will represent a small increase over and above the current baseline and can therefore easily be accommodated within planned growth at the local level. Labour market data indicates that North Wales generally acts as a single travel to work catchment.

3.4.7 Methodology for baseline data gathering

108 Baseline data collection has been undertaken to obtain information about the study areas identified in Table 6 above. The current baseline conditions presented in Section 3.7 are based on the data sources outlined below, which have been collated and used to inform the socio-economics assessment.

Table 10: Data sources used to inform the socio-economics assessment.

SOURCE	DATE	SUMMARY	COVERAGE
Business Register and Employment Survey (BRES)	2009-2020	Current position and long-term trends in: • Total employment (including FTE employment; • Sectoral mix; and • Employment in sectors relevant to (i) energy, (ii) construction and manufacturing sectors relevant to offshore wind, (iii) tourism and (iv) ports and maritime activity.	• North Wales; • Wales; and • GB
Sub-national GVA	1998-2019	Current position and trends in the following, for relevant study areas: • Total GVA; • GVA per head; and • GVA per worker.	• North Wales; • Wales; and • UK.
Population Estimates	2020	Current position and long-term trends in: • Total population; • Core working age population (i.e. aged 16-64); • Young people; and • People aged 65+	• North Wales; • Wales; and • UK.

SOURCE	DATE	SUMMARY	COVERAGE
2018-based, Sub-National Population Projections	2019-2043	Anticipated population change for: • Total population; • Core working age population; • Young people; and • People aged 65+	• North Wales; • Wales; and • UK.
Annual Population Survey	2015-2021	Current position in the local labour market, including: • Economic activity; • Employment; and • Unemployment trends.	• North Wales; • Wales; and • UK.
Annual Survey of Hours and Earnings	2021	Income estimates for both workplace-based and resident-based earnings.	• North Wales; • Wales; • UK.
Welsh Index of Multiple Deprivation	2019	Overview of relative, multiple deprivation across Wales and North Wales based on eight domains of deprivation.	• Lower Layer Super Outputs Areas (LSOAs) in Wales and North Wales
General Practitioners	2021	Number of GP practices, registered patients and FTE GP practitioners	• Betsi Cadwaladr University Health Board; and • Wales

SOURCE	DATE	SUMMARY	COVERAGE
A&E patients seen in under 4 hours	2019-2021	Proportion of A&E patients to both major emergency departments and minor injury units seen in under four hours	▲ Betsi Cadwaladr University Health Board; and ▲ Wales

3.4.8 Modelling economic activity and employment impacts

109 In its guidance on socio-economics, EN-1 National Policy Statement (DECC, 2011c) states that all relevant socio-economic effects (which may include the creation of jobs and training opportunities, additional local services, improvements to local infrastructure, the effects on tourism and impacts on the labour market) should be considered. However, as noted in Table 1 the guidance on how these should be considered is limited.

110 For the key quantitative measures of economic impact (i.e. employment and GVA) the socio-economic assessment uses an economic impact model which estimates the direct (as well as supply chain/ indirect) employment and GVA impact supported during both construction and operational phases, based on retained expenditure within each of the study areas assessed (in this case North Wales and Wales). Whilst there is certainty in the construction and operational phase, at this stage, there is uncertainty about the proposed approach, costs, and potential impacts that may occur during the decommissioning phase and, as such, and in line with standard practice, this is assessed qualitatively.

111 The socio-economic assessment excludes the induced impacts generated by AyM across all phases, as these are typically affected by greater uncertainty, and are more difficult to measure and defend robustly in terms of their scale and additionality.

112 The absolute scale of the economic impacts supported during the construction phase is measured using the following approaches:

- **Direct construction employment and GVA** – This relates to the economic impacts related to capital spend on design and construction of AyM. In other terms, this relates to the employment and GVA which is associated with the first round of capital expenditure (for example AyM's direct expenditure with Tier 1 contractors within each of the impact areas identified). The assessment is driven by the level of expenditure on goods and services retained in each area. The additional output in each sector is converted into jobs and GVA using sector-based benchmarks (from the ONS's Annual Business Survey) appropriate to each impact area.

- **Indirect construction employment and GVA** – These impacts take place in companies that supply goods and services as part of the supply chains during the construction phase. The assessment uses UK and regional input-output tables supplemented by National Accounts data to estimate the amount of output generated across the various sectors as a result of input into (or spend in) a particular sector of the economy. The model generates estimates of how direct spend with Tier-1 suppliers leads to indirect outputs further down the supply chain. The output from the model is then converted to FTE jobs and GVA using sector benchmarks.

113 The absolute scale of the economic impact during the operations phase is measured using the same indicators as set out above (i.e. employment and GVA) although the methodology differs slightly:

- **Direct O&M employment and GVA** – Jobs and wealth creation directly associated with operations is defined as the FTE employees directly engaged in activities relating to the management, operation, monitoring and maintenance of AyM. The assessment is driven by the anticipated number of FTEs and their salaries analysed by type of employment. It is estimated that an offshore wind farm the size of AyM will require between 40-50 direct FTE posts, allowing for some degree of efficiency/ cost savings across the operations of both Gwynt y Môr (GyM) and AyM.
- **Indirect O&M employment and GVA** – Jobs and GVA associated with supply chain spend during the operations phase include second round supply chain impacts. These are measured using UK and Welsh input-output tables, to estimate the amount of output generated across various sectors as a result of input into (or spend in) a particular sector of the economy. The model estimates how direct spend with Tier-1 suppliers leads to indirect outputs further down the supply chain. The output from the model is then converted to FTE jobs and GVA using sector benchmarks.

114 The output from this quantitative assessment underpins the assessment of the magnitude of impacts on the economy receptor, the significance of which is then determined by the scale of the impact in the context of the baseline position.

Estimating construction and operation costs

115 Construction and operational phase expenditure incurred by the AyM project is the key driver of economic impacts considered in this assessment. At this stage detailed cost estimates are not available (and commercially sensitive and therefore cannot be shared). Given this, the approach adopted is based on estimated development (DEVEX), construction (CAPEX) and operations (OPEX) costs that are derived from more robust and up-to-date industry data which is publicly available.

116 Assuming an indicative generation capacity of 576MW and construction cost benchmarks from The Crown Estate (2019), it is estimated for the purposes of assessment that the investment required for the development and construction of AyM adds up to £1.32 billion (2019-pricing). Furthermore, the project's assumed 25-year lifespan is estimated to represent an overall investment in the region of £494 million (2019-pricing). This brings total DEVEX, CAPEX and OPEX over the project's assumed 25-year operational lifespan to around £1.81 billion (2019-pricing).

117 Once an overall investment (i.e. DEVEX + CAPEX + OPEX) estimate is identified, the assessment generates assumptions on the amount of supply chain expenditure that is captured nationally and the other study areas based on research by BVG Associates (2014, 2015b, 2015a) and RenewableUK (2017).

118 Benchmarks provided by The Crown Estate suggest that offshore wind farms built in the UK currently secure around 48% of total lifetime expenditure, as shown in Table 11.

Table 11: UK supply chain context for typical offshore wind farm project (£1,000s)

PHASE (SUB-PHASE)	BENCHMARK £/MW	UK CONTENT	
		£/MW	% OF PHASE (SUB-PHASE) TOTAL
DEVEX	£120	£85.1	71%
CAPEX	£2,250	£636	25%
(Turbines)	(£1,000)	(£279)	(24%)
(Balance of Plant	(£600)	(£120)	(16%)
(Installation and commissioning)	(£650)	(£236)	(36%)
DEVEX + CAPEX	£2,370	£721	28%*
OPEX (per annum)	£75	£58	77%
Decommissioning	£330	£95	2%
Aggregate UK lifetime content	n/a	n/a	48%

Source: The Crown Estate (2019)

* Please note: This is based on the aggregation of DEVEX and CAPEX costs.

Totals may not add up due to rounding.

119 The assessment is based on the assumption that, as a minimum, the project's overall lifetime expenditure captured within the UK adds up to close to 50%. This is in line with the offshore wind's industry commitment for 2020. It is worth noting that AyM will work with local, regional and national stakeholders to achieve higher UK content than the base case assumed here. This is in line with the target set out in the *Offshore Wind Sector Deal* (HM Government, 2019) struck with Government, which commits the offshore wind sector as a whole to reach 60% UK content by 2030.

120 AyM will be contributing to supply chain development via the Offshore Energy Alliance, a new supply chain cluster that covers North Wales and North West England. The Offshore Energy Alliance will act as a champion for local businesses (most of which are small and medium-sized enterprises) to broker engagement with offshore wind developers and highlight opportunities in a timely way.

Local sourcing

121 There is considerably less evidence on sourcing for local impact areas (in this case North Wales and Wales). This is, in part, because this is much more difficult to record. The variability in local supply chain strengths also means that national averages are less useful in providing a robust basis for sourcing assumptions for economic impact modelling.

122 To inform the sourcing assumptions, the assessment has considered a number of sources, including current employment trends and levels of specialisations (as indicated by Location Quotient (LQ) estimates) within sectors that have potential to contribute goods and services to offshore wind projects within North Wales and Wales, analysis of local supply chain businesses supporting other offshore wind farm projects, as well as the Applicant's experience delivering and operating other offshore wind farms nationally. This includes experience from North Wales (i.e. GyM).

Sourcing assumptions

123 The socio-economic assessment splits AyM's construction phase into scenarios, depending on the proposed port locations:

- **No local construction port scenario** – assumes that the construction port will be located outside either of the two impact areas identified (i.e. outside North Wales and/ or Wales). This means that the construction port can be located elsewhere within the UK (including Northern Ireland), or within the Republic of Ireland.

- **Local construction port scenario** – assumes that the construction port is located within the North Wales impact area, generating opportunities for local sourcing including opportunities in port-related activities (particularly storage, transportation, stevedoring associated with the need to use local ports for storage and laydown of turbine towers), charter and operation of non-specialist vessels (e.g. for crew transfer), and onshore civils work (related to the installation and commissioning of the onshore ECC and onshore substation).

124 It is anticipated that the operations base for AyM will be located either within the North Wales impact area or elsewhere along the North West coast of England. For the purposes of the assessment, it is assumed that all direct labour required is sourced from within this area as well.

125 It is a possibility that the existing facilities at Mostyn will be utilised (and if necessary expanded) as the base for operations management of AyM, as this would yield synergies and enable effective co-ordination with the existing operations team of GyM.

Modelling economic impacts

126 The method used to quantify the impacts of AyM starts by breaking down project expenditure into the following individual phases:

- The **DEVEX and CAPEX spending phase** is broken down into the following stages:
  - **Development and consent** – this captures all survey work and studies required to obtain consent, from environmental surveys and seabed surveys to human impact studies and design studies;
  - **Manufacture of components** – this includes all infrastructure, namely the wind turbine generator (WTG) (broken down into individual components) and balance of plant (which includes export cables and substation components as well as the remaining segments of the wind farm excluding WTGs); and
  - **Installation and commissioning activity** (including construction of the onshore substation).
- **OPEX direct employment** – the type of jobs which would be expected to be required to operate an offshore wind farm.

- **OPEX supply chain spend** – this includes costs associated with the maintenance of equipment and spare parts, other operational services (including offices, admin and transportation) and other costs (business rates, etc.) related to operating and maintaining the wind farm once it becomes operational.

127 Based on the above scenarios, it is estimated that the overall share of the construction and lifetime operations expenditure retained within the North Wales impact area adds up to 6% (as shown in Table 12), which is the equivalent of up to £115.8 million (2019-pricing). At the Wales level, total construction and lifetime operations expenditure is estimated to add up to 9%, or £150.6-£165.2 million (2019-pricing) as shown in Table 13.

Table 12: Overall construction and lifetime operation sourcing assumptions, as proportion of DEVEX+CAPEX+OPEX (%)

	NO LOCAL CONSTRUCTION PORT SCENARIO		LOCAL CONSTRUCTION PORT SCENARIO	
	NORTH WALES	WALES	NORTH WALES	WALES
Construction	0.4%	2.0%	0.8%	2.8%
Operations	6%	6%	6%	6%
Total	6%	8%	6%	9%

Source: Calculations by Hatch based on The Crown Estate (2019). Numbers may not sum due to rounding.

Table 13: Overall construction and lifetime operation sourcing assumptions, as proportion of DEVEX+CAPEX+OPEX (£ million)

	NO LOCAL CONSTRUCTION PORT SCENARIO		LOCAL CONSTRUCTION PORT SCENARIO	
	NORTH WALES	WALES	NORTH WALES	WALES
Construction	£6.8	£36.9	£15.1	£51.5

Operations*	£100.7	£113.7	£100.7	£113.7
Total	£107.5	£150.6	£115.8	£165.2

Source: Calculations by Hatch based on The Crown Estate (2019)

*Please note: This includes direct labour costs for AyM operations.

3.4.9 Assessing impact on community facilities and healthcare services (construction and decommissioning phases)

128 The assessment of the project's impact on community facilities is undertaken qualitatively and considers the characteristics of any potentially disruptive activities that may occur adjacent to, or along the access route, to sensitive community receptors. The assessment draws on published data, as well as evidence collated by other topics such as tourism and recreation (Volume 3, Chapter 4 (application ref: 6.3.4)), traffic and transport (Volume 3, Chapter 9 (application ref: 6.3.9)), noise and vibration (Volume 3, Chapter 10 (application ref: 6.3.10)), air quality (Volume 3, Chapter 11 (application ref: 6.3.11)) and public health (Volume 3, Chapter 12 (application ref: 6.3.12)). It should be noted that a significant effect for another impact (such as visual impact) does not necessarily mean there will be a significant socio-economic effect.

129 The assessment of AyM's impact on increased demand for healthcare services draws on the analysis of employment supported by the proposed development, focussing particularly on the demand that may arise in relation to workers who are not resident within the study area, but are staying in temporary accommodation (primarily during the project's construction and decommissioning phases). At this stage it is uncertain as to what the proposed scale of this demand is likely to be, and therefore assumptions based on travel to work patterns and distance travelled by non-home-based workers have been made. The assessment has also drawn on data on capacity within the local health care system (including GP practices and hospitals) to accommodate the increased demand as well as benchmarks of patients registered per GP (such as benchmarks set out in London HUDU (2019)).

3.5 Assessment criteria and assignment of significance

130 For socio-economics there is no formalised technical guidance and/ or criteria when assessing the scale (and therefore significance) of socio-economic effects. The assessment of the likely effects of AyM is primarily based on professional judgement and considers the sensitivity of each receptor in addition to the magnitude of change to the receptor brought about by the proposed development. The assessment of socio-economics also draws on industrial best practice (such as Glasson *et al.* (2020)) and the guidance set out in The Green Book (HM Treasury, 2020b).

131 The socio-economics assessment has assigned significance as per the approach outlined at Scoping stage (innogy Renewables UK, 2020), and draws on both the receptor's sensitivity (see Table 14), as well as the magnitude of impact (see Table 15).

132 The sensitivity of each receptor is evaluated as either very high, high, medium, low or negligible based on the baseline position and its performance against benchmark areas, together with consideration of the importance of the receptor in policy terms.

Table 14: Sensitivity of socio-economic receptors

SENSITIVITY	DEFINITION
High	Receptor is defined as being of high sensitivity where it is identified as policy priority (as a result of economic potential and/ or need). There is evidence of considerable socio-economic challenges and/ or opportunities for the receptor within the study area.
Medium	Receptor is defined as being of medium sensitivity where it is not identified as a policy priority (as a result of economic potential and/ or need). There is, however, evidence of socio-economic challenges and/ or opportunities for the receptor within the study area.
Low	Receptor is defined as being of low sensitivity where it is not identified as a policy priority (as a result of

SENSITIVITY	DEFINITION
	economic potential and/ or need). There is evidence that the receptor is resilient within the study area.
Negligible	Receptor will be of negligible sensitivity where it is not identified as a policy priority (as a result of economic potential and/ or need).

133 The magnitude of impact to the receptor is determined by considering the estimated deviation from baseline conditions once embedded mitigation is taken into consideration. The criteria used for the assessment of magnitude is evaluated as either high, medium, low or negligible, and are set out in more detail below.

Table 15: Criteria for assessing magnitude of socio-economic impacts.

PHASE	BASELINE MEASURE	NEGLIGIBLE	LOW	MEDIUM	HIGH
EMPLOYMENT IMPACTS					
C*	Direct & indirect = whole economy	<0.5%	0.5%-1%	1%-2%	>2%
O**	Direct & indirect = whole economy	<0.5%	0.5%-1%	1%-2%	>2%
D***	Whole economy	Qualitative approach. In general, decommissioning activities are of similar nature to, but no worse than, the impacts identified during the construction phase.			
GVA IMPACTS					
C*	Direct & indirect = whole economy	<0.1%	0.1%-0.5%	0.5%-1%	>1%
O**	Direct & indirect = whole economy	<0.1%	0.1%-0.5%	0.5%-1%	>1%
D***	Whole economy	Qualitative approach. In general, decommissioning activities are of similar nature to, but no worse than, the impacts identified during the construction phase.			
COMMUNITY FACILITIES					

PHASE	BASELINE MEASURE	NEGLIGIBLE	LOW	MEDIUM	HIGH
C* and D***	Community facilities	Qualitative approach based on community facilities located within 500 m buffer from the OL and the impacts of construction and decommissioning activity in terms of noise, air quality changes, visual and traffic.			
HEALTHCARE SERVICES					
C* and D***	Health services	Qualitative approach based on current capacity within the local study area and assessment of potential increase in demand during construction and decommissioning.			

C* = construction, O** = operation, D*** = decommissioning.

134 The nature of the effect is defined as follows:

- **Beneficial** – an advantageous effect on the identified study area;
- **Adverse** – a detrimental effects on the identified study area; or
- **Neutral** – neither beneficial nor adverse effect.

135 The likely effect is also defined in terms of the timescale along which its effect on the receptor could be felt. For the purposes of the assessment, the effects generated as a result of both construction and decommissioning phases are classified as 'short-term' and effects that arise during AyM's operation are classified as 'long-term'.

136 Effects are classified as being either significant or not significant in EIA terms. Any effects described as moderate and major in scale (see Table 16) are considered significant in EIA terms, whilst those of minor and/ or negligible scale are considered as not significant.

Table 16: Matrix to determine effect significance.

		SENSITIVITY			
		HIGH	MEDIUM	LOW	NEGLIGIBLE
ADVERSE MAGNITUDE	HIGH	Major	Major	Moderate	Minor
	MEDIUM	Major	Moderate	Minor	Negligible
	LOW	Moderate	Minor	Minor	Negligible
	NEGLIGIBLE	Minor	Minor	Negligible	Negligible
BENEFICIAL MAGNITUDE	NEGLIGIBLE	Minor	Minor	Negligible	Negligible
	LOW	Moderate	Minor	Minor	Negligible
	MEDIUM	Major	Moderate	Minor	Negligible
	HIGH	Major	Major	Moderate	Minor

3.6 Uncertainty and technical difficulties encountered

137 The most up-to-date information available has been used in the preparation of the baseline for the existing socio-economic environment. However, there is often a lag in the publishing of national datasets, meaning there is the possibility that some information may not be up-to-date. For example, employment data published by the Office for National Statistics (ONS) usually has a one to two-year lag but is still the best data for employment. In this case the latest employment data available is from 2020, with data for 2021 due to be published later on in 2022. These data limitations do not have a material effect on the predictability or accuracy of the impact assessment presented in this ES chapter.

138 Since January 2013, the number of people claiming Job Seekers' Allowance and Universal Credit have been combined. The new dataset combining the two means that it is no longer possible to get an accurate indication of the number of people seeking to work in occupations related to construction, operations and decommissioning phases of offshore wind farm developments. This has implications for the level of quantitative analysis which can be undertaken in the baseline section and subsequent assessment.

139 There are challenges with disaggregating GVA data by sector to measure the impact of AyM in the context of the renewable energy sector, and the wider economy. The data is available by broad Standard Industrial Classification (SIC) code level, which does not lend itself to defining a renewable energy sector, especially below UK level. This means that the assessment of GVA impacts is undertaken against a UK economy baseline. Quantitative definitions of magnitude are adjusted accordingly for GVA receptors to reflect the breadth of this measure.

140 The Development Consent Order (DCO) application does not include development activities at potential construction ports. Where necessary, port activities will be subject to separate consent(s) such as planning permission and/ or a Harbour Revision Order. The Applicant is currently considering ports suitable for the construction base for the offshore elements of AyM (including ports in North Wales and elsewhere within the UK and Europe). Port selection will be dependent upon securing development consent, a CfD award, and will be influenced by findings from further technical studies and commercial negotiations.

141 For this assessment, it is assumed that the O&M port will be located either in North Wales or along the North West England coast. It is possible that the existing facilities for GyM located at Mostyn would be used (and expanded if necessary) as the base for operations for AyM, as this would yield synergies and enable effective coordination with the existing operations team for GyM.

142 At this stage, the total generation capacity of AyM is yet to be formally determined. This will depend on the number of turbines installed, their generation capacity as well as potential future improvements to WTG efficiency. However, for the purposes of assessment the assumption is that AyM will have an overall indicative generation capacity of 576 MW. This has been reduced from the capacity presented in Statutory Consultation of up to 1.1GW, due to the reduction in the proposed scale of the project, introduced in response to stakeholder concerns. The socio-economic assessment is therefore based on this updated assumption and the impacts are reduced compared to the impacts that were presented in the PEIR socio-economics chapter. It is noted that 567MW is a conservative assumption of the project's capacity, should the project's generation capacity be greater, any impacts and associated effects could be increased in significance.

143 It is assumed that the construction phase of AyM (i.e. including its development, manufacture of the various components (WTG, towers, foundations, substations and cables), installation and commissioning) will take up to five years. At this stage, it is not possible to robustly model the impacts at different stages of the construction period and, as such, the assessment of socio-economic effects assumes a uniform level of annual employment and GVA generation throughout the construction period. It is acknowledged that there will be peaks and troughs throughout the period, however this provides a reasonable estimate of impacts and enables a robust assessment of effects to be undertaken.

3.7 Existing environment

3.7.1 Economy

Employment

144 Data from the ONS indicates that in 2020 there were 307,000 jobs (total employment) in North Wales, accounting for 23% of total employment in Wales (1.33 million jobs). In FTE terms, this accounts for 239,000 FTE jobs in North Wales and 1.05 million (FTE) jobs in Wales. At 576 FTE workers per 1,000 core working age residents (i.e. people aged 16-64), employment density in North Wales exceeds that seen across Wales (540 FTEs/ 1,000 core working age residents) but is below the national average (of 609 FTEs/ 1,000 core working age residents).

145 In the ten years to 2019, the North Wales economy grew by about 19,700 FTE jobs (+9%) and Wales saw the addition of a further 72,400 FTE jobs (+7%). In both cases, FTE employment growth was below the national average (of +12%). Between 2019 and 2020, North Wales saw the addition of 2,500 FTE jobs (+1%), despite FTE employment growth being stagnant in Wales (0%) and negative across Great Britain (-2%) reflecting the impact of the Covid 19 pandemic.

146 Looking at annual growth rates, the change in FTE jobs in North Wales broadly follows the pattern observed across Wales. The employment growth fluctuations noted in Figure 2 below are out of line with the cyclical pattern seen at the national level, with growth peaking in 2013/14.

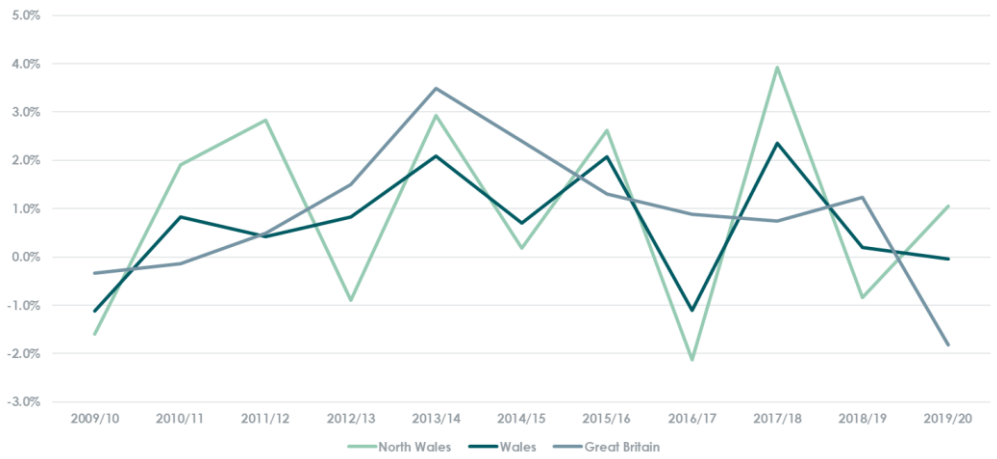

Figure 2: Annual growth rate of FTE jobs 2009/10-2019/20.

Sectoral distribution of jobs

147 An analysis of employment sectors highlights the importance of manufacturing, human health and social work, as well as wholesale and retail trade. They cumulatively account for 43% and 38% of all FTE jobs in North Wales and Wales respectively, compared with 34% across Great Britain. Manufacturing is also notably more concentrated in North Wales as well as Wales than is the case across GB (with LQs of 1.9 and 1.4 respectively).

148 In the context of offshore wind farm developments, construction, manufacturing, professional services and hospitality are particularly important. The accommodation and food service sector is more concentrated in North Wales (LQ1.5) and Wales (LQ1.1) than is the case across GB.

Supply chain capacity and capability

149 The Welsh economy has had notable offshore wind development over the past two decades. Several offshore windfarms are located off the cost of North Wales, including North Hoyle, Rhyl Flats and GyM.

150 There may be opportunities for businesses across several sectors to benefit from construction and operations activities related to AyM, thus boosting the existing offshore wind industry.

151 Namely, the level of employment concentration at the North Wales and Wales level is equivalent to or exceeds that seen across GB for all strategic sectors except land-based transport across both location and marine transport in Wales as outlined in Table 17.

Table 17: Employment in Key Strategic Sectors, 2020

	NORTH WALES			WALES			GB	
	FTEs 000s	%	LQ	FTEs 000s	%	LQ	FTEs 000s	%
Manufacturing	39.3	16%	1.8	134	13%	1.4	2,204	9%
Construction	15.8	7%	1.3	64	6%	1.2	1,303	5%
Land-based transport	5.4	2%	1.0	24	2%	1.0	538	2%
Civil engineering	3.2	1%	1.6	14	1%	1.5	208	1%
Energy generation	1.2	0%	1.0	7	1%	1.2	128	1%
Marine Transport	0.2	0%	2.3	0	0%	0.8	11	0%

Source: ONS (2021b)

Gross Value Added

152 Data from the ONS indicates that North Wales contributed slightly over £15 billion GVA to the economy in 2019. This represents about 23% of the £67 billion GVA generated in Wales, and 0.8% (i.e. of £1,977.1 billion) at the UK level.

153 GVA per head of population data shows a small gap between North Wales (£22,000/ person) and Wales (£21,300/ person), with GVA per head in North Wales being about 3% (or £700) lower. Compared with the UK average, GVA per head in both North Wales and Wales is substantially lower (by 26% and 28% respectively), indicating less productive economies.

Table 18: Total GVA and GVA per head, 2019

	TOTAL GVA (£ BILLION)	GVA PER HEAD
North Wales	£15.4	£22,000
Wales	£67.1	£21,300
UK	£1,977.1	£29,600

Source: ONS (2020c).

Please Note: GVA per head estimates are rounded to the nearest hundred £.

3.7.2 Population and Labour Market

Population

154 In 2020, the total population of North Wales and Wales amounted to approximately 703,361 and 3.2 million residents respectively. There were about 415,012 (59%) and 1.9 million (61%) individuals of core working age (i.e. aged 16-64) living in North Wales and Wales. The share of core working age population residing at both locations is slightly below the UK average (62%).

155 Over the past ten years, the total resident population of North Wales increased by 3%, which is comparable to the population growth rate seen across Wales (4%) but markedly lower than the UK growth rate (of 7%). A decline in the number of core working age residents was observed in both North Wales (of 3%), while the base of core working age residents across Wales remained stagnant (growth of 0%). In contrast, the number of core working age residents in the UK grew by 3% over this period.

Future population

156 According to the 2018-based Sub-National Population Projections (SNPP), there will be a total of about 718,800 residents in North Wales and 3.3 million additional residents in Wales by 2043, an increase of 3% and 5% respectively compared with the base year (i.e. 2018).

157 The number of young residents (i.e. aged up to 15 years old) is expected to decline to 117,500 in North Wales and 547,400 in Wales by 2043, a decrease of 5% and 3% respectively.

158 In North Wales, the core working age population (i.e. people aged 16 - 64) is expected to decline at a faster rate between 2018-43 relative to the Wales average. By 2043, the core working age population is estimated to reach about 394,100 residents in North Wales and 1.9 million residents in Wales, a decline of 5% and 1% respectively compared with the base year.

159 In contrast, retirement age population (i.e. people aged 65 and over) is expected to increase by 29% in North Wales and 31% in Wales, thus reaching a total of about 207,200 and 851,200 residents respectively by 2043.

Labour market indicators

160 According to the latest Annual Population Survey (APS) data (July 2020 to June 2021), with a labour market engagement rate (also referred to as the economic activity rate of core working age residents) of 76%, North Wales has a slightly more engaged labour market than the national Wales average (of 75%) but is below the UK wide average (of 78%). Similarly, the employment rate in North Wales (of 74%) is slightly higher relative to the national Wales average (of 72%) and in line with the UK rate (of 74%). Reflecting this pattern, the economic inactivity rate observed for North Wales (24%) is lower than the Wales national average (25%), but both are higher than the UK rate (22%).

161 According to the latest APS data, the unemployment rate in North Wales (of 3.5%) is lower than the rate seen across Wales (of 4.4%). Unemployment appears to be lower than the UK average (of 5.1%) across both locations. The unemployment rate between January 2015 and December 2019 across these locations is examined to gauge unemployment levels prior to the COVID-19 pandemic.

162 Historically, the unemployment rate in North Wales has been lower than Wales and UK averages. However, unemployment in North Wales has been increasing since the end of 2017, despite the declining unemployment rates seen in both Wales and the UK over this period.

163 The COVID-19 pandemic has not translated into stark increases in the unemployment rate in North Wales. The unemployment rate for 2020 and the first two quarters of 2021 remained below their pre-pandemic historic average for 2015-19. Although the recent unemployment rates in Wales have not exceeded their pre-pandemic average, they have been steadily increasing, reflecting the wider UK trend. Namely, the national unemployment rate during the first two quarters of 2021 exceeded its pre-pandemic average.

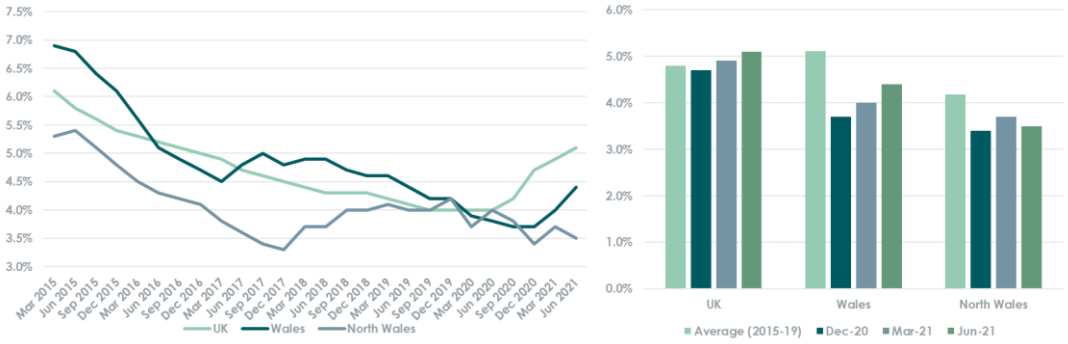

Figure 3: Quarterly Unemployment Rate Q1 2015 to Q2 2021 (Left); Average Unemployment Rate over 2015-19 vs Quarterly Unemployment Rate in 2020, Q1 2021 & Q2 2021 (Right).

164 A divergence between trends in claimant counts data (i.e. the number of people claiming Jobseekers' Allowance or Universal Credit) and trends in the unemployment rate were observed during the pandemic. This suggests an increase in the number of claimants of unemployment-related benefits who do not classify themselves as unemployed. For example, this could encompass employed individuals who are temporarily away from work (because of the pandemic), employed individuals who are eligible to claim unemployment benefits and those who are temporarily inactive.

165 Data since November 2015 shows that, prior to the pandemic, the number of claimants in North Wales and across Wales increased at comparable rates. The increase observed across both geographies was smaller than the equivalent increase across the UK. As of November 2021, claimant counts were 2.6 times higher across the UK when compared to November 2015. Although relatively smaller, the increases seen at the level of North Wales (of +98%) and Wales (of +91%) are significant. Data from the ONS suggests that there are currently about 16,815 claimants in North Wales and 80,255 across Wales, representing around 4.1% of the core working population (compared with 4.6% across the UK).

166 A greater increase in the number of older claimants (aged 50+ years old) relative to younger ones (aged 16 to 24 years old) is observed in North Wales and Wales, which is consistent with the wider trend across the UK.

Earnings

167 In 2021, gross median annual earnings of a full-time worker in North Wales were about £27,800 per annum, which is below the median across Wales (of around £28,500 per annum). Workplace-based earnings across both locations are notably lower than the UK average (of £31,300).

168 At £28,100, resident-based earnings in North Wales are below those in Wales (of £28,900), but both are still notably below the UK median (of £31,300). Resident-based earnings in North Wales are slightly higher than workplace-based earnings, which suggests relatively high levels of out-migration by workers in higher-paid occupations outside the area. This is in line with the pattern seen across Wales.

Table 19: Resident and workplace based median earnings, 2021

REGION/STATE	WORKPLACE-BASED	RESIDENT-BASED
Conwy	£26,462	£28,473
Denbighshire	£27,821	£26,974
Flintshire	£29,059	£30,054
Gwynedd	£25,693	£24,771

REGION/STATE	WORKPLACE-BASED	RESIDENT-BASED
Isle of Anglesey	£28,672	£28,760
Wrexham	£28,552	£27,793
North Wales*	£27,841	£28,098
Wales	£28,506	£28,861
United Kingdom	£31,285	£31,285

Source: ONS (2021a)

*Estimated as the jobs weighted average of median wages in its constituent local authorities.

3.7.3 Community

Deprivation

169 The 2019 Welsh Index of Multiple Deprivation (WIMD) measures relative deprivation across LSOAs in Wales by compiling data across eight domains of deprivation, which include income, employment, health, education, access to services, housing, community safety and physical environment.

170 Overall deprivation levels appear to be lower in North Wales when compared with the rest of Wales. About 38% of LSOAs in North Wales are in the 50% most deprived LSOAs nationally, compared with 53% across the other Welsh regions. A fifth (20%) of LSOAs in North Wales are in the 30% most deprived compared to a third (33%) of LSOAs across the other regions. Only 5% of LSOAs in North Wales are the 10% most deprived, about half the share seen across other regions (11%).

171 North Wales performs better than the rest of Wales on most metrics of deprivation. A notable exception is the access to services domain, whereby it consistently features a larger share of LSOAs among the most deprived, at 10%, 30% and 50% respectively. Moreover, its performance with regards to community safety and housing is broadly comparable to that of the rest of Wales.

172 Deprivation levels vary across local authorities within North Wales. Relatively higher levels of deprivation are observed in Denbighshire and Conwy, with higher concentrations of deprived areas along the North Wales coast.

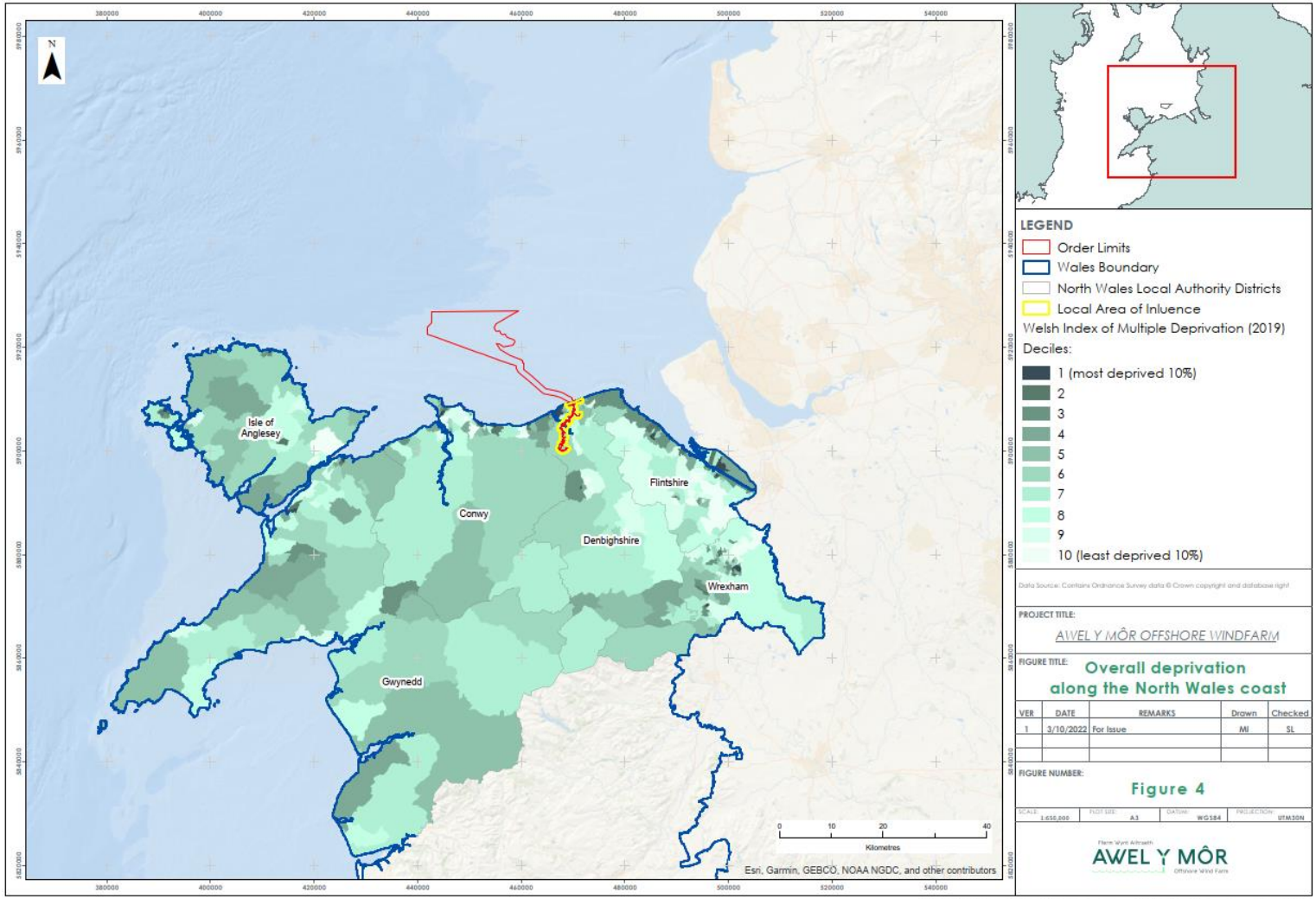

Figure 4: Overall deprivation along the North Wales coast.

Community Facilities

173 Community facilities, such as schools, health facilities, leisure amenities and churches, are primarily concentrated along the coastal areas of Rhyl and Prestatyn. A small number of churches and health facilities have also been identified in the town of Rhuddlan. Pengwern College, an independent provider of specialist further education, can be found to the south west of the town of Rhuddlan.

174 Figure 5 below indicates that there are 10 community facilities within 500 m of the OL, which include:

- Four churches (Beacon Baptist Church, Festival Church Prestatyn, St Illtyd's RC Church, and Parish Church of St Mary);
- Two education facilities (Pengwern College and Ysgol Bryn Hedydd);
- Three health facilities (Sea Bank Surgery, Rhuddlan Clinic, and The Rhuddlan Surgery); and
- One leisure facility (North Wales Bowls Centre)

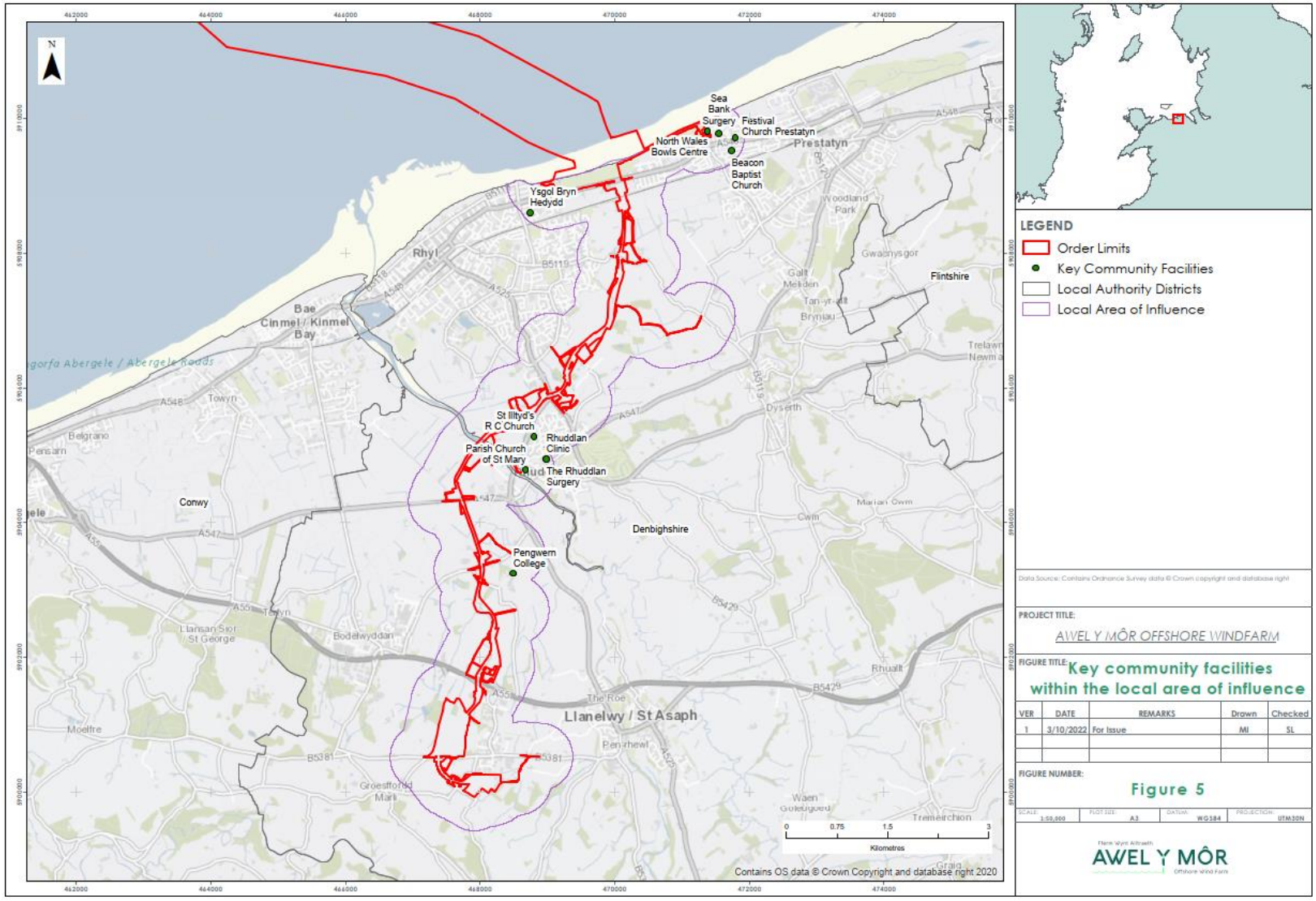

Figure 5: Key community facilities within the local area of influence

Health

175 The Healthy Prestatyn Iach Ty Nant main surgery has two branches within 500 metres of the OL. The Sea Bank Surgery is in Prestatyn. Adjacent to the Rhuddlan Surgery branch is the Rhuddlan Clinic.

176 Betsi Cadwaladr University Health Board provides primary, mental health, community and acute hospital services across North Wales. General practice workforce data identifies 97 main general practitioner (GP) surgeries within the Betsi Cadwaladr University Health Board area as of June 2021. Together these employ a total of 400 GPs.

177 The latest quarterly data for patients registered with GP practices is for July 2021. It is estimated that there were around 707,800 registered patients across North Wales. This implies that each GP serves about 1,769 patients, which exceeds the Welsh average (of 1,619 patients per GP) and is the highest among health boards in Wales. That being said, this average is below the maximum threshold (of 1,800 patients per GP) recommended by the Healthy Urban Development Unit (London HUDU, 2019).

Table 20: GP Coverage per Health Board in Wales

	GP PRACTICES	REGISTERED PATIENTS	NO OF FTE GP PRACTITIONERS	PATIENTS PER GP
Betsi Cadwaladr University Health Board	97	707,800	400	1,769
Total (Wales)	392	3,240,600	2,000	1,769

Source: NHS Digital (2021); StatsWales (2021).

178 The table below shows the location of district general hospitals in the Betsi Cadwaladr University Health Board area. The area is also served by a number of community hospitals and health centres.

Table 21: General District Hospital in North Wales

NAME	LOCATION
Ysbyty Gwynedd	Penrhosgarnedd, Bangor, Gwynedd, LL57 2PW
Glan Clwyd Hospital	Rhyl, Denbighshire, LL18 5UJ
Wrexham Maelor Hospital	Croesnewydd Road, Wrexham, LL13 7TD

179 A House of Commons Library paper from 2017 sets an overall target of 95% of all attendees at A&E facilities to be seen, discharged, admitted and/ or transferred within four hours of arrival. This standard recognises that for 5% of all patients it may not be clinically appropriate to manage them within four hours of arrival at A&E.

180 Data for November 2021 shows that 67.6% of all A&E patients in Wales spend less than the four hours waiting time. This falls to 62% for emergency departments in the Betsi Cadwaladr University Health Board. A notable disparity is observed between major emergency departments (51.5%) and other emergency departments/ minor injury units (97.7%).

181 The COVID-19 pandemic has affected how people choose to use health care services and the offer of some NHS services. Hence, data for November 2019 and November 2020 is used to benchmark the above. The improvement seen across the Betsi Cadwaladr University Health Board in November 2020, driven by the performance of Wrexham Maelor Hospital and Ysbyty Gwynedd, was potentially at least partially attributed to a reduction of accidents during the various national and regional lockdowns implemented throughout 2020 and the start of 2021. A pronounced deterioration has been observed since then (most notably at the Wrexham Maelor Hospital) with performance in November 2021 lagging its pre-pandemic levels in November 2019.

Table 22: A&E Patients Seen in Under 4 Hours, November 2019, November 2020 and November 2021

	NOVEMBER 2019	NOVEMBER 2020	NOVEMBER 2021
Wales	74.1%	75.7%	67.6%
Betsi Cadwaladr University Health Board	70.6%	73.1%	62.0%
Major emergency departments	61.0%	66.3%	51.5%
Wrexham Maelor Hospital	57.1%	63.0%	42.2%
Ysbyty Glan Clwyd	57.5%	53.3%	51.5%
Ysbyty Gwynedd	69.9%	85.9%	62.2%
Other emergency departments/ minor injury units (MIU)	99.6%	100.0%	97.7%
Llandudno General Hospital	99.6%	100.0%	99.2%
Betsi Cadwaladr University Local Health Board MIUs	99.6%	100.0%	97.4%

Source: StatsWales (2021b)

3.7.4 Evolution of the baseline

182 In the absence of AyM, the UK baseline would not be anticipated to be significantly different. The shortfall in offshore wind investment left by AyM not going forward would most likely occur elsewhere, and the offshore wind sector would continue its anticipated growth trajectory (i.e. building towards an overall generation capacity of 40GW by 2030) as per The Industrial Strategy (HM Government, 2017a) and The Offshore Wind Sector Deal (HM Government, 2019).

183 At the North Wales and Wales levels, a future baseline without the presence of AyM would be anticipated to differ slightly from the outcome, should the proposed development be delivered. Overall, the total size and scale of the economy would not be expected to differ significantly from ambitions set out within the various strategies and local plans that cover the study area.

184 Whilst the overall level of project expenditure that is expected to be captured at the North Wales and Wales levels, in both construction and operations, is anticipated to be modest as a proportion of the total, the absence of AyM would most certainly mean a smaller offshore wind sector and related supply chain within both North Wales and Wales. This would include both the direct O&M jobs that could be supported locally at AyM's operations base (should this be based in Wales), as well as the indirect jobs supported within the sector's supply chain.

3.8 Key parameters for assessment

185 This section identifies the Maximum Design Scenario (MDS), also referred to as the project design envelope, against which the project's socio-economic assessment is undertaken. By adopting a parameter-based design envelope, the assessment considers the MDS whilst also retaining the flexibility needed to make improvements in the future in ways that cannot be predicted at the time of ES submission.

186 The design parameters that have been identified to be relevant to socio-economics are outlined in Table 23 below and are in line with both the offshore and onshore project descriptions provided in Volume 2, Chapter 1 (application ref: 6.2.1) and Volume 3, Chapter 1 (application ref: 6.3.1), respectively.

Table 23: Maximum design Scenario.

POTENTIAL EFFECT	MAXIMUM ADVERSE SCENARIO ASSESSED	JUSTIFICATION
CONSTRUCTION		
Direct and indirect employment creation	Construction cost assumptions are based on cost benchmarks (of £/ MW) from The Crown Estate (2019). More detail about potential costs and retained expenditure in North Wales and Wales is provided in Section 3.4. The key assumption driving the assessment of (direct and indirect) employment and GVA impacts is based on AyM having the maximum generation capacity (characterised by 34 larger WTGs).	Construction expenditure incurred by AyM is a key driver of economic impacts. At this stage, detailed cost estimates are not available, and are likely to be highly commercially sensitive. The use of sourcing scenarios based on the potential location of the construction port (i.e. no local construction port or the presence of a construction port in North Wales) allows for an assessment of the positive impacts that could be supported by AyM.

POTENTIAL EFFECT	MAXIMUM ADVERSE SCENARIO ASSESSED	JUSTIFICATION
Direct and indirect GVA creation	For jobs and GVA, the assessment adopts a construction period of up to five-years (the period over which the majority of impacts associated with the development and construction of AyM is assumed to occur).	
Increased demand on healthcare services	An increased demand on healthcare services will be driven by the number of jobs required to support both onshore and offshore installation and commissioning activities, which are in turn based on the construction cost and sourcing assumptions outlined above. A proportion of these jobs is likely to be taken by residents from across North Wales, with the rest having to temporarily relocate to the local area throughout construction.	Labour market evidence (from the 2011 Census of Population) indicates that North Wales has an overall self-containment rate of around 99%. This means that almost all (i.e. 99%) of the residents in employment within North Wales live and work within the same area. It is therefore assumed that 1% of all local (i.e. North Wales) jobs and 100% of non-North Wales jobs required to support onshore construction and commissioning activities may need to temporarily relocate to the area (usually defined as a 60-minute

POTENTIAL EFFECT	MAXIMUM ADVERSE SCENARIO ASSESSED	JUSTIFICATION
	For the assessment of the project's impact on healthcare, the assessment uses a construction period of up to five-years (from start to finish). At this point, it is not possible to predict how demand for on-site employment will change and, as such, it is assumed that employment will be averaged out throughout the construction period.	catchment from the construction port), thereby placing additional pressure on local healthcare services. This is based on the assumption that any workers that temporarily move to the local study area will generate additional demand on healthcare services. In reality, the increase in demand is likely to be substantially lower as workers may choose to remain registered at their current GP (i.e. closer to home). Furthermore, worst-case assessment used in the assessment is that workers involved in offshore construction will be based in North Wales. However, this is dependent on (i) the location of the construction port, and (ii) the accommodation strategy deployed. Recent examples indicate that accommodation vessels may be utilised, thereby reducing the magnitude of impact locally.

POTENTIAL EFFECT	MAXIMUM ADVERSE SCENARIO ASSESSED	JUSTIFICATION
Disruption to community facilities	The assessment of the disruption to community facilities as a result of construction activity is based on the maximum scenario outlined in the assessments considering noise and vibration (Volume 3 Chapter 10 (application ref: 6.3.10)), traffic and transport (Volume 3 Chapter 9 (application ref: 6.3.9)), visual impact (Volume 3 Chapter 2 (application ref: 6.3.2)) air quality (Volume 3 Chapter 11 (application ref: 6.3.11)) and public health (Volume 3, Chapter 12 (application ref: 6.3.12))	The assessment of the disruption to community facilities draws on and aligns with the analysis presented in other aspects.
OPERATION		
Direct and indirect operation employment	Annual operation costs are assumed to amount to around 1.5% of the initial investment (or around £25.7 million per annum). A number of potential locations for AyM's operations base are currently being	Annual operation expenditure incurred by AyM (i.e. expenditure on direct labour, as well as supply chain expenditure) is a key driver of economic impacts. At this stage, detailed cost estimates are not available and are likely to be commercially sensitive.
Direct and indirect GVA creation		

POTENTIAL EFFECT	MAXIMUM ADVERSE SCENARIO ASSESSED	JUSTIFICATION
	considered, including locations in North Wales, and elsewhere in the UK. Should the wind farm's operations base be located in North Wales, it is anticipated that between 40 to 50 FTE jobs would be supported locally. There is a possibility that the existing GyM facilities at Mostyn will be retained (and expanded where necessary) as the base for AyM, as this would yield synergies and enable effective co-ordination with the existing operations of GyM. However, other locations are being considered including elsewhere in North Wales and along the North West England coast. For the purposes of the assessment, the operational lifetime of AyM is assumed to be 25 years.	
DECOMMISSIONING		
At this stage, it is assumed that at the end of the operational lifetime of AyM, all infrastructure will be completely removed. However, closer to the time of decommissioning, it may be decided that removal of infrastructure, such		

POTENTIAL EFFECT	MAXIMUM ADVERSE SCENARIO ASSESSED	JUSTIFICATION
as export cables, would lead to a greater environmental impact than leaving some components *in situ*. In this case, it may be proposed that export cables and landfall infrastructure are to remain *in situ* where appropriate and that any requirements for decommissioning at landfall will be agreed with statutory consultees. For the purposes of this assessment, it is assumed that the effects of decommissioning activities of AyM will be similar to, but no worse than, the impacts identified during the construction phase, and will include: ▲ Dismantling and removal of electrical equipment; ▲ Removal of cabling (and, where required, leaving *in situ*); ▲ Removal and demolition of buildings, fences and services equipment; and ▲ Reinstatement and landscaping works.		

3.9 Mitigation measures

187 Mitigation measures that were identified and adopted as part of the evolution of the project design (embedded into the project design) and that are relevant to socio-economics are listed in Table 24. The mitigation includes embedded measures such as design changes and applied mitigation which is subject to further study or approval of details; these include avoidance measures that will be informed by pre-construction surveys, and necessary additional consents where relevant. The composite of embedded and applied mitigation measures applies to all parts of the AyM development works, including pre-construction, construction, O&M and decommissioning.

Table 24: Mitigation measures relating to socio-economics.

PARAMETER	MITIGATION MEASURES
GENERAL	
Project design	The project has undertaken extensive site selection (including successive design iterations) which has involved incorporating socio-economic, tourism and recreation considerations within the design parameters (See Volume 1, Chapter 4 (application ref: 6.1.4) for a description of the site selection and routing parameters). The project has been reduced from an initially proposed 107 WTGs during the scoping phase, down to 90 WTGs at Statutory Consultation, and a further reduction down to a maximum of 50 WTGs in this final design. The reduction has been in direct response to stakeholder concerns, with the reduction implemented to reduce potential harm and significant impacts to *inter alia* visual receptors.
CONSTRUCTION AND DECOMMISSIONING	
Construction hours	Construction hours for onshore elements of AyM are anticipated to be between 0700 hours to 1900 hours Monday to Saturday, with no work where noise is audible

PARAMETER	MITIGATION MEASURES
	beyond the OL on Sundays, Bank Holidays or during night-time hours without prior agreement.
Rolling construction	Works will generally progress in stages along the route of the onshore ECC, so that individual sections will be affected for a minimum amount of time, rather than for the full onshore construction period (i.e. up to 18-months). Construction of the onshore infrastructure is anticipated to progress in sections. Trenches will be reinstated following installation of the cable conduits so that PRoW (and/or original conditions) can be reinstated as soon as practical, rather than waiting for months for the cable installation itself. It should be noted that, in the worst-case scenario, the haul roads may stay in use for the complete construction period but with traffic controls in place throughout.
Noise and Vibration Management Plan (NVMP)	All construction work will be undertaken in accordance with a NVMP (secured as a requirement of the DCO.) An outline version of the NVMP is provided as an Appendix (application ref: 8.13.2) to the Outline Code of Construction Practice (application ref: 8.13) that sets out the principles to be followed when the final NVMP is finalised.
Perimeter fencing	The construction working area will be enclosed within fencing, enabling continued use of nearby routes whilst work is underway close to, but separated from them. The type of fencing will be selected to suit the location and purpose and will be agreed with DCC and landowners.
OPERATIONS	
Inspection and maintenance	The cable and its infrastructure is designed to require zero maintenance over the operation period. Inspection will be facilitated through link boxes and test pits. The use of these will not impact on recreation in the vicinity.

PARAMETER	MITIGATION MEASURES
	If maintenance or cable repair is required, this is typically achieved by isolating the affected section of the cable circuit and, if necessary, by removing and replacing it through the installed ducts. In some circumstances, minor further excavations are required at the location of the fault.

3.10 Environmental assessment: construction phase

3.10.1 Impact of construction on employment

Overview

188 As outlined in Section 3.4 above, the assessment of the key qualitative measures of economic impact (i.e. employment and GVA output) during the construction phase are driven by the amount of the project's supply chain expenditure that is retained within each of the study areas identified.

189 For AyM, it is estimated that between 2.8%-3.9% of the project's £1.32 billion (2019-pricing) construction costs, or the equivalent of £36.9 to £51.5 million (2019-pricing) will be captured by businesses in the project's supply chain that are based in Wales. At the North Wales level, the overall level of supply chain expenditure retained by local businesses is anticipated to be minimal (up to 1.1% of the Proposed Development's CAPEX), totalling £6.8 to £15.1 million (2019-pricing).

190 Using employment and GVA coefficients, in addition to regional multiplier benchmarks from the Hatch input-output model (Hatch Associates, 2017) derived from UK national accounts data, it is possible to generate estimates for employment as well as economic impact that could be supported by the expenditure retained by Wales and North Wales-based businesses.

191 Table 25 below summarises the potential annual (FTE) employment benefits supported by AyM across the North Wales and Wales study areas.

Table 25: Potential annual employment impacts generated by construction activity.

	NO LOCAL PORT SCENARIO		LOCAL PORT SCENARIO	
	NORTH WALES	WALES	NORTH WALES	WALES
Direct + Tier-1 jobs (FTE)	*10*	*70*	*30*	*90*
Indirect jobs (FTE)	*10*	*60*	*20*	*80*
Total (FTE)	*20*	*130*	*40*	*180*

Source: Calculations by Hatch based on The Crown Estate (2019) and research based on industry standards.

Please note that some totals may not add up due to rounding.

Total (FTE) jobs provided in the table above do not include any jobs that are based outside of Wales. This includes any jobs required to support onshore/ offshore construction which may be required to temporarily be based in North Wales.

192 At the Wales national level, the potential employment impacts generated (i.e. when taking account of the direct, Tier-1 and wider supply chain impact) is estimated to support an average annual employment impact of between 130 to 180 FTE jobs per annum over an assumed five-year development and construction phase. The direct employment effects supported by AyM are anticipated to be concentrated in a relatively small number of employment sectors, namely:

- Port-related activities, particularly storage, transportation, stevedoring associated with the need to use local ports for storage and laydown of turbine towers.
- Charter and operation of non-specialist vessels e.g. for crew transfer. This is reflected in an increased level of local sourcing for (less specialist) vessels in related categories.
- Onshore civils work related to the installation and commissioning of the onshore infrastructure (i.e. including export cable and onshore substation).

193 At the North Wales level, the expenditure retained locally is estimated to support between 20 and 40 FTE jobs throughout AyM's construction phase. Analysis of local supply chain capability undertaken as part of the baseline analysis (see Section 3.7), and the development of construction costs and sourcing assumptions (see Section 3.4), shows that North Wales has specific strengths in manufacturing (LQ 1.9) and civil engineering (LQ 1.6) when compared with the UK average, and both of which are higher than the equivalent level of concentration across Wales (i.e. LQ 1.4 and LQ 1.5 respectively).

Magnitude of impact

194 As set out within the baseline assessment (see Section 3.7), total employment in Wales currently stands in the region of 1.33 million jobs. The 130-180 FTE jobs supported by the two development and construction scenarios explored as part of the assessment of AyM are estimated to represent below 0.02% of the current baseline. On this basis, the magnitude of impact of the Proposed Development on employment at the Wales nation level is therefore assessed as **negligible**.

195 At the North Wales level, the 20-40 FTE jobs supported throughout AyM's development and construction phase are estimated to represent below 0.02% of the current baseline. On this basis, the magnitude of impact of construction activity on employment within North Wales is therefore assessed as **negligible**.

Sensitivity of the receptor

196 Job creation and employment sustainability are identified as a major policy priority at the various levels of government considered in the assessment, including the UK, national (i.e. Wales) and local (i.e. across North Wales) levels.

197 At a UK level, the Industrial Strategy (HM Government, 2017a) sets out the Government's ambition to support the creation of high value jobs and skills, whilst at the same time encouraging clean growth through the '*development, manufacture and use of low carbon technologies, systems and services*'. The offshore wind sector is highlighted as one of these opportunities and, in 2019 the Government, alongside the offshore wind industry committed to a Sector Deal (HM Government, 2019) to help the industry raise its productivity and competitiveness of businesses across the UK. Ultimately the Sector Deal aims to increase UK content to 60% by 2030, therefore building a stronger UK supply chain for the offshore wind sector.

198 A vibrant economy that achieves decarbonisation and climate-resilience is identified as one of the key national priorities for Wales. Furthermore, the development of low carbon energy and associated infrastructure, in addition to the delivery of nationally significant infrastructure projects, are identified as key aspects that will help achieve this.

199 On this basis, the sensitivity of the receptor (i.e. employment) is therefore considered to be **high** at both Wales and North Wales levels.

Significance of residual effect

200 With the sensitivity of the receptor assessed as **high**, and the magnitude of impact assessed as **negligible** at both the Wales and North Wales levels, the effect of AyM on both the Wales and North Wales receptors is of ***minor beneficial*** significance, which is not significant in EIA terms.

201 It is assumed that the effect on employment generated during AyM's development and construction phases is direct and temporary in nature.

3.10.2 Impact of construction on the economy

Overview

202 The employment supported by the development and construction of AyM will also contribute to the size and overall productivity of the Welsh economy, ultimately supporting the recovery effort out of the current downturn experienced as a result of the COVID-19 pandemic.

203 It is estimated that construction activity will contribute to between £8.8 to £11.8 million GVA per annum to the Wales economy, totalling between £44.2 and £59.2 million over the Proposed Development's assumed five-year development and construction phase. Of this, an estimated £8.7 to £15.7 million GVA (or up to £3.1 million per annum) are anticipated to be generated by businesses in North Wales that are engaged in AyM's supply chain.

Table 26: Potential economic impacts supported as a result of development and construction of AyM, (£ million)

	NO LOCAL PORT SCENARIO		LOCAL PORT SCENARIO	
	NORTH WALES	WALES	NORTH WALES	WALES
GVA per annum	*£1.3*	*£6.8*	*£2.4*	*£9.1*
Total GVA	*£6.7*	*£33.9*	*£12.1*	*£45.4*

Magnitude of impact

204 With the size of the Wales economy quantified as £67 billion GVA in 2019 (i.e. the latest year for which estimates are available), it is estimated that AyM's annual contribution (of up to £9.1 million GVA per annum) to the Welsh economy will represent a negligible increase over the latest annual baseline. On this basis, the magnitude of impact to the Welsh economy is therefore assessed as **negligible**.

205 At the North Wales level, the annual contribution generated (of up to £2.4 million) GVA will represent an increase of approximately 0.02% over the current baseline (estimated to be £15 billion in 2019). On this basis, the magnitude of the Proposed Development's impact to the North Wales economy is assessed as **negligible**.

Sensitivity of the receptor

206 Economic growth and, in particular, anything that supports and promotes clean growth, is highlighted as one of the grand challenges in the UK's Industrial Strategy (HM Government, 2017a). This ambition is further reinforced by the Clean Growth Strategy (HM Government, 2017b) which seeks to ensure that economic growth goes hand-in-hand with greater protection for the natural environment, and committing to help businesses and entrepreneurs seize opportunities in a low carbon economy (including offshore wind).

207 On the basis of the reasoning set out above, the sensitivity of the receptor (i.e. economic output) is therefore assessed as **high** at both North Wales and Wales levels.

Significance of residual effect

208 With the sensitivity of the receptor assessed as **high**, and the magnitude of impact assessed as **negligible** at the Wales national level, the effect of AyM on the receptors is of ***minor beneficial***, which is Not Significant in EIA terms.

209 At the North Wales level, the magnitude of impact is assessed as **negligible** and the sensitivity of the receptor assessed as **high**, the effect of AyM on the receptor is of ***minor beneficial*** significance, which is Not Significant in EIA terms.

210 It is assumed that the effect on the economy generated during AyM's development and construction phases is direct and temporary in nature.

3.10.3 Impact of construction on community facilities

Overview

211 This section considers the extent to which onshore construction activity related to AyM may have a direct effect on community facilities located within 500 m of the OL (defined as the LAI). This assessment draws primarily on the research undertaken as part of other aspect chapters submitted as part of the ES assessment, including:

- Volume 3, Chapter 2: Landscape and Visual Impact Assessment (application ref: 6.3.2);

- Volume 3, Chapter 9: Traffic and Transport (application ref: 6.3.9); and
- Volume 3, Chapter 10: Noise and Vibration (application ref: 6.3.10).

Magnitude of impact

212 The baseline analysis has identified 10 community facilities located within a 500 m buffer from the OL (defined as the LAI), which includes six churches, two education facilities, three health facilities and two leisure facilities.

213 Table 27 below identifies the magnitude of impact on users for each of the community facilities located within the LAI based on a review of the assessment of impacts identified in other aspects of the assessment.

Table 27: Magnitude of impact on users of community facilities impacted by onshore construction activity of AyM

COMMUNITY RECEPTOR	DISTANCE TO OL	MAGNITUDE OF IMPACT	JUSTIFICATION
Beacon Baptist Church	*370 m*	*Negligible*	*Located 370 m from the OL, Beacon Baptist Church is not anticipated to experience any adverse impacts related to construction activity.*
Festival Church Prestatyn	*360 m*	*Low*	*Located 360 m from the OL, Festival Church Prestatyn is not anticipated to experience any adverse impacts related to construction activity. That being said, the area may experience increased traffic as the church is located very close to one of the access points to Ffrith Beach.*
St Illyd's RC Church	*310 m*	*Negligible*	*Any visual and/or noise impacts related to construction activity will be hidden by intervening trees and the A525.*
Parish Church of St Mary	*70 m*	*Low*	*Located outside the OL, but very close (70 m) to one of the proposed access routes into the construction site, the Parish Church of St Mary has potential to experience increased traffic and noise disruption related to it. This is mitigated to limiting construction activity (and therefore traffic movements) to agreed working hours.*
Pengwern College	*300 m*	*Low*	*Located around 300 m from the OL, there's potential for noise disruption and visual impacts affecting Pengwern College. Mitigation measures aimed at reducing the project's overall*

COMMUNITY RECEPTOR	DISTANCE TO OL	MAGNITUDE OF IMPACT	JUSTIFICATION
			impacts (including the use of trenchless crossing techniques) will help reduce the overall effect.
Ysgol Bryn Hedydd	*450 m*	*Negligible*	*Located outside the OL, and 450 m from construction activity, Ysgol Bryn Hedydd is not anticipated to experience any adverse impacts related to construction activity.*
Sea Bank Surgery	*130 m*	*Negligible*	*Located outside the OL, and 130 m from landfall construction, Sea Bank Surgery is not anticipated to experience any adverse impacts related to construction activity.*
Rhuddlan Clinic	*420 m*	*Negligible*	*Located outside the OL, 420 m from construction activity, and in the heart of Rhuddlan, both the Rhuddlan Surgery and Rhuddlan Clinic are not anticipated to experience any adverse impacts related to construction activity. In general, Rhuddlan may experience increased traffic due to the A547 and A525 being used as construction access routes.*
The Rhuddlan Surgery	*420 m*	*Negligible*	
North Wales Bowls Centre	*38 m*	*Low*	*Located just outside (38 m) the OL, there is potential impact related to noise and increased traffic however construction management plan will minimise these impacts.*

Sensitivity of the receptor

214 The current position with regards to the community facilities in the LAI is set out in the baseline analysis (see Section 3.7.3).

215 The Adopted Local Plan for Denbighshire includes a policy on community facilities (Policy BSC 12 – Community Facilities), and states that *"[a]ccess to community facilities is an essential element of sustainable and inclusive communities. Community facilities such as schools, theatres, village halls and places of worship often serve a network of small settlements and are essential to reduce the amount of travelling to reach alternative community facilities. The loss of local facilities will lower community sustainability and this can have a knock-on effect on the future well-being of the Welsh language".*

216 Given the importance of community facilities on community sustainability and well-being (especially in the context of the *Well-being of Future Generations Act 2015*), the sensitivity of all receptors located within the LAI is therefore assessed as **medium**.

Significance of residual effectv

217 As outlined in Table 16 the significance of the residual effect is determined by considering its sensitivity alongside the magnitude of impact, giving the results in Table 28.

Table 28: Assignment of significance of residual effect

COMMUNITY RECEPTOR	SENSITIVITY OF RECEPTOR	MAGNITUDE OF IMPACT	SIGNIFICANCE OF EFFECT
Beacon Baptist Church	*Medium*	*Negligible*	***Minor adverse** (not significant)*
Festival Church Prestatyn	*Medium*	*Low*	***Minor adverse** (not significant)*
St Illyd's RC Church	*Medium*	*Negligible*	***Minor adverse** (not significant)*
Parish Church of St Mary	*Medium*	*Low*	***Minor adverse** (not significant)*

COMMUNITY RECEPTOR	SENSITIVITY OF RECEPTOR	MAGNITUDE OF IMPACT	SIGNIFICANCE OF EFFECT
Pengwern College	*Medium*	*Low*	***Minor adverse** (not significant)*
Ysgol Bryn Hedydd	*Medium*	*Negligible*	***Minor adverse** (not significant)*
Sea Bank Surgery	*Medium*	*Negligible*	***Minor adverse** (not significant)*
Rhuddlan Clinic	*Medium*	*Negligible*	***Minor adverse** (not significant)*
The Rhuddlan Surgery	*Medium*	*Negligible*	***Minor adverse** (not significant)*
North Wales Bowls Centre	*Medium*	*Low*	***Minor adverse** (not significant)*

218 It is assumed that the effect on community facilities sustained during AyM's development and construction phase is direct and temporary in nature.

3.10.4 Impact of construction on health services

Overview

219 Based on the sourcing assumptions outlined above, it is estimated that installation and commissioning activity related to AyM has potential to support 150 FTE jobs per annum. Of these, it is estimated that around 30 FTE jobs will be related to onshore installation and commissioning (including construction of the onshore substation as well as construction and installation of the onshore cables), with the rest (around 120 FTE jobs) involved in offshore construction (including foundation and offshore substation installation, turbine installation, and laying of the offshore export and array cables). In addition to these, a further 210 FTE jobs are likely to be required to support offshore construction, and which are likely to be held by non-UK-based workers (although these workers will be based in the UK throughout the construction period). This is an approximate estimate based on best judgement of the assessors.

220 A small number of the jobs required to support both onshore and offshore installation is likely to be based in North Wales, with the rest being based elsewhere in Wales (i.e. outside of North Wales) or the rest of the UK. This means that a number of individuals (i.e. from outside of North Wales) may be required to temporarily relocate to the area to support installation and commissioning activities related to AyM, potentially increasing demand on local health services. This includes the 210 (non-UK) FTE jobs required to support offshore construction.

221 Depending on the sourcing scenario considered, an approximate estimate based on best judgement, is that up to a maximum of 360 non-North Wales employees (i.e. employees who are typically based elsewhere in Wales, the UK or abroad) may need to temporarily relocate to North Wales to support onshore and offshore construction activity. Please note that this figure represents an (evened-out) estimate for the whole (i.e. up to five-year) construction period. In reality, this figure might vary to reflect peaks and troughs during AyM's construction phase.

222 Of the 360 non-North Wales workers, the 30 workers involved in onshore construction are likely to be located in and around Denbighshire (i.e. spilling into Conwy and Flintshire). The rest (i.e. up to 330 workers) are likely to be located within close proximity of the construction port should this be located in North Wales (i.e. the worst-case scenario for this particular receptor). However, in real terms, workers are likely to be dispersed across an area that is defined by a travel to work area of up to a maximum of 60 minutes and the availability of suitable and affordable temporary accommodation.

223 It should be noted that the assessment of non-North Wales workers is based on the conservative assumption of the scale of AyM, which is indicatively assumed to be 576MW for the assessment of employment set out earlier in the chapter. In reality the scale of non-Wales workers set out above may be higher if the capacity of AyM were to be larger than 576MW.

Magnitude of impact

224 Using benchmarks of 1,800 registered patients per FTE GP from the Rapid Health Impact Assessment Tool (London HUDU, 2019), it is estimated that the 360 additional (i.e. non-North Wales) employees required to support both onshore and offshore installation and commissioning works will generate demand for around 0.2 FTE GP. In reality, this number could be lower as a proportion of the non-North Wales based employees may choose to continue accessing healthcare services closer to their place of residence (i.e. outside North Wales). In addition, it is anticipated that any non-UK-based workers required to support offshore installation works will have access to healthcare services provided by the Applicant.

225 The baseline analysis (see Section 3.7) indicates that at the Betsi Cadwaladr University Health Board level, there are an average 1,769 patients registered per GP. It is assumed that this demand can be easily accommodated within the current capacity at the Board level, and that increased demand will add fewer than two additional patients per GP and will not tip the number of registered patients per GP to over the recommended benchmark (of 1,800 patients per GP).

226 The additional workers may also put increased demand on A&E services locally. As per common (and best) practice, the Applicant will seek to implement the highest levels of health and safety for the duration of construction, operations and decommissioning phases of AyM. This will seek to reduce the risk of accidents occurring in the first place. Where accidents happen, individuals trained in dealing with emergencies will be present and/ or brought onsite to reduce the overall impact on emergency health services.

227 The baseline analysis has indicated that at the Betsi Cadwaladr University Health Board level, the proportion of patients seen in under four hours (i.e. 62.0%) is below both the Wales average (67.6.2%) and the UK target (of 95%). This varies depending on the hospital considered and major/ minor injury units. The baseline analysis indicates that the minor injury unit within the Llandudno General Hospital has a 99.2% track record of seeing patients in under four hours, whilst the latest figure for the minor injury unit at Betsi Cadwaladr University Local Heath Board, the overall proportion is 97.4%.

228 On this basis, the magnitude of impact of the Proposed Development on local healthcare services is therefore assessed as **negligible**.

Sensitivity of the receptor

229 Whilst there is uncertainty about the location of the construction port, for the purposes of this assessment, it is assumed that all non-North Wales workers (i.e. including workers from elsewhere in Wales, the UK or internationally) required to support both onshore and offshore construction will be based in North Wales. The overall position with regards to healthcare services (i.e. including primary care and A&E facilities) within the LSA is outlined in the baseline assessment (see Section 3.7). The evidence shows that, whilst the benchmark of residents registered per GP in the Betsi Cadwaladr University Health Board area (i.e. 1,769 patients/ GP) is below the recommended benchmark (i.e. 1,800 patients/ GP), this number is the same as the Welsh national average (i.e. 1,769 patients/ GP).

230 Healthcare infrastructure is a key asset everywhere but is likely to be a key sensitive asset (or in this case receptor) in areas where demand exceeds the availability of services (either due to over-subscription or the location of facilities *vis-à-vis* where demand is likely to come from).

231 On this basis, the sensitivity of the receptor at the LSA level is therefore assessed as **medium**.

Significance of residual effect

232 With the sensitivity of the receptor assessed as **medium**, and the magnitude of impact assessed as **negligible** at the LSA level, the effect of AyM on the receptor is of ***minor adverse*** significance, which is not significant in EIA terms.

233 It is assumed that the effect on employment generated during AyM's development and construction phase is direct and temporary in nature.

3.11 Environmental assessment: operational phase

3.11.1 Impact of operations on employment

Overview

234 Once completed, AyM has potential to support employment in O&M activity, both directly and indirectly through supply chain expenditure on the purchase of goods and services. Whilst a decision on the location of the O&M port is yet to be taken, there is potential that the O&M port for AyM will be located in North Wales, and that all direct labour will be based within the area.

235 It is a possibility that existing facilities such as Mostyn will be utilised (and, if necessary, expanded) as the base for operations management of AyM, as this would yield synergies and enable effective co-ordination with the existing operations team of the GyM offshore wind farm. That being said, there is a possibility that a different facility elsewhere in North Wales or a location outside of North Wales (e.g. in the North West of England) is chosen as AyM's operations base.

236 At this stage it is not possible to quantify the number of direct jobs that will be supported by the project's day-to-day operations. That said, it is estimated that an offshore wind farm the size of AyM will require between 40 to 50 FTE posts (allowing for some degree of efficiency across operations for GyM and AyM). Additional employment will also be supported through supply chain expenditure with businesses located in North Wales and elsewhere in Wales.

237 Table 29 below summarises the potential employment benefits supported during the operations phase of AyM. It shows that up to 180 FTE jobs can be supported through direct, indirect and supply chain expenditure at the Wales national level, of which up to 80 FTE jobs have potential to be based in North Wales.

238 The majority of jobs supported during AyM's operations phase will be through its supply chain expenditure, providing essential goods and services to its day-to-day operations. This reflects the current levels of UK-based sourcing which is estimated to be in the region of 77% of annual OPEX (The Crown Estate, 2019).

Table 29: Potential annual employment impacts supported during operations.

	NORTH WALES	WALES
Direct (FTE)	*Up to 40-50*	*Up to 40-50 (all within North Wales)*
Indirect/ supply chain (FTE)	*30*	*120*
Total (FTE)	*70-80*	*160-170*

Magnitude of impact

239 At a maximum of 70-80 FTE jobs, the employment supported as a result of O&M activity by AyM is estimated to represent a negligible increase over the current employment baseline at the North Wales level. On this basis, the magnitude of impact of the project's operations phase on employment is therefore assessed as **negligible** at the North Wales level. Whilst negligible in magnitude, this would represent an important addition to the local economy, especially in the diversification of jobs, and a growing presence for employment in offshore wind.

240 At the Wales national level, the 160-170 FTE jobs supported as a result of AyM's operations phase are anticipated to represent a negligible increase over the current baseline. On this basis, the magnitude of impact of the project's operations phase on employment at the Wales level is assessed as **negligible**.

Sensitivity of the receptor

241 The evidence underpinning the sensitivity of the receptor during the operations phase is as outlined in the assessment of AyM's construction phase (see paragraphs 196 to 199). On this basis, the sensitivity of the receptor (i.e. employment) is therefore considered to be **high** at both the North Wales and Wales levels.

Significance of residual effect

242 With the sensitivity of the receptor assessed as **high**, and the magnitude of impact assessed as **negligible** at both the Wales and North Wales level, the effect of AyM on both of the receptors is of ***minor beneficial*** significance, which is not significant in EIA terms.

243 It is assumed that the effect on employment generated during AyM's development and construction phase is direct and permanent in nature.

3.11.2 Impact of the operation of AyM on the economy

Overview

244 The employment supported during AyM's operational phase will also contribute to the size and overall productivity of the local and sub-regional economy. This is especially pertinent within the current context where long-term, sustainable and low carbon economic growth is not only being promoted, but actively sought.

245 It is estimated that the operational phase of AyM has potential to generate annual GVA impact of between £32 and £38 million to the Wales national economy, totalling to between £793 million and £962 million over the course of its anticipated 25-year operational lifetime. At the North Wales level, the direct and wider supply chain employment supported has potential to generate an annual impact of between £14 and £17 million, adding up to between £347 and £424 million over AyM's lifetime.

Table 30: Potential economic impacts supported during AyM's operation, (£ million)

	NORTH WALES	WALES
GVA per annum	*£14 - £17*	*£32 - £38*
Total lifetime GVA	*£347 - £424*	*£793 - £962*

Magnitude of impact

246 With the size of the North Wales economy measured at £15 billion GVA, it is estimated that the annual contributions of O&M activity (i.e. including supply chain expenditure) of AyM will represent an increase of a little over 0.1% over the current baseline. On this basis, the magnitude of impact to the North Wales economy is therefore assessed as **low**.

247 At the Wales level, the economy's base currently stands at £67 billion GVA, and therefore an annual contribution of between £33 and £40 million GVA represents less than a 0.1% increase over the current baseline and is therefore assessed as **negligible**.

Sensitivity of the receptor

248 The evidence underpinning the sensitivity of the receptor during the operations phase is as outlined in this assessment of AyM' construction phase (see paragraphs 206 to 207). On this basis, the sensitivity of the receptor (i.e. the economy) is therefore considered to be **high** at both the North Wales and Wales levels.

Significance of residual effect

249 With the sensitivity of the receptor assessed as **high**, and the magnitude of impact assessed as **low** at the North Wales level, the effect of AyM on the receptor is of ***moderate beneficial*** significance, which is significant in EIA terms.

250 With the sensitivity of the receptor assessed as **high**, and the magnitude of impact assessed as **negligible** at the Wales level, the effect of AyM on the receptor is of ***minor beneficial*** significance, which is not significant in EIA terms.

251 It is assumed that the effect on the economy generated during AyM's development and construction phase is direct and permanent in nature.

3.12 Environmental assessment: decommissioning phase

252 The impacts of the decommissioning phase of AyM is assessed in line with the methodology outlined Section 3.4. At this stage, there is uncertainty associated with the potential effects of the decommissioning process. This includes uncertainty about the approach to decommissioning, the technology to be used, associated costs and likely sourcing from within the North Wales and Wales study areas.

253 At this stage, it is assumed that at the end of the operational lifetime of AyM, all infrastructure will be completely removed. However, closer to the time of decommissioning, it may be decided that the removal of some infrastructure (e.g. the export cable) would lead to a greater environmental impact than leaving these components *in situ*.

254 For the purposes of this assessment, it is assumed that the effects of decommissioning activities of AyM will be similar to, but no worse than, the impacts identified during the construction phase, and will include:

- Dismantling and removal of electrical equipment;
- Removal of cabling (or, where required, leaving it *in situ*);
- Removal and demolition of buildings, fences and services equipment; and
- Reinstatement and landscaping works.

255 In principle, it is assumed that the magnitude of impact for all effects considered will mirror (but is likely to be lower than) the magnitude relating to the project's construction phase. Similarly, the sensitivity of the receptor is based on the local, national and UK policy context as well as the current socio-economic conditions (as per the assessment of both construction and operations phases). On this basis, the effect of the decommissioning of AyM is assessed as set out in Table 31 below.

Table 31: Impacts of decommissioning phase of AyM

RECEPTOR	STUDY AREA	MAGNITUDE	SENSITIVITY	SIGNIFICANCE OF EFFECT
THE ECONOMY				
Jobs	*Wales*	*Negligible*	*High*	***Minor beneficial***

RECEPTOR	STUDY AREA	MAGNITUDE	SENSITIVITY	SIGNIFICANCE OF EFFECT
				(Not Significant)
Jobs	*North Wales*	*Negligible*	*High*	***Minor beneficial*** *(Not Significant)*
GVA	*Wales*	*Negligible*	*High*	***Minor beneficial*** *(Not Significant)*
GVA	*North Wales*	*Negligible*	*High*	***Minor beneficial*** *(Not Significant)*
COMMUNITY FACILITIES				
Beacon Baptist Church		*Negligible*	*Medium*	***Minor adverse*** *(not significant)*
Festival Church Prestatyn		*Low*	*Medium*	***Minor adverse*** *(not significant)*
St Illyd's RC Church		*Negligible*	*Medium*	***Minor adverse*** *(not significant)*
Parish Church of St Mary		*Low*	*Medium*	***Minor adverse*** *(not significant)*
Pengwern College		*Low*	*Medium*	***Minor adverse*** *(not significant)*
Ysgol Bryn Hedydd		*Negligible*	*Medium*	***Minor adverse*** *(not significant)*
Sea Bank Surgery		*Negligible*	*Medium*	***Minor adverse*** *(not significant)*
Rhuddlan Clinic		*Negligible*	*Medium*	***Minor adverse*** *(not significant)*
The Rhuddlan Surgery		*Negligible*	*Medium*	***Minor adverse*** *(not significant)*
North Wales Bowls Centre		*Low*	*Low*	***Minor adverse*** *(not significant)*
HEALTHCARE SERVICES				
Healthcare services	*North Wales*	*Negligible*	*Medium*	***Minor adverse*** *(Not Significant)*

3.13 Environmental assessment: cumulative effects

256 The approach to cumulative assessment for AyM takes into account the Cumulative Impact Assessment Guidelines issued by RenewableUK in June 2013, together with comments made in response to other renewable energy developments, and the Planning Inspectorate 'Advice Note 9: Rochdale Approach'.

257 The approach to the socio-economics cumulative effect assessment is in line with that outlined in Volume 1, Chapter 3: Cumulative Effects Assessment. The projects and plans selected as relevant to the assessment of impacts to socio-economics are based upon an initial screening exercise undertaken on a long list. Each project, plan or activity has been considered and scoped in or out on the basis of effect–receptor pathway, data confidence and the temporal and spatial scales involved.

258 For the purposes of assessing the impact of AyM on socio-economics in the region, the cumulative effect assessment technical note submitted through the EIA Evidence Plan and forming Technical Annex 1.3.1 of this ES, screened in a number of projects and plans as presented in Table 32.

259 The specific projects scoped into this cumulative effect assessment, and the tiers into which they have been allocated, are presented in the table below. The operational project included within the table is included due to its completion/ commission subsequent to the data collection process for the AyM and, as such, is not included within the baseline characterisation.

260 It should be noted that an outline planning application for the erection of 5 business buildings (Use Class B1 and B2) with all other matters reserved for further approval (planning reference: 46/2021/0159, DCC) has been considered but was not included in the assessment as AyM will have little relevance to these sites in socio-economic terms.

Table 32: Projects considered within the socio-economic cumulative effect assessment.

DEVELOPMENT TYPE	PROJECT	STATUS	DATA CONFIDENCE ASSESSMENT/ PHASE	TIER
Onshore Wind Farm	The Clocaenog Forest Wind Farm	In operation	High – DCO granted in 2016	Tier 1
(Hydro) Energy Storage	Glyn Rhonwy Pumped Storage		High – DCO granted in 2017	Tier 1
Offshore Wind Farm	North Hoyle Decommissioning	Currently in operation, but due to be decommissioned by 2030	High	Tier 1
Tidal Energy	Port of Mostyn Tidal Lagoon	In planning	High	Tier 1
Tidal Energy	West Anglesey Demonstration Zone	Consented	High	Tier 1
Tidal Energy	Holyhead Deep	Consented	High	Tier 1
Other energy generation	5 MW flexible gas fired power plant	Consented	High	Tier 1
Other energy generation	Elwy Solar Farm	Application Submitted	Medium	Tier 2

261 The cumulative MDS is shown in Table 33 below, which identifies the relevant socio-economic impacts along with the scenarios and justifications considered.

Table 33: Cumulative MDS.

IMPACT	SCENARIO	JUSTIFICATION
CONSTRUCTION		
Cumulative impact on the economy (jobs and GVA) as a result of overlapping construction.	The MDS sees all projects being constructed (or in the case of North Hoyle offshore wind farm, decommissioned) at around the same time as AyM (i.e. between 2026 and 2030).	Concurrent construction (or in the case of North Hoyle decommissioning) has potential to generate the largest impact to the economy in terms of jobs supported and GVA created, through direct and supply chain expenditure. Given the projects' location within the North Wales study area (and within Wales), it is assumed that all projects would have similar impact area(s).
Cumulative impact on disruption to community facilities as a result of overlapping construction.	The MDS is based on concurrent construction. This is relevant for projects which are (physically) located within close proximity of the onshore infrastructure for AyM (which includes the consented 5 MW flexible gas fired power station, and the Elwy solar farm).	Only the two projects identified in the MDS are located within the LAI, and therefore have potential to cause disruption to local community facilities.
Cumulative impact of increased demand on	As per the MDS outlined above, it is assumed that all projects are built (or in	Concurrent construction (or, in the case of North Hoyle offshore wind farm,

IMPACT	SCENARIO	JUSTIFICATION
healthcare services as a result of overlapping construction.	the case of North Hoyle offshore wind farm decommissioning) at the same time. This would see a number of workers based within the North Wales study area, placing additional demand on local healthcare services.	decommissioning) will generate the largest impact in terms of demand on health care services in the local area.
OPERATION AND MAINTENANCE		
Cumulative impact on the economy (jobs and GVA) as a result of overlapping operation phases.	Should all projects identified in Table 32 be built, they will all (except North Hoyle) be operational at the same time as AyM.	The MDS outlined here has the largest potential for impact on the economy (in terms of jobs and GVA).
DECOMMISSIONING		
At this stage there is considerable uncertainty with regards to the cumulative impact arising from the decommissioning phases of the projects identified in Table 32. This relates to not only uncertainty with regards to the specific approaches to the decommissioning process, technology available and costs, but also with regards to the different projects' lifecycle. Should it be the case that all projects identified in Table 32 (except for the North Hoyle offshore wind farm) reach their decommissioning phase at the same time as AyM (which, for the purposes of the assessment, is estimated to be 2055), then the overall magnitude of impact, and scale of effect is anticipated to be similar, albeit lower, than that identified in the assessment of the projects' construction phase.		

3.13.1 Cumulative impact of construction on employment

Overview

262 The projects identified in Table 32 all have potential to create employment opportunities as a result of local expenditure being secured by businesses located within both the Wales and North Wales study areas. Almost all projects identified in Table 32 are anticipated to be built (or, in the case of North Hoyle, undergoing decommissioning) concurrently with AyM (i.e. between 2026 and 2030). The only exception to this is the Clocaenog Forest Wind Farm, which is already in operation (but not included within the baseline due to a typical lag between data gathering and publication of socio-economics data). As such, the Clocaenog Forest Wind Farm is excluded from the assessment of impact on employment (and the economy below) as a result of the projects' construction activity.

263 Information on the level of employment that could be supported as a result of construction activity by the various projects considered varies. The following section provides an overview of each project's impact on employment based on a review of each project's socio-economic impacts (where available).

- The socio-economic assessment of the Glyn Rhonwy Pumped Storage project indicates that an average of around 100 FTE jobs could be supported during construction, which has potential to reach a maximum of 250 FTE jobs at peak construction. Overall, the assessment identifies a minor beneficial residual benefit (i.e. not significant) on regional employment opportunities.
- At present little to no information is available about the anticipated decommissioning of the North Hoyle offshore wind farm (due to commence in 2029). The Crown Estate's Guide to an Offshore Wind Farm (The Crown Estate, 2019) provides a benchmark decommissioning cost of £330,000 per MW. This means that in the case of North Hoyle (with 60 MW generation capacity), the overall costs associated with decommissioning will be in the region of £20 million. This figure is lower than the overall value of construction contracts the assessment has identified as having potential to be captured by businesses in Wales (up to £98.4 million). This suggests that the temporary employment associated with decommissioning activity will be limited.

- Recent news associated with the Port of Mostyn Tidal Lagoon has indicated that construction activity associated with the scheme has potential to create around 300 jobs.
- The latest evidence about the West Anglesey Demonstration Zone suggests that construction of the primary infrastructure (i.e. offshore export cable(s), onshore substation and connection to the grid) will be completed by 2023 (i.e. at least two years before construction on AyM commences). That being said, the demonstration zone has potential to a maximum electricity-generating capacity of 240 MW. This suggests that, whilst there is potential for construction-related employment to be supported, this is expected to be somewhat irregular, and limited in scale.
- The Holyhead Deep project is anticipated to follow a similar pattern to that outlined for the West Anglesey Demonstration Zone, with on-site generation capacity building slowly to 10 MW, eventually reaching up to 80 MW, should additional consent(s) be sought and provided. Overall, the employment impact of the construction of the Holyhead Deep project is anticipated to be limited in scale.
- As employment impacts are not assessed in the Elwy Solar Farm Environment Statement, there is a lack of available information about the potential employment the construction of the consented (5 MW) flexible gas-fired power plant and planned Elwy Solar Farm will have at both regional (i.e. North Wales) and national Wales level. That being said, the overall level of investment required and subsequent employment supported can be expected to be limited.

Magnitude of Impact

264 Whilst construction of the projects identified in Table 32 alongside that of AyM will have an overall beneficial impact, and support growth both in terms of job numbers as well as the capability of local businesses to compete for and secure contracts in energy-related projects, the overall scale of employment supported is expected to be limited (less than a 0.5% increase on baseline employment).

265 On this basis, the magnitude of impact of cumulative construction on employment opportunities at the North Wales is therefore assessed as **negligible**.

266 At the national Wales level, the magnitude of impact of cumulative construction on employment opportunities is assessed as **negligible**.

Sensitivity of the receptor

267 The evidence underpinning the sensitivity of the receptor at both the North Wales and national Wales levels remains as outlined in the assessment of AyM's construction and operation phases.

268 On this basis, the sensitivity of the receptor is therefore considered to be **high** at both North Wales and Wales levels.

Significance of residual effect

269 With the sensitivity of the receptor assessed as **high**, and the magnitude of impact assessed as **negligible** at the North Wales level, the effect of the cumulative projects on employment is of ***minor beneficial*** effect (i.e. not significant in EIA terms). At the national Wales level, with a magnitude of impact assessed as **negligible**, the residual effect of the cumulative projects on employment is of ***minor beneficial*** effect, which is not significant in EIA terms.

3.13.2 Cumulative impact of construction on the economy

Magnitude of Impact

270 The analysis of the cumulative impact of construction at the North Wales and national Wales levels has identified an overall impact of negligible magnitude. However, the magnitude of impact of the cumulative projects' on GVA at the North Wales level is anticipated to be between 0.1%-0.5% increase on baseline GVA and therefore assessed as **low**.

271 At the national Wales level, the magnitude of impact of cumulative construction on the economy is assessed as negligible. **negligible** at the Wales level.

Sensitivity of the receptor

272 The assessment of the construction of AyM on the receptor has indicated that economic growth and, in particular, clean growth, is highlighted as one of the key priorities for both the national Wales and UK Governments. On this basis, the sensitivity of the receptor is therefore considered as **high** at both the North Wales and national Wales levels.

Significance of residual effect

273 With the sensitivity of the receptor assessed as **high**, and the magnitude of impact assessed as **low** at the North Wales level, the effect of the cumulative projects on the economy is of ***moderate beneficial*** effect, which is Significant in EIA terms. At the Wales level, the significance of residual effect on the receptor (i.e. the economy) is assessed as being of ***minor beneficial,*** which is not significant in EIA terms).

3.13.3 Cumulative impact of construction on demand for healthcare services

Overview

274 The analysis of the cumulative impact of construction activity suggests that the overall number of jobs supported locally as a result of concurrent construction is anticipated to be limited. In general, it can be assumed that only a proportion of the jobs supported will be net additions and require the (temporary) relocation of workers to the study area, placing increased demand on local healthcare services.

275 However, it should be noted that not all workers who temporarily relocate to the study area will choose to use healthcare services within the North Wales study area. Indeed, many may choose to continue using the services available closer to their address of residence. Furthermore, it is assumed that for major infrastructure projects (such as the decommissioning of North Hoyle and construction of Port of Mostyn Tidal Lagoon), developers will seek to reduce the risks associated with construction (or decommissioning) activity and ensure that people trained in dealing with emergencies are present onsite in order to reduce the overall impact on emergency health services.

Magnitude of Impact

276 The analysis presented in the baseline analysis suggests that there is currently some capacity within the local health system to absorb any temporary increase in demand. Capacity within the local system is anticipated to be created as more dwellings are built and new healthcare facilities delivered as part of local masterplans and statutory need.

277 On this basis, the overall magnitude of impact of cumulative construction on the receptor (i.e. healthcare services) is therefore assessed as **low.**

Sensitivity of the receptor

278 The analysis underpinning the sensitivity of local healthcare services remains as that outlined in the assessment of AyM's construction and operation phases.

279 On this basis, the sensitivity of the receptor is therefore assessed as **medium**.

Significance of residual effect

280 With the sensitivity of the receptor assessed as **medium**, and the magnitude of impact assessed as **low**, the effect of concurrent construction of the cumulative projects on the receptor is therefore identified as ***minor adverse***, which is not significant in EIA terms.

3.13.4 Cumulative impact of operations on employment

Overview

281 In general, for the majority of projects included within Table 32, it is anticipated that employment supported during their respective operation phase will be lower than that sustained during their respective construction (or, in the case of North Hoyle, decommissioning) phases. Most of the projects are designed to operate passively and will therefore require minimum (direct) oversight during operations. One of the projects identified (i.e. the North Hoyle offshore wind farm) will no longer support employment once it is fully decommissioned.

Magnitude of Impact

282 On the basis of the above, it is assumed that the overall number of jobs supported during the projects' operation phases will be lower than that supported during their respective construction and would therefore have a **negligible** magnitude of impact on the receptor at both the North Wales and national Wales levels.

Sensitivity of the receptor

283 As outlined in the assessment of AyM (both on its own and cumulatively with other projects), the sensitivity of employment at both the North Wales and national Wales level is identified as being **high**.

Significance of residual effect

284 With the sensitivity of the receptor assessed as **high** and the magnitude of impact assessed as **negligible** at both the North Wales and national Wales level, the significance of the residual effect on employment is of ***minor beneficial*** significance, which is not significant in EIA terms.

3.13.5 Cumulative impact of operations on the economy

Magnitude of Impact

285 In line with the analysis of the cumulative impacts on employment outlined above, it is assumed that the magnitude of impact of the projects identified as part of the CEA (including AyM) at both the North Wales and national Wales level is therefore assessed as **negligible**.

Sensitivity of the receptor

286 As outlined in the assessment of AyM, and the cumulative assessment of the projects' construction phases, the sensitivity of economic growth at both the North Wales and national Wales level is identified as **high**.

Significance of residual effect

287 With the sensitivity of receptor assessed as **high** and the magnitude of impact assessed as **negligible** at both the North Wales and national Wales level, the effect of cumulative projects on the receptor (i.e. the economy) is of ***minor beneficial*** significance, which is not significant in EIA terms.

3.14 Inter-relationships

288 The potential for inter-related impacts has already been undertaken throughout this chapter through the consideration of the following ES chapters:

- Volume 3, Chapter 4 Tourism and Recreation (application ref: 6.3.4);
- Volume 3, Chapter 9 Traffic and Transport (application ref: 6.3.9);
- Volume 3, Chapter 10 Noise and Vibration (application ref: 6.3.10);
- Volume 3, Chapter 11 Air Quality (application ref: 6.3.11); and
- Volume 3, Chapter 12 Public Health (application ref: 6.3.12).

3.15 Transboundary effects

289 Transboundary effects arise when impacts from a proposed development within one European Economic Area (EEA) state affects the environment of another EEA state(s).

290 For socio-economics, the potential for transboundary effects has been identified in relation to the potential impact upon the economies of other states within the EEA. This may arise through the purchase of project components, equipment and the sourcing of labour from companies based outside the UK. Under regulation 32 part 6(a) of the 2017 regulations, the Secretary of State must consult with any EEA state concerned regarding the potential significant effects of the development on the environment of that EEA state, and the measures envisaged to reduce or eliminate such effects. However, the sourcing of materials and labour from other EEA states is assumed to provide beneficial effects in the economies of such EEA states and, as such, the consideration of *"measures envisaged to reduce or eliminate such effects"* is not relevant within the context of transboundary impacts.

291 No significant transboundary seascape, landscape and visual effects are likely to arise. The onshore elements of AyM will entirely be located within the UK and, as such, there is no potential for significant adverse transboundary socio-economic effects on other EEA states.

292 Given the above, transboundary impacts associated with socio-economics are therefore not considered further.

3.16 Summary of effects

293 Table 34 presents a summary of this assessment of significant impacts, any relevant embedded environmental measures and residual effects on socio-economic receptors.

Table 34: Summary of effects.

IMPACT	MAGNITUDE	SENSITIVITY OF RECEPTOR	MITIGATION MEASURES	RESIDUAL EFFECT
CONSTRUCTION				
Employment (North Wales)	Negligible	High	n/a	***Minor beneficial*** (Not significant)
Employment (Wales)	Negligible	High	n/a	***Minor beneficial*** (Not significant)
The economy (North Wales)	Negligible	High	n/a	***Minor beneficial*** (Not significant)
The economy (Wales)	Negligible	High	n/a	***Minor beneficial*** (Not significant)
Community Facilities (LAI)	Negligible (for Beacon Baptist Church, St Illud's RC Church, Ysgol Bryn Hedydd, Sea Bank Surgery, Rhuddlan Clinic, and The	Medium	• Working hours • Rolling construction • NVMP • Perimeter fencing	**Minor adverse** (Not significant)

IMPACT	MAGNITUDE	SENSITIVITY OF RECEPTOR	MITIGATION MEASURES	RESIDUAL EFFECT
	Rhuddlan Surgery); and Low (for North Wales Bowls Centre, Festival Church Prestatyn and Parish Church of St Mary)			
Healthcare Services (LSA)	Negligible	Medium	n/a	**Minor adverse** (Not significant)
OPERATION				
Employment (North Wales)	Negligible	High	n/a	***Minor beneficial*** (not significant)
Employment (Wales)	Negligible	High	n/a	***Minor beneficial*** (not significant)
The economy (North Wales)	Low	High	n/a	***Moderate beneficial*** (significant)
The economy (Wales)	Negligible	High	n/a	***Minor beneficial*** (not significant)

IMPACT	MAGNITUDE	SENSITIVITY OF RECEPTOR	MITIGATION MEASURES	RESIDUAL EFFECT
DECOMMISSIONING				
It is assumed that the residual effect for all socio-economic receptors will mirror (but are likely to be lower in magnitude) to the project's construction phase. Based on the assessment, it is anticipated that the decommissioning of AyM will have a ***minor beneficial*** (i.e. not a significant effect) on the North Wales economy.				
CUMULATIVE EFFECTS				
Impact of construction on employment (North Wales)	Negligible	High	n/a	***Minor beneficial*** (Not Significant)
Impact of construction on employment (Wales)	Negligible	High	n/a	***Minor beneficial*** (Not Significant)
Impact of construction on the economy (North Wales)	Low	High	n/a	***Moderate beneficial*** (Significant)

IMPACT	MAGNITUDE	SENSITIVITY OF RECEPTOR	MITIGATION MEASURES	RESIDUAL EFFECT
Impact of construction on the economy (Wales)	Negligible	High	n/a	***Minor beneficial*** (Not Significant)
Impact of construction on demand for healthcare services (LSA)	Low	Medium	n/a	***Minor adverse*** (Not Significant)
Impact of operations on employment (North Wales)	Negligible	High	n/a	***Minor beneficial*** (Not Significant)
Impact of operations on employment (Wales)	Negligible	High	n/a	***Minor beneficial*** (Not Significant)
Impact of operations on the economy (North Wales)	Negligible	High	n/a	***Minor beneficial*** (Not Significant)
Impact of operations on the economy (Wales)	Negligible	High	n/a	***Minor beneficial*** (Not Significant)

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Errata List

Number of Full Time Equivalent (FTE) Jobs

In response to ExQ1.18.6, the Applicant can confirm that the opening sentence in paragraph 219 can be clarified as it currently states that installation and commissioning activity will support 150 FTE jobs per annum in the local port scenario.

These only relate to jobs which are expected to be taken by UK residents. If those jobs taken by non-UK workers are also included, the total number of jobs is 360. Based on the modelling assumptions for the local port scenario, around 15 of these jobs are expected to be taken by North Wales residents, c. 30 would be taken by residents from other parts of Wales, 105 by residents from the rest of the UK (outside Wales), and the remaining 210 by people from outside the UK.

Healthcare Demand

In response to ExQ1.18.6, the Applicant notes that Paragraph 224 states that the assessment considers the impact of 360 workers on healthcare provision. This was an error as 15 of these workers are expected to already live in North Wales and would not generate additional demand for healthcare. Therefore, the assessment should consider the impact of 345 workers. This does not alter the findings as this would still result in a non-significant effect.

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