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To: [Wylfa Newydd](#)
Subject: RE: IACC Deadline 2 Submission : Local Impact Report - Economic Development - Local Employment (email 5)
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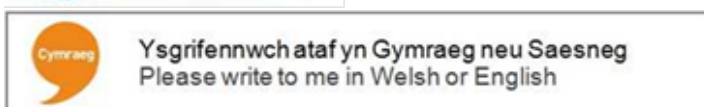
Bydd fersiwn Gymraeg yn cael ei ddarparu cyn gynted a phosib / A Welsh version of the submission will be provided in due course.

Cofion/ Regards,
Manon

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DEMAND FOR SKILLS AND SUPPLY OF LOCAL PEOPLE

REPORT FOR ISLE OF ANGLESEY COUNTY
COUNCIL

MAY 2018



CYNGOR SIR
YNYS MÔN
ISLE OF ANGLESEY
COUNTY COUNCIL

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May 2018

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EXECUTIVE SUMMARY

In this report we analyse, in so far as possible, whether the supply of local labour matches the demand across Anglesey and Gwynedd when factoring in the needs of Wylfa Newydd. We find that the local economy should have sufficient numbers of labour at each qualification level to meet demand up to 2023, subject to effective mitigation. However, there is likely to be a shortfall in the supply of labour qualified to NVQ 4+ in STEM subjects.

Annual demand and supply of skills to 2023, Anglesey and Gwynedd

Can supply meet demand?	Qualification	Demand	Supply	Assessment
	NVQ 4+: All subjects	2,700	2,200 joiners are estimated to come from the unemployed and economically inactive each year. - There are approximately 3,500 graduates per annum from Bangor University, of which c.2,900 are expected to join the labour market in the UK.	- The demand for labour with NVQ 4+ qualifications is likely to be met. - The bulk of supply will come from the 2,200 joiners / re-joiners. - It is reasonable to assume that Môn a Menai could retain 500 of the estimated 2,900 graduates that enter the labour market each year.
	NVQ 4+: STEM subjects	600	- There are over 300 graduates in STEM subjects each year from Bangor University. - c.200 STEM graduates are estimated to find work in the UK each year. - However, this estimate may be high given the share of non-Welsh students at the University.	- Some of the 2,200 joiners from unemployment and or inactivity are likely to be qualified in STEM subjects, but the exact number is unknown. It is likely to be a small percentage (given what we know in relation to the share of graduates who study STEM subjects). - Although there are approximately 200 STEM graduates estimated to enter the UK labour market from Bangor University, the local economy will not retain all them. - Therefore, there will likely be a shortfall in the supply of labour with NVQ4+ qualifications in STEM subjects.
	NVQ 3: All subjects	2,030	- We estimate there could be approximately 1,800 joiners from the unemployed/economically inactive with NVQ 3 qualifications. - In addition, there is an annual flow of approximately 4,100 graduates from further education. - Furthermore, 100 school leavers achieve A levels each year.	Demand will likely be met by the existing population. Môn a Menai will need to retain only 200 graduates from further education or school to meet demand.
	NVQ 3: Construction/engineering	300	330 graduates in construction and engineering subjects.	This should be a sufficient flow of skilled construction labour to meet demand (if the local economies successfully retain labour).
	NVQ 2: All subjects	1,970	- We estimate there could be approximately 1,800 joiners from the unemployed/economically inactive with NVQ 2 qualifications. - In addition, there is an annual flow of approximately 1,300 graduates from further education and a further 1,300 school leavers who do not continue with their education. .	Demand should be met by the existing population, school leavers and Further Education graduates.
	NVQ 2: Construction/Engineering	140	550 graduates in construction and engineering subjects.	The supply of construction and engineering skills should be sufficient to meet demand.

Source: Oxford Economics

DEMAND FOR SKILLS

The Wylfa Newydd development will enable the local economy to enter a unique period of economic activity.¹ **The growth scenario estimates demand for 18,800 workers in Anglesey up to 2023, an increase of almost a third (4,400 workers) over the baseline scenario. When combined with the requirement in Gwynedd, total demand increases to 53,500 over this period.**

The overall requirement is highest for workers qualified to NVQ level 4+, where demand across Môn a Menai equates to 2,700 per year (35 percent of the total), of which Anglesey requires 850 per year. This is followed by NVQ levels 2 and 3, 2,030 and 1,970 workers are required each year respectively, of which 750 and 690 will be required in Anglesey. In each case, only a minority (800 for NVQ level 4+, and 500 for NVQ levels 2 and 3) would be required on-site, with the remaining constituting either new jobs elsewhere in Anglesey or replacement demand.

This finding aligns with the North Wales Regional Skills & Employment Plan, a strategy document that considers the need for post 16+ skills and training investment required to enable the North Wales Growth Vision to achieve its objective of adding £7.2 billion to the value of the economy by 2035.² This document identifies the need to address a workforce replacement demand gap, rather than a skills gap, as the “*primary longer term challenge*” for the North Wales labour market. More specifically, the Plan identifies a “*need to further identify a change in approach to resourcing and staffing larger projects across the region due to an aging workforce, displacement, and retention issues for younger workers*”.

Analysis of the relationship between occupations and degree-level subjects shows demand for 4,300 workers qualified in STEM subjects to NVQ level 4+ up to 2023, equivalent to 600 jobs per annum. Similarly, it is estimated that demand for construction and/or engineering qualifications will equate to 2,150 and 1,500 for NVQ levels 3 and 2 respectively up to 2023, or 300 and 210 jobs per annum.

While qualification levels form a good benchmark for securing employment, in practice employers consider this alongside a range of other factors, including relevant job experience and intangible factors such as soft skills in assessing the suitability of job candidates.

SUPPLY OF LABOUR AND SKILLS

Môn a Menai’s working age population is forecast to contract. **In the seven years to 2023 we expect the population aged 16 to 64 to fall by over 500 people.** Furthermore, there is limited capacity in the unemployed, and only a small share has experience within skilled trade occupations. In addition, the

¹ It is important to note that this analysis considers demand arising from the Wylfa Newydd development only, and therefore does not incorporate the labour market impacts of other schemes (such as a new Menai Bridge or upgrades to the A55).

² North Wales Economic Ambition Board, *North Wales Regional Skills & Employment Plan 2017* (Wales: North Wales Economic Ambition Board, 2017).

prevalence of long-term unemployment suggests up-skilling would be required to involve them in the new build.

Economic inactivity represents a significant segment of the working age population in Môn a Menai. **In 2016 there was over 4,000 working age inactive people who could potentially have joined the labour market.**

We estimate that the majority of vacancies (89 percent) will be filled from re-joiners from both the unemployed and economically inactive. However, the extent to which this population may meet the requirements of employers will be determined by the suitability of the skills and qualifications they hold.

Anglesey and Gwynedd benefit from the presence of Bangor University and student numbers have grown relatively strongly, especially in subject areas which lend themselves to engineering and the sciences generally. Over 3,500 graduate each year with over 300 in STEM related courses, although many of these are overseas students who are less likely to be retained in the Môn a Menai labour market than local resident graduates.

The Grŵp Llandrillo Menai college is also a source of supply. Each year c.4,100 students graduate to NVQ level 3 (350 in construction and engineering). In addition, 1,300 achieve NVQ level 2 (550 in construction and engineering). A further 1,300 school leavers graduate with 5 GCSEs. Though some achieving NVQ 2 will continue with studies. Finally, the migrants joining the labour force are likely to be more qualified than the local population.

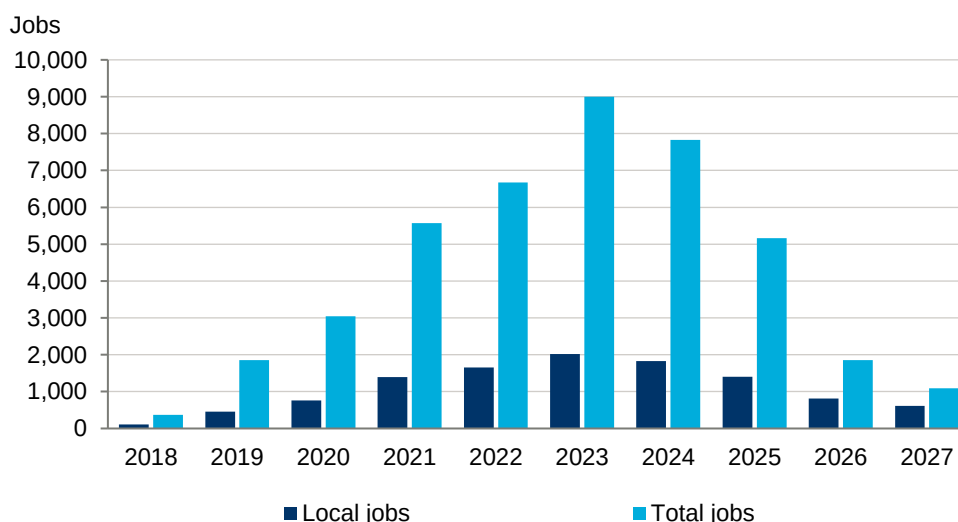
1. INTRODUCTION

1.1 A MAJOR BOOST TO LOCAL DEMAND...

The planned investment at Wylfa Newydd represents a once in a generation boost to economic activity for the Isle of Anglesey and the wider North Wales region. Horizon currently estimate that it will create 9,000 jobs at peak construction in 2023 and that 22.4 percent (2,000) of these jobs will be open to the 'local' population.

To put this in context, the latest data from the LFS shows that there were only 1,400 of the Anglesey population aged over 16 unemployed. In addition, Oxford Economics' baseline forecasts (i.e. without the Wylfa Newydd development) suggest that workplace jobs in the Isle of Anglesey will rise from 25,600 in 2016 to 26,800 in 2023, equivalent of 1,200 net new jobs over the seven-year period. Therefore, the additional 2,000 jobs will represent growth of 7.5 percent over our baseline forecast for 2023.

Fig. 1. Direct construction related jobs, 2016-2028



Source: Oxford Economics

1.2 ...BUT WHAT OF SUPPLY?

Given the substantial increase in demand for labour during the construction period, the Isle of Anglesey County Council (IACC) have commissioned this study to analyse the supply and demand of skills in the local economy. In this report we analyse, in so far as possible, whether the supply of local labour in Anglesey and Gwynedd matches the demand for labour across Anglesey and Gwynedd when factoring in the needs of Wylfa Newydd. In doing so we draw conclusions on whether it is possible to increase the local participation rate and consider (with input from IACC) where intervention is required to increase the supply of local people working on the Wylfa Newydd project.

REGIONAL SKILLS EVIDENCE

A key document that underpins this analysis is the Regional Skills & Employment Plan (2017), published by the North Wales Economic Ambition Board (NWEAB). This report sets out how it intends to support the North Wales Growth Vision's ambition to add £7.2 billion to the value of the regional economy by 2035. It acknowledges the importance of working with partners across industry, education and government to support the improvement of the region's skills base, ensuring that it continues to respond to employer needs while achieving positive socio-economic outcomes.

The document identifies the primary long-term challenge for North Wales is to address a workforce replacement demand gap, as much as a skills gap. In relation to this, the document makes the following points:

- *“[A] need to further identify a change in approach to resourcing and staffing larger projects across the region due to an aging workforce displacement, and retention issues for younger workers*
- *More visible entry points to apprenticeships which upskill the current workforce as well as new entrants into smaller and medium sized enterprises in addition to the larger established employers*
- *The Growth Deal should not be seen as a replacement for current EU funding, so clarity is needed on where this will be sourced in the future to support regional skills projects and interventions*
- *Greater promotion of digital skills aligned to the STEM agenda, due to its growing cross-sector impact on productivity and innovation for businesses of all sizes and within all sectors*
- *Promotion of wider core and transferable business skills in sectors affected by displacement due to larger projects, with training and support promoted for small and micro businesses; and*
- *[A] need for a regionally aligned and coordinated careers and employment service approach amongst partners, that extends from schools and our work on influencing the new Curriculum for Wales forward into the current labour market.”*

The Plan recognises a series of projects that are likely to place additional demands on the local labour market. Of the 11 regional projects, three are in Anglesey (Wylfa Newydd, Orthios Biomass Plant and Land & Lakes) while a further two are in Gwynedd (Llanbedr Space Port and Trawsfynydd Nuclear Modular Reactor). While these schemes may not be fully committed, and this study by Oxford Economics focusses only on the additional demand arising from the Wylfa Newydd development, it is nevertheless important to acknowledge the cumulative impact of these schemes on the demand for skills across the North Wales sub-region.

Supporting the Plan, the Regional Labour Market Intelligence report (2017) provides a summary of the economic performance of North Wales. This includes a survey of employers, informing both the extent of skills deficiencies across the sub-regions, and how firms commonly respond to them. The findings of both the Regional Skills & Employment Plan and Labour Market Intelligence report have been taken into consideration in informing the analysis detailed in this report.

2. DEMAND VS SUPPLY OF SKILLS

2.1 INTRODUCTION

This section sets out the high-level results of the analysis. We provide more detailed analysis on demand and supply in subsequent sections of the report. The analysis was undertaken over the period 2017 to 2023 to account for the fact that employment data is only available to 2016 and 2023 represents the peak year of labour demand at Wylfa Newydd.

2.2 SUMMARY OF FINDINGS

We estimate that Anglesey will need to find an additional 18,400 employees up to 2023 to meet overall demand arising from general economic growth, replacement of leavers (retirees, out-migrants and those that switch occupations) and demand from Wylfa Newydd. **Demand rises to 53,500 additional employees by 2023 when considering demand across both Anglesey and Gwynedd.**

The demand for skills is affected by general growth in the labour market, the movement of labour between occupations, leavers from the labour market, and demand at Wylfa Newydd. The supply of skills is affected by those returning to the labour market from inactivity, migrants, commuting and the flow of new labour from schools, Further Education and Higher Education.

Fig. 2 compares annual demand for labour to the supply of skills in Anglesey and Gwynedd up to 2023. We discuss each qualification type in the sub-sections that follow.

53,000

Demand for labour up to 2023 in both Anglesey and Gwynedd.

18,400 required in Anglesey alone.

Fig. 2. Annual demand and supply of skills to 2023, Anglesey and Gwynedd

Qualification	Demand	Supply	Assessment
NVQ 4+: All subjects	2,700	2,200 joiners are estimated to come from the unemployed and economically inactive each year. - There are approximately 3,500 graduates per annum from Bangor University, of which c.2,900 are expected to join the labour market in the UK.	- The demand for labour with NVQ 4+ qualifications is likely to be met. - The bulk of supply will come from the 2,200 joiners / re-joiners. - It is reasonable to assume that Môn a Menai could retain 500 of the estimated 2,900 graduates that enter the labour market each year.
NVQ 4+: STEM subjects	600	- There are over 300 graduates in STEM subjects each year from Bangor University. - c.200 STEM graduates are estimated to find work in the UK each year. - However, this estimate may be high given the share of non-Welsh students at the University.	- Some of the 2,200 joiners from unemployment and or inactivity are likely to be qualified in STEM subjects, but the exact number is unknown. It is likely to be a small percentage (given what we know in relation to the share of graduates who study STEM subjects). - Although there are approximately 200 STEM graduates entering the UK labour market from Bangor University, the local economy will not retain all them. - Therefore, there will likely be a shortfall in the supply of labour with NVQ4+ qualifications in STEM subjects.
NVQ 3: All subjects	2,030	- We estimate there could be approximately 1,800 joiners from the unemployed/economically inactive with NVQ 3 qualifications. - In addition, there is an annual flow of approximately 4,100 graduates from further education. - Furthermore, 100 school leavers achieve A levels each year.	Demand will likely be met by the existing population. Môn a Menai will need to retain only 200 graduates from further education or school to meet demand.
NVQ 3: Construction/ engineering	300	330 graduates in construction and engineering subjects.	This should be a sufficient flow of skilled construction labour to meet demand (if the local economies are successfully retain labour).
NVQ 2: All subjects	1,970	- We estimate there could be approximately 1,800 joiners from the unemployed/economically inactive with NVQ 2 qualifications. - In addition, there is an annual flow of approximately 1,300 graduates from further education and a further 1,300 school leavers who do not continue with their education. .	Demand should be met by the existing population, school leavers and Further Education graduates.
NVQ 2: Construction/ engineering	140	550 graduates in construction and engineering subjects.	The supply of construction and engineering skills should be sufficient to meet demand.

Source: Oxford Economics

2.3 DEMAND AND SUPPLY AT NVQ LEVEL 4+

2.3.1 General

Up to the peak year of demand in 2023, 18,800 people of qualification level NVQ 4+ (e.g. degree level or above) will be required across both Anglesey and Gwynedd, equivalent to an annual demand for 2,700 workers.

Analysis of the 'joiners' to the labour market, from the unemployed and economically inactive, suggests that an annual flow of 2,200 workers may take up positions who are qualified to NVQ level 4+. Excluding the subject or type of

2,700

Annual demand for NVQ4+

*Compared to 3,500
graduates per year from
Bangor University*

NVQ4+ qualification for now, this level of entrants / returners implies a shortfall of approximately 500 graduates each year.

Data for the academic years 2011/12 to 2016/17 suggest approximately 3,500 students graduate from Bangor University annually, of which an estimated 2,900 find work. While this number exceeds the overall annual demand in Anglesey and Gwynedd, we cannot assume all of them will join the local labour market:

- Firstly, higher education institutions typically have large catchment areas, drawing in students who live across the UK and internationally (13.6 percent of Bangor University's 2015/16 enrolments were from outside the UK). Once graduated, it is likely that many will leave the local area. While there is some evidence of relatively strong graduate retention on a regional basis³, this is less likely to hold at a local level. Analysis by the Centre for Cities shows that only three cities in the UK were able to retain a majority of their graduates as residents.⁴ We should note there will be an off-setting affect where residents of Môn a Menai will who studied elsewhere and return.
- Secondly, the future rate of labour market participation of graduates is unknown (although we have estimated above). Although labour market participation tends to be higher in the younger population, it is likely that some graduates will choose not to join the labour market for various reasons. As evidenced in Section 6, approximately a sixth of graduates tend to not join the labour market, either to undertake further study or for other reasons.

Despite this, the shortfall of 500 NVQ4+ workers equates to just 17 percent of graduates from Bangor University who we estimate will find work. We therefore anticipate that **the overall supply of NVQ level 4 qualified workers will be sufficient to meet demand.**

2.3.2 STEM related NVQ 4+

However, we expect there to be a shortfall of labour qualified to NVQ 4+ in STEM subjects.⁵ Our analysis shows that, despite demand for approximately 600 STEM related graduates each year, there are only around 200 STEM graduates entering the labour market from Bangor university each year.

Even if it is assumed that all 200 STEM graduates find employment locally (which could be a significant challenge given only 35.5 percent of students at the University are Welsh), there remains a shortfall of around 400 workers per annum. While we might expect some of the joiners from unemployment and inactivity to be qualified in these subject areas, the scale is unlikely to meet this shortfall. We therefore anticipate an **undersupply of NVQ level 4 qualified workers in STEM subjects.**

400

Minimum estimated shortfall
of STEM graduates each
year

200 graduates per year from
Bangor University who find
employment

³ <https://www.hesa.ac.uk/data-and-analysis/students/destinations>

⁴ <http://www.centreforcities.org/reader/great-british-brain-drain/migration-students-graduates/11-graduate-retention-rate-city-201314-201415/>

⁵ Science, technology, engineering and mathematics.

Of course, commuting patterns could change and well paid job opportunities at Wylfa Newydd could attract qualified individuals from outside Anglesey and Gwynedd, but it is unlikely to address the shortfall.

2.4 DEMAND AND SUPPLY AT NVQ LEVEL 3

2.4.1 General

Up to 2023, 14,200 people of qualification level NVQ 3 (e.g. further education) will be required across Môn a Menai, equivalent to an annual demand for 2,030 workers. We estimate that approximately 1,800 of these positions could be filled by NVQ 3 qualified workers re-joining the labour market from unemployment and inactivity.

In addition, we estimate that 4,200 NVQ level 3-qualified students graduate each year mainly from the Further Education college. Like graduates from Higher Education some will leave the labour market. A proportion will also continue their education. Regardless, **the scale of the annual flow of individuals qualified to NVQ 3 and those entering the labour from unemployment and inactivity should be able to meet demand.**

2.4.2 Construction and skilled trade related

A significant proportion of labour demand in the economy will come from the construction sector. We estimate employment levels in the construction sector will grow by 6,500 by 2023. Our estimates by occupation show that of the 53,500 jobs that need filled to 2023, 8,100 are in skilled trades (a further 12,900 are in elementary occupations). Of this 4,000 are construction related with 2,100 at NVQ 3 and 900 at NVQ 2. Consequently, there is estimated to be an annual demand for 300 individuals with construction related NVQ 3 qualifications.

Analysis leavers of the Grŵp Llandrillo Menai college shows that approximately 330 students graduate each year with NVQ level 3 qualifications in engineering and construction subjects. **This should be a sufficient flow of skilled construction labour at NVQ 3 to meet demand.** However, this pool of labour will shrink as some progress to Higher Education or continue their studies, some take jobs outside of Anglesey and Gwynedd and some don't enter the labour market.

2.5 DEMAND AND SUPPLY AT NVQ LEVEL 2

2.5.1 General

Up to the peak year of demand in 2023, 13,800 people of qualification level NVQ 2 (e.g. school leavers) will be required across Môn a Menai, equivalent to an annual demand of nearly 1,970 workers. We estimate that a maximum of 1,800 of these positions could be filled by NVQ 2 qualified workers re-joining the labour market from unemployment and inactivity.

Analysis of the supply of students leaving education at year 11 shows that, of the annual flow of 2,100 students across Môn a Menai, approximately 1,600 will achieve this level of qualification. When netted off against those that go on to achieve NVQ level 3 and above qualifications, the annual flow of NVQ level 2

graduates equates to 1,300 students. In addition, we estimate that approximately 1,300 students graduate with an NVQ 2 from Grŵp Llandrillo Menai college each year (though some will continue in education).

Even taking into account factors such as labour market participation of school leavers and Further Education graduates⁶, the evidence suggests that **the supply of NVQ level 2 qualified workers will be able to meet demand.**

2.5.2 Construction and skilled trade related

As noted above there is an estimated demand for 1,500 jobs at NVQ 2 qualification with annual demand of around 140 individuals with construction related NVQ 2 qualifications.

Analysis of college graduates shows an annual flow of approximately 550 graduates in engineering and construction-related subjects at NVQ level 2. Should this flow of graduates continue, in addition to the likelihood that at least some of the workers re-joining employment will be qualified in these subjects, the evidence suggests that **the supply of NVQ level 2 qualified workers in engineering and construction subjects will be able to meet demand.**

⁶ Individuals who are better qualified tend to have greater labour market participation rates, as the greater compensation for doing so (in the form of higher wages) acts as a greater incentive to work. Consequently, we would expect those with lower qualification levels to be disproportionately likely to be economically inactive.

3. BASELINE DEMAND FOR SKILLS

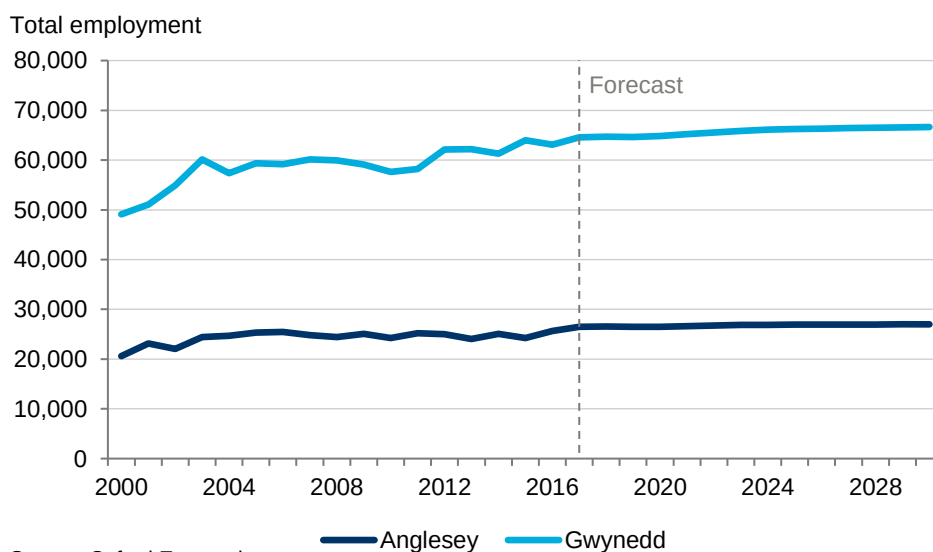
3.1 INTRODUCTION

To determine how the Wylfa Newydd development will alter the scale and form of skills demand, we first consider the baseline outlook. The baseline outlook is policy neutral and does not take account of planned investments such as Wylfa Newydd. Our analysis focuses on the period from 2017 to 2023, when the pressure to fill jobs will be highest.

3.2 LABOUR MARKET OVERVIEW

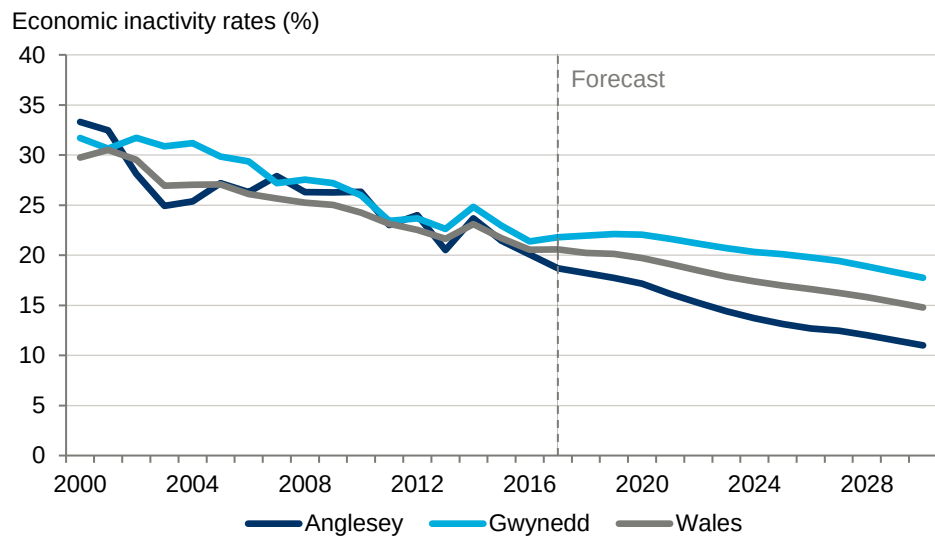
Our baseline forecast suggests that total employment across both Anglesey and Gwynedd will remain relatively stagnant over the forecast period to 2030. Although historic performance has been positive, with Anglesey and Gwynedd adding 5,000 and 14,000 additional jobs over the period 2000-2016, growth is forecast to slow. Over the period 2016-2030, growth in Anglesey is forecast to equate to 0.1 percent per annum, resulting in just 1,300 additional jobs, equivalent to a 5 percent increase on 2016 levels. Growth is similarly slow in Gwynedd, equivalent to 0.2 percent per annum, although due to its relative size it will add almost three-times as many jobs (3,600) as Anglesey.

Fig. 3. Employment projections, 2000 to 2030



Despite weak employment growth, the economic inactivity rates – the proportion of the population aged 16-64 that are neither in nor seeking employment – are due to fall substantially. Economic inactivity rates have fallen across Wales in recent times. By 2030, we forecast the economic inactivity rate in Anglesey to be 11 percent (6.7 and 3.8 percentage points below Gwynedd and Wales respectively).

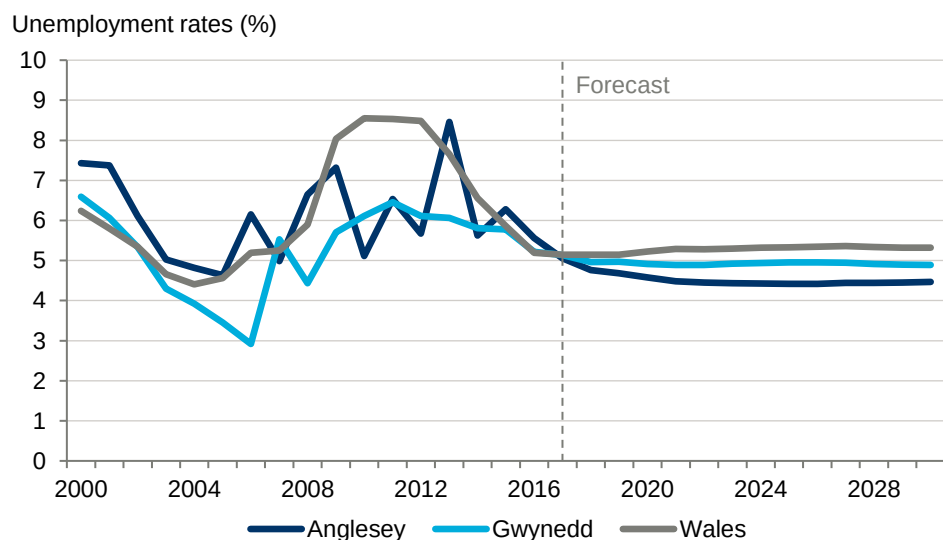
Fig. 4. Economic inactivity rates, 2000 to 2030



Source: Oxford Economics

The unemployment rate in Anglesey is also forecast to fall from, 5.1 percent in 2017 to 4.5 percent by 2030. We estimate that Gwynedd will experience similar falls, with the unemployment rate dropping from 5.1 percent currently to 4.9 percent in 2030. This contrasts with the overall picture for Wales where unemployment rates, currently in line with Anglesey and Gwynedd, will marginally increase to 5.3 percent by 2030.

Fig. 5. Unemployment rates, 2000 to 2030



Source: Oxford Economics

Falling unemployment rates, coupled with economic inactivity rates exceeding employment growth, reflects the contraction in the working age population up to 2030 (discussed later in this report).

3.3 LABOUR MARKET DEMAND

3.3.1 Replacement and expansion demand

The demand for labour may be influenced by replacement and expansion demand:

- **Replacement demand** represents how many more people will be required at each level due to people leaving the workforce or moving between occupations and leaving vacancies.⁷ Whilst replacing the vacant position creates additional labour demand, it has no net effect on total employment; and
- **Expansion demand** refers to the net change in total employment by sector or occupation over the forecast period and thus the results can be positive or negative. These results are presented as a people-based measure, capturing the potential for some individuals to have more than one job. Additional detail on the approach to this calculation is provided in the Technical Annex.

Analysis of LFS data for Wales indicates that replacement demand represents approximately 12 percent of the workforce annually. Owing to relatively weak overall forecasts for employment growth, the demand for labour will almost entirely result from replacement demand. This explains why even declining sectors such as manufacturing still require new staff and advertise vacancies.

Across Anglesey, of the 14,000 new employees that will be required over the period 2017 to 2023, 12,700 (91 percent) will result from replacement demand. The cumulative contribution of replacement demand to the overall requirement in Gwynedd (91 percent) is similarly high.

Overall, we estimate Anglesey and Gwynedd need to find an average of 2,000 and 4,950 workers per year respectively to meet the overall demand for employment.

6,950

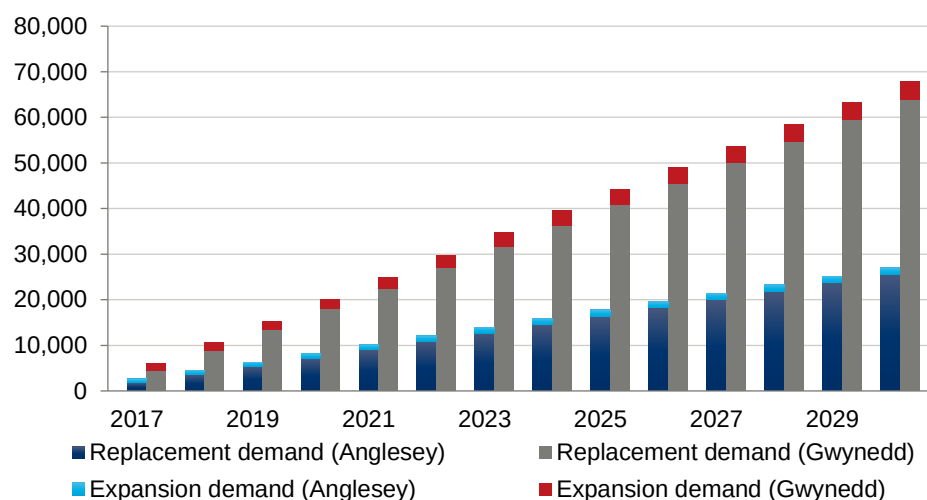
Vacancies to filled p.a. up to
2023 in Anglesey and
Gwynedd

*This excludes the effect of
Wylfa Newydd*

⁷ Leavers includes those who take up a different job or leave employment. A person may leave their job for a number of reasons, such as to unemployment, inactivity (e.g. for family reasons, to study or through illness), out-migration, retirement and death. The estimate of replacement demand calculates the share of each occupation group that is likely to leave employment each year. Crucially, the calculation nets this off against the population that will 'join' from other jobs/sectors to fill these vacancies in order to not 'double-count' a vacancy. For instance, if an individual leaves the labour market, and another moves employer to take up this vacancy, this is only counted once in our calculation. Further information is provided in the Technical Annex.

Fig. 6. Cumulative expansion and replacement demand, Anglesey and Gwynedd, 2016 to 2030

Cumulative expansion and replacement demand



Source: Oxford Economics

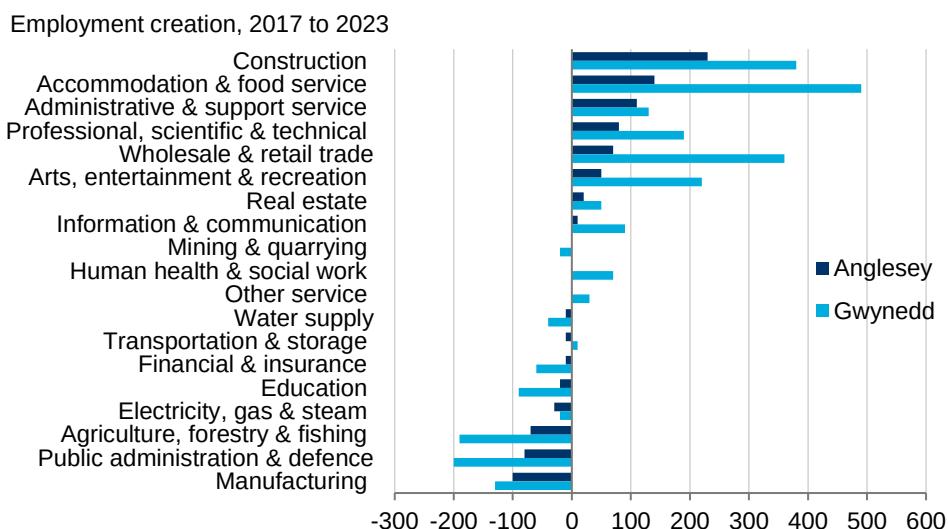
3.3.2 Demand by sector

The future skills requirements within the local labour market will be largely driven by the types of occupations that employers are looking to fill, which in turn is closely linked to the sectors within which these jobs are being created.

Employment growth (i.e. new jobs, not replacement demand) is forecast to be strongest in the construction sector, which will contribute nearly two-thirds (63 percent) of additional jobs across Anglesey up to 2023, equivalent to 200 net jobs. Growth will also be positive in the accommodation & food service sector, reflecting a strengthening of the local tourism industry, which will contribute 37 percent of net job creation across Anglesey and 38 percent across Gwynedd.

The overall sectoral structure of employment is likely to remain relatively unchanged over this period. Fig 7 shows which sectors are likely to drive employment creation and which are forecast to contract. As can be seen, high construction and 'accommodation and food services', are expected to lead growth.

Fig. 7. Sectoral employment growth by broad sector, 2017 to 2023



Source: Oxford Economics

When considering employment growth by narrow sector, the increase in construction jobs is distributed across different activities. Specialised construction activities and construction of buildings rank second and third across the combined Anglesey and Gwynedd area, with growth equalling 330 and 290 respectively. Civil engineering, another construction-related sector is also in the top 10 with 70 additional jobs expected. Similarly, jobs growth in accommodation & food services, the second largest broad sector in terms of growth, are distributed between accommodation and food & beverage service activities (390 and 230 respectively).

Fig. 8. Top 10 net employment growth by narrow sector, Anglesey and Gwynedd, 2017 to 2023

Top 10 narrow sectors	Anglesey	Gwynedd	Total
Accommodation	80	310	390
Retail trade, except of motor vehicles	60	270	330
Specialised construction activities	120	170	290
Construction of buildings	80	160	240
Food & beverage service activities	50	180	230
Sports activities & amusement	40	170	210
Architectural & engineering	40	90	130
Services to buildings & landscape	80	40	120
Civil engineering	30	50	80
Wholesale trade, except of motor vehicles	10	60	70

Source: Oxford Economics.

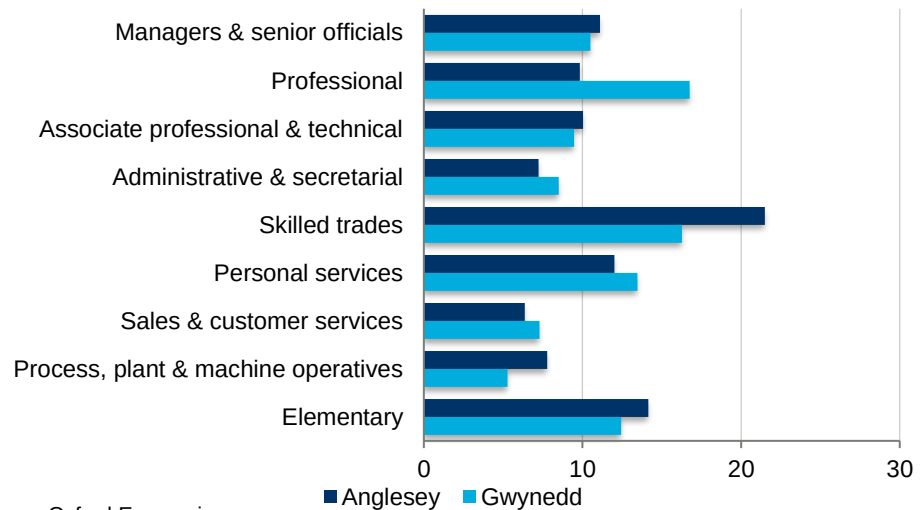
3.3.3 Demand by occupation

To understand the requirement for skills, we first consider demand by occupation. Skilled trades form the single largest occupational group in Anglesey, representing 5,300 jobs (or 21 percent) in 2016, followed by elementary occupations (3,500 jobs, or 14 percent) and personal services

(3,000 jobs, or 12 percent). The occupational profile of Gwynedd is broadly similar, with the main exceptions being a lower share of skilled trades (5 percentage points lower) and process, plant & machine operatives (3 percentage points lower), which is partially offset by a greater share in professional occupations (7 percentage points higher).

Fig. 9. Employment by occupation, Anglesey and Gwynedd, 2016

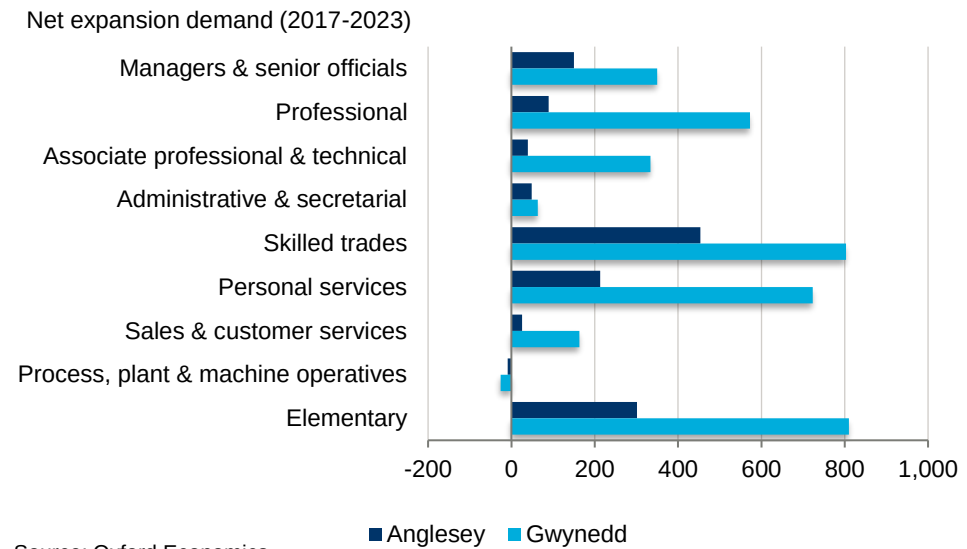
Jobs by occupation (% , 2016)



Source: Oxford Economics

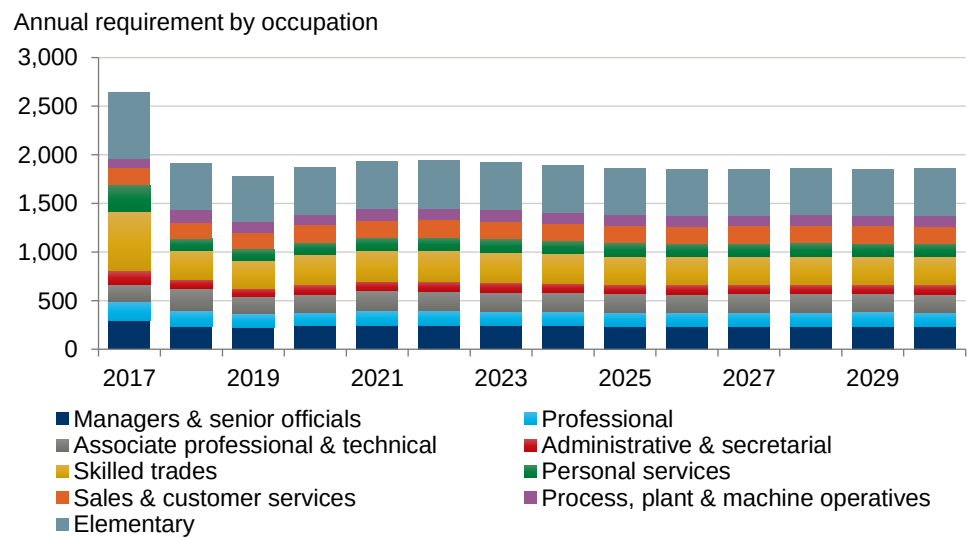
General growth in the economy will create the greatest demand for skilled trades (reflecting the growth in construction). Indeed, new jobs in skilled trade are estimated to account for 35 percent and 21 percent of new jobs across Anglesey and Gwynedd respectively up to 2023 (see Fig 10). Elementary occupations are also estimated to account for a large share of job creation over the period (accounting for 23 percent of new jobs in Anglesey and 21 percent in Gwynedd).

Fig. 10. Net expansion demand by occupation, Anglesey and Gwynedd, 2017 to 2023



Job creation is also concentrated in sectors that are relatively well represented locally and given we have already established that replacement demand accounts for the bulk of future labour demand, the occupational mix of future total labour demand is relatively consistent across years.

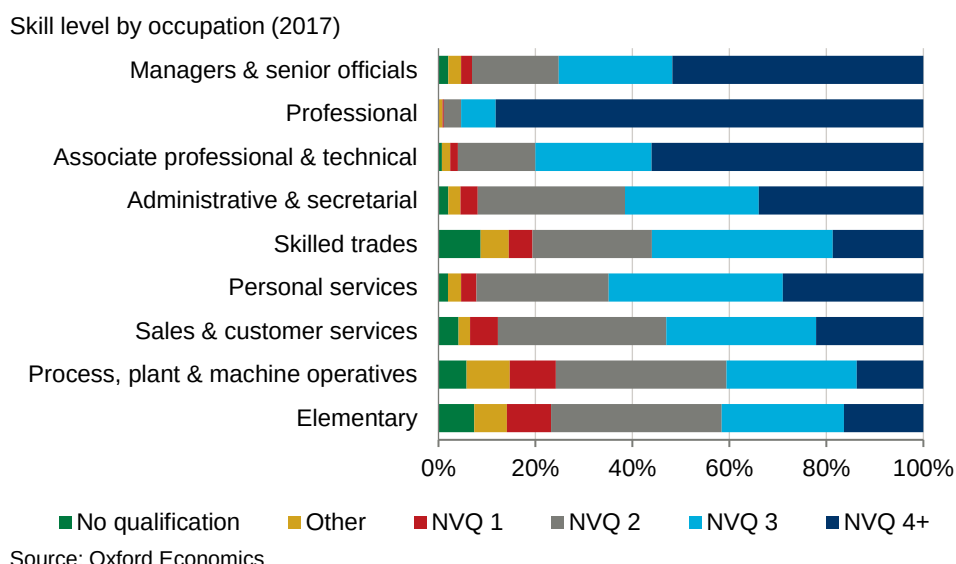
Fig. 11. Annual total demand by occupation, Anglesey, 2017 to 2030



3.3.4 Demand by skill level

Building on the analysis of occupational requirements above, we have translated this into skill levels.⁸ We consider the historic relationship between skill levels, defined at a National Vocational Qualification (NVQ) level, and occupations across Wales (see Fig 12).⁹ This series is forecast up to 2030 to reflect trends in the level of skills in the workforce across sectors.

Fig. 12. Skills level by occupation, Anglesey, 2017



The future skill requirement incorporates skills inflation, in other words the likelihood that there might be some level of increase in the skills required in each occupation over time. This reflects a continuation of historic trends, for example how manufacturing has shifted from low value activity to higher value more capital-intensive activity.

Across Anglesey, the qualification level with the highest demand is NVQ 4+, where 4,600 workers (33 percent of the total) will be demanded up to 2023, followed by NVQ levels 2 and 3 (both 27 percent). To meet demand in the baseline scenario, Anglesey would require an average annual supply of 650 new workers qualified to NVQ 4+ level, 540 qualified to NVQ 3 and 530 qualified to NVQ 2. **Obviously, the subject mix of these qualifications will be an important factor for the success of the economy and its businesses.**

⁸ This analysis considers the relationship between occupations and skills, rather than sectors and skills, as skill level is more closely tied to occupations, while in turn the sector in which an employee works is likely to be more substitutable than their occupation.

⁹ Note: as this analysis is based on the observed relationship between occupations and skills levels, it does not take into account skills mismatches (e.g. overqualification).

SKILL LEVELS

Qualifications are categorised by National Vocational Qualification (NVQ) level. An individual's skill level is measured by the highest NVQ level qualification they hold. This analysis considers the following NVQ levels:

NVQ level 1: typically requires three to four GCSEs at grades D-E and other vocational qualifications, such as a Foundation General National Vocational Qualification (GNVQ);

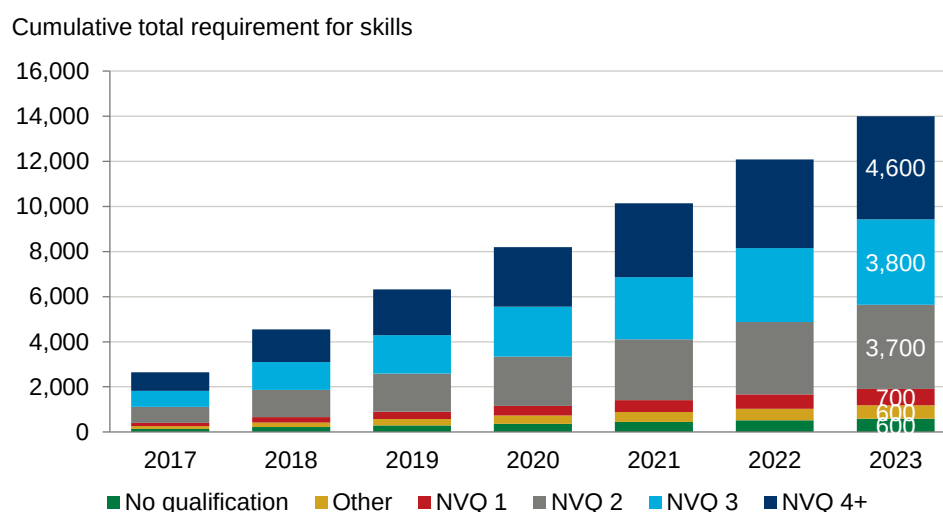
NVQ level 2: incorporates five GCSE grades of A* to C, typically including a language and mathematics, alongside intermediate vocational qualifications such as a Business and Technology Education Council (BTEC) first certificate or intermediate GNVQ.

NVQ level 3: includes achieving two or more pass grades at A level, or higher vocational qualifications such as a BTEC Ordinary National Diploma (OND) or Ordinary National Certificate (ONC).

NVQ level 4+: those who have qualifications to degree level of above. This can include Business and Technology Education Council (BTEC) professional awards, and diplomas of higher education.

Any qualifications that do not meet the criteria for NVQ level 1 are considered as **other qualifications**.

Fig. 13. Cumulative skill requirements, number of jobs by NVQ level, Anglesey, 2016 to 2023

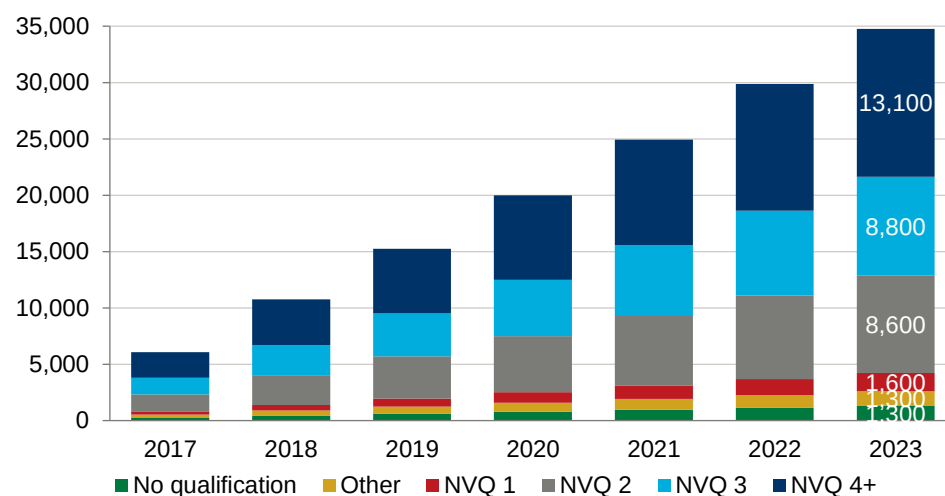


Source: Oxford Economics

Given its similar sectoral and occupational mix, the profile of skills demand in Gwynedd is broadly reflective of that in Anglesey. The overall requirement for NVQ 4+ qualified workers is 13,100 up to 2023, a share (38 percent) slightly higher than across Anglesey (33 percent). By contrast, the requirements for NVQ levels 3 and 2, 8,800 and 8,600 respectively, form a slightly lower share (25 percent) relative to Anglesey (27 percent).

Fig. 14. Cumulative skill requirements, number of jobs by NVQ level, Gwynedd, 2016 to 2023

Cumulative total requirement for skills



Source: Oxford Economics

2,500

NVQ 4+ workers demanded annually

A further 1,800 required at both NVQ 2 and 3 each year.

To meet demand in the baseline scenario, Anglesey and Gwynedd would require an average annual supply of 2,500 new workers qualified to NVQ 4+, a further 1,800 qualified to NVQ 3, and 1,800 at NVQ 2, to further education and school-leaver level respectively.

3.3.5 Demand by subject

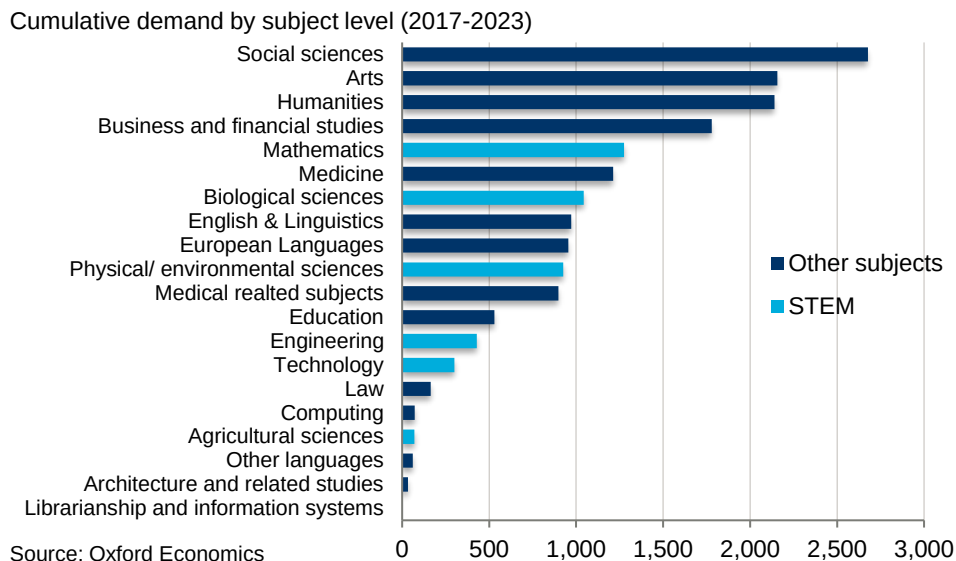
Labour Force Survey (LFS) data provides the distribution of employees across the UK by their 2-digit occupational group and a set of 19 subjects studied at undergraduate level¹⁰. We have used this to estimate the possible demand for NVQ 4+ labour by subject areas.¹¹ We find that demand is likely to be highest for social sciences, equating to 2,700 jobs (or 400 jobs per annum) over the period to 2023. Demand for the STEM¹² subjects equates to 4,000 over the period, equivalent to 23 percent of demand (or 600 per annum). Demand for mathematics alone equates to 1,300 (or 200 per annum) to 2023.

¹⁰ As results for the occupational group 'Elementary Occupations: Trades, Plant and Storage related' have been suppressed, we assume the subjects demanded to reflect the 'Elementary Occupations: Clerical and Services related' occupational group. It should be noted that relatively few individuals qualified to NVQ level 4+ tend to work within these occupations.

¹¹ It is not possible to estimate the demand by subject level across lower NVQ levels, as these qualifications often require studying two or more subjects (e.g. A-levels).

¹² Science, technology, engineering and mathematics.

Fig. 15. Cumulative subject requirements, number of jobs at NVQ level 4, Môn a Menai, 2016 to 2023



3.4 SUMMARY

The baseline forecast (i.e. without the Wylfa Newydd development) assumes that net additional job creation across Anglesey and Gwynedd will be modest. As the local economy is generating relatively few additional jobs, demand in the local labour market is almost entirely driven by employers seeking to fill vacancies resulting from those leaving existing jobs.

To meet demand, Anglesey and Gwynedd will require an additional 2,000 and 4,950 workers respectively to take up existing vacancies each year. Given the limited expansion demand, and limited churn of jobs across different sectors, we estimate that the occupational and therefore skills profile of new workers will remain relatively unchanged year-on-year.

Under the baseline scenario, the cumulative demand for labour in Anglesey and Gwynedd will be 14,000 and 34,800 jobs respectively by 2023.

Demand is highest for those qualified to NVQ level 4+, equivalent to 4,600 workers (or 33 percent) in Anglesey and 13,100 workers (38 percent) in Gwynedd, followed by NVQ level 3 and 2 (3,800 and 3,700 workers respectively in Anglesey and 8,800 and 8,600 workers respectively in Gwynedd). Demand for workers qualified to NVQ level 4+ in the STEM subjects equates to 4,000 (or 23 percent). However, qualification levels alone are not sufficient to meet the needs of employers; these skill levels need to be coupled with relevant experience (with the exception of apprentices and graduate trainees) for demand to be met.

To meet this level of demand, Anglesey and Gwynedd would require an average annual supply of 2,500 new workers qualified to NVQ 4+, a further 1,800 qualified to NVQ 3, and 1,800 at NVQ 2.

4. GROWTH SCENARIO

4.1 INTRODUCTION

The Wylfa Newydd development will enable the local economy to enter a unique period of economic activity. Horizon currently estimate that it will create 9,000 (gross) jobs at peak in 2023 and that 22.4 percent (2,000) of these jobs will be open to the 'local' population. This will be in addition to job creation in the economy generally (expansion demand) and the requirement to fill vacancies arising from those leaving the labour market or changing jobs.

Modelling assumptions on the anticipated or possible level of displacement are important for this study. In our previous modelling work we ran a range of scenarios based on 25, 50 and 75 percent displacement of the jobs available to local labour. In this study, we have assumed zero displacement to gain a better understanding on labour market capacity.

4.2 LABOUR MARKET OVERVIEW

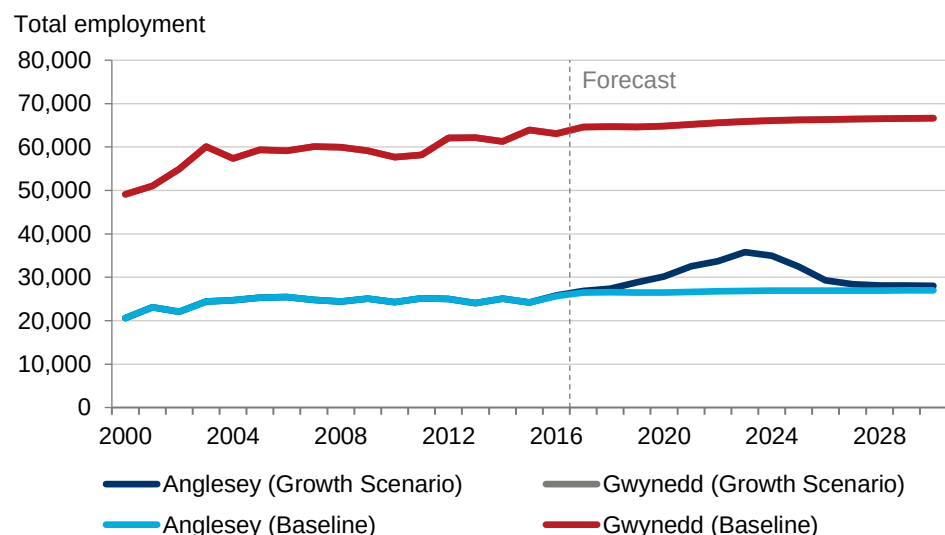
The Wylfa Newydd development will result in a substantial increase to total employment in Anglesey. At its peak, in 2023, we forecast that total employment in Anglesey (37,200) will be 10,300 (or nearly two-fifths) higher than in the baseline scenario.

10,300

Additional workers in
Anglesey by 2023

*The growth scenario will
result in a two-fifths increase
in employment in Anglesey*

Fig. 16. **Employment projections, 2000 to 2030**



Source: Oxford Economics

RECOMMENDED ACTIONS

Beyond peak labour demand in 2023, demand for labour will fall in Anglesey. This will have implications for residents who have trained, upskilled and graduated in the skills needed to fill jobs in Anglesey pre-2023. To mitigate against post-2023 job loss and to maximise employment for these individuals, Horizon should consider maintaining residents on site rather than the transient labour who are due to take the 7,000 non-local jobs at peak. A commitment to such objectives might also encourage more residents to pursue a career in these areas and as such push up demand for STEM and construction related courses.

However, 7,000 of the direct jobs required at Wylfa Newydd will be filled by a temporary workforce from elsewhere. Consequently, in this analysis of demand and supply of skills we focus on the 2,000 jobs open to the local population (and any further local employment impacts arising from supply chain and induced affects). In our previous modelling, and in conjunction with Jacobs, we assigned the 2,000 local jobs to detailed sectors of the economy.

The sectoral distribution of the direct Wylfa Newydd construction phase jobs is presented below¹³.

Fig. 17. Local and total on-site jobs at Wylfa Newydd, 2023

	Peak employment creation (2023)	
	Local labour	Total labour
Site services, clerical and security	111	500
Managerial and supervisory	439	1,975
Civil technicians	678	3,050
Mechanical and electrical technicians	593	2,670
Power station operational staff	94	425
Off-site services, security and clerical staff	84	380
Total	2,000	9,000

Source: Horizon, Oxford Economics. Note: figures may not sum due to rounding.

Having removed the 7,000 non-local jobs from the analysis we find that, nearly three-fifths (58 percent) of job creation in the growth scenario in Anglesey will be in the construction sector, equating to 6,200 additional jobs (or 6,500 when we add in demand from Gwynedd). So, by 2023, there will be 8,600 employed in the construction sector in Anglesey (two and half times larger than 2016 levels of 2,400). Growth will also be high in professional, scientific & technical activities, where employment will also double (rising from to 2,100) in 2023.

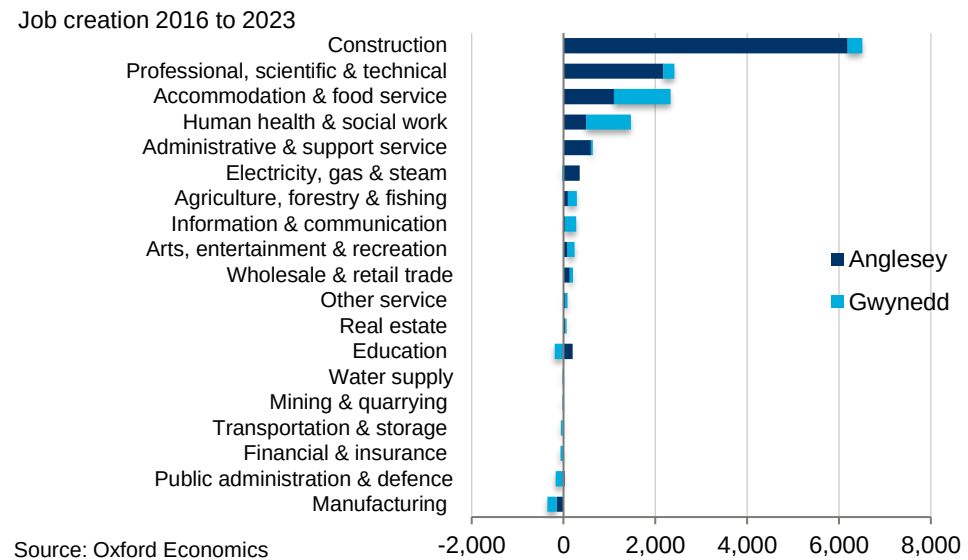
6,200

Additional construction jobs
in Anglesey by 2023

*Two and half times larger
than 2016 levels*

¹³ This sectoral allocation was made by Oxford Economics based on the description of jobs in Horizon material and subsequently discussed with Horizon and its consultants.

Fig. 18. Sectoral job creation, Anglesey and Gwynedd, 2017-2023



RECOMMENDED ACTIONS

We are aware that Wylfa Newydd is not the only planned investment for North Wales or Anglesey. Given the demand for construction related labour for other projects we would suggest the Councils in North Wales work together with the Welsh Government to sequence future infrastructure and energy investments to avoid putting further pressure on the sector and pushing up construction costs.

4.3 LABOUR MARKET DEMAND

4.3.1 Replacement and expansion demand

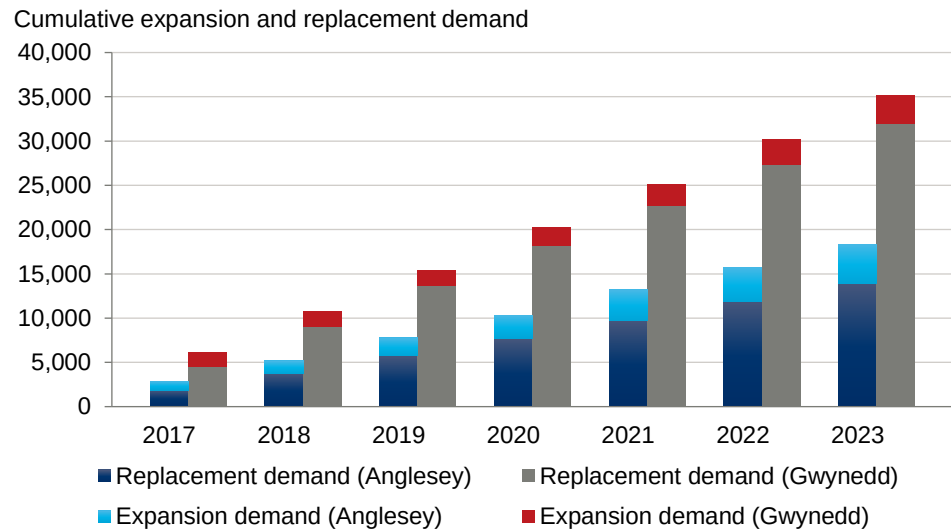
The growth scenario will result in higher overall demand for labour. Anglesey will require 18,400 people up to 2023 to fill vacancies, a 4,400 (or 31 percent) increase on the baseline scenario, while overall demand across Gwynedd (35,200) remains broadly unchanged. Collectively, total demand equates to 53,500 jobs by 2023, a 4,750 increase on the baseline scenario.

53,500

Jobs to be filled in Môn a
Menai up to 2023

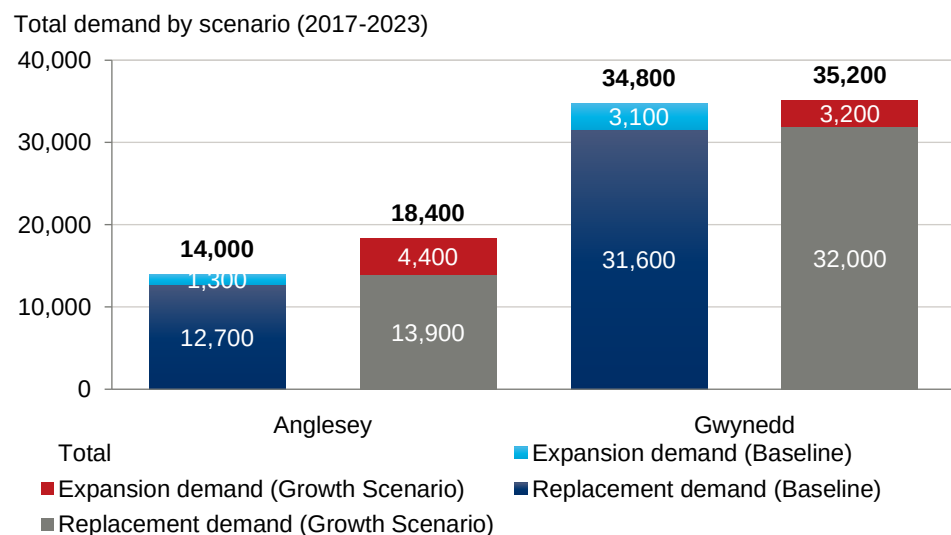
Anglesey will require 18,400
jobs over this period.

Fig. 19. Cumulative local and total demand, Anglesey and Gwynedd, 2017 to 2023



The composition of demand has also changed. Expansion demand now totals 7,600 jobs (compared to 4,400) across Anglesey and Gwynedd up to 2023. Replacement demand has also increased relative to the baseline scenario, owing to the increased size of the labour market under this scenario.

Fig. 20. Cumulative demand for labour, Anglesey and Gwynedd, 2017 to 2023



Note: figures may not sum due to rounding

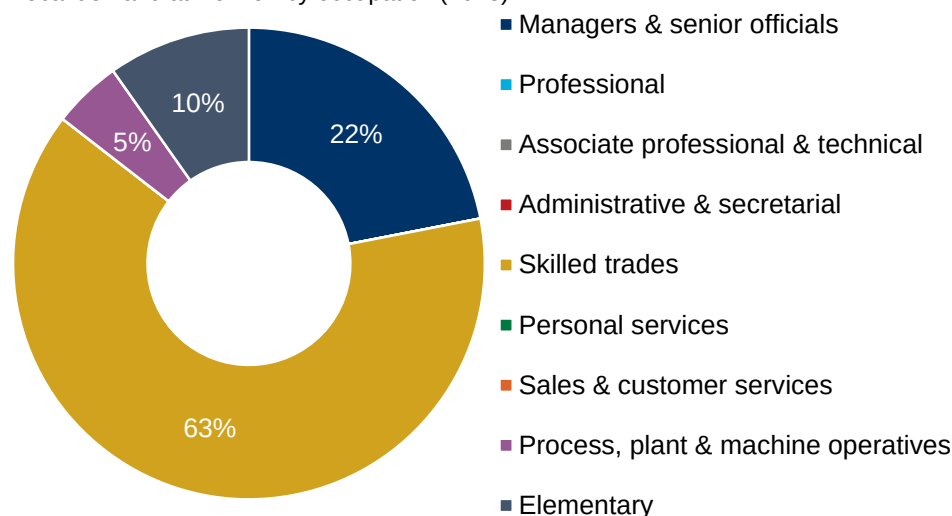
4.3.2 Demand by occupation

Given the limited expansion demand elsewhere in the economy, the sectoral and therefore occupational profile of the net additional jobs under the growth scenario is broadly reflected by the occupations of the 2,000 'local' jobs on-site (and the subsequent supply chain and induced jobs).

Skilled trades constitute the largest single occupation group in the 2,000 jobs demanded by Horizon, accounting for 1,300 jobs by 2023. The next largest group are Managers and senior officials, which are estimated to support 400 additional local jobs, or 22 percent of the total, while demand for elementary and process, plant & machine operatives equates to 200 and 100 jobs respectively. This aligns with the findings of the North Wales Regional Skills & Employment Plan, which indicates that demand for construction jobs resulting from Wylfa Newydd, one of North Wales' "flagship sectors", will be over five-times the current supply in Anglesey.

Fig. 21. Local demand at Horizon by occupation, 2023

Local demand at Horizon by occupation (2023)



Source: Horizon, Oxford Economics

We now focus on demand in the wider Anglesey economy (we include Gwynedd later in this sub-section). After accounting for replacement demand and expansion demand, elementary occupations represent the largest share of jobs required under the growth scenario. Up to the peak year of 2023, the overall demand for elementary occupations in Anglesey is forecast to equal 4,400 jobs, an 800 job increase on demand under the baseline scenario (3,600 jobs), and almost a quarter (24 percent) of total labour demand on the island.

We estimate demand for almost 3,800 people to fill skilled trades roles in the Anglesey economy (over one fifth of labour demand to 2023). This is almost a third (31 percent) more skilled trade jobs than under the baseline forecasts.

Demand for high skilled occupations, such as managers & senior officials, professionals and associate professional & technical occupations in Anglesey also rise. Collectively these occupations will require 5,100 jobs to be filled up to 2023, over a quarter (28 percent) of the net total.

These findings align with those of the Nuclear Capacity Study.¹⁴ This report identified the current and latent capacity across businesses in Wales to respond to forthcoming opportunities in the nuclear supply chain. The report

3,800

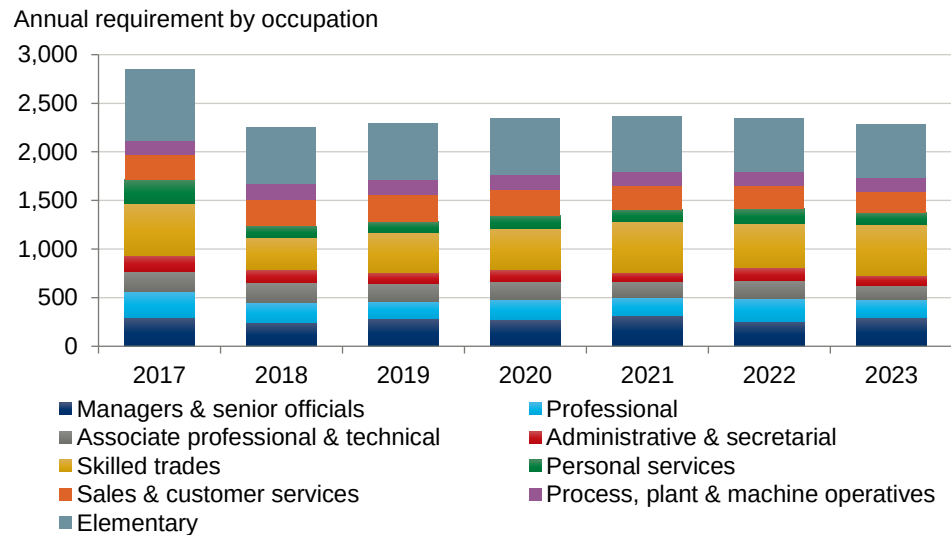
Demand for skilled trades in
Anglesey

Over one fifth of labour
demand to 2023.

¹⁴ Miller Research, *Nuclear Capacity Study* (London: Miller Research, Beaufort Research, Cogent and Oxford Economics, 2014).

identifies a large share of nuclear sector jobs requiring generally high skill levels, with technical, professional and senior management occupations forming a large share of the nuclear workforce.

Fig. 22. **Total demand for jobs by occupation, Anglesey, 2017 to 2023**



8,100

Demand for skilled trades in
Anglesey and Gwynedd

*A further 12,900 in
elementary roles.*

When we include Gwynedd, we estimate the following level of demand:

- Nearly 12,900 in elementary roles (24 percent of total demand to 2023);
- Nearly 8,100 in skilled trade roles (12 percent); and
- Nearly 16,700 in high skilled occupations of managers & senior officials, professionals and associate professional & technical occupations (33 percent).

4.3.3 Demand by skill level

As result of the above, demand for labour is skewed towards higher qualification levels. In cumulative terms, Anglesey will need to find over 5,900 people of qualification level NVQ 4+ (e.g. degree level or above) to meet demand up to the peak year of 2023. This equates to nearly a third (32 percent) of total demand.

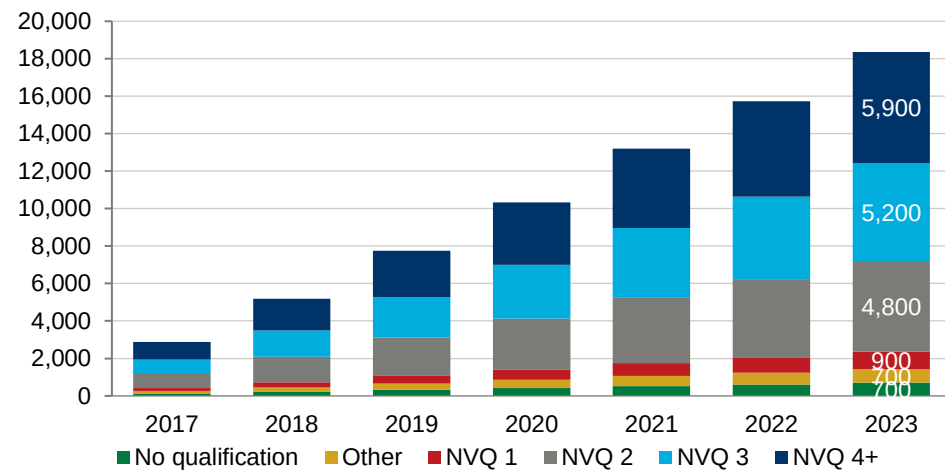
The next highest skills requirement is for NVQ level 3 (29 percent of the overall target) followed closely by NVQ level 2 (26 percent of the target). The cumulative requirement for each of the NVQ levels 2, 3 and 4+ is over double that for the remaining qualifications combined (13 percent).

To meet demand in the local growth scenario, over the period 2017 to 2023 Anglesey requires an average annual supply of:

- 850 workers qualified to NVQ level 4+ (i.e. degree level or higher);
- 750 workers qualified to NVQ level 3 (i.e. further education); and
- 700 workers qualified to NVQ level 2 (i.e. school-leavers).

Fig. 23. Net local demand by skill level, Anglesey, 2017 to 2023

Cumulative total requirement for skills



Source: Oxford Economics

2,700

Workers qualified to NVQ4+
to be demanded each year

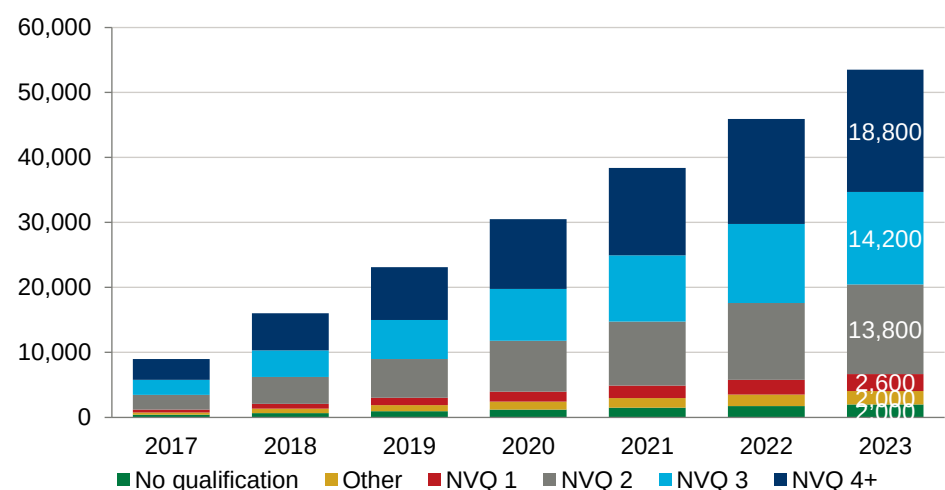
18,800 required over the
period to 2023.

When extended out to include the Gwynedd economy, over the period 2017 to 2023 the Môn a Menai labour market will need to find 18,850 people of qualification level NVQ 4+, alongside 14,250 and 13,800 workers educated to NVQ levels 3 and 2 respectively. **To meet demand in the local growth scenario, over the period 2017 to 2023 Môn a Menai requires an average annual supply of:**

- 2,700 workers qualified to NVQ level 4+ (i.e. degree level or higher);
- 2,030 workers qualified to NVQ level 3 (i.e. further education); and
- 1,970 workers qualified to NVQ level 2 (i.e. school-leavers).

Fig. 24. Total demand by skill level, Môn a Menai, 2016 to 2023

Cumulative total requirement for skills



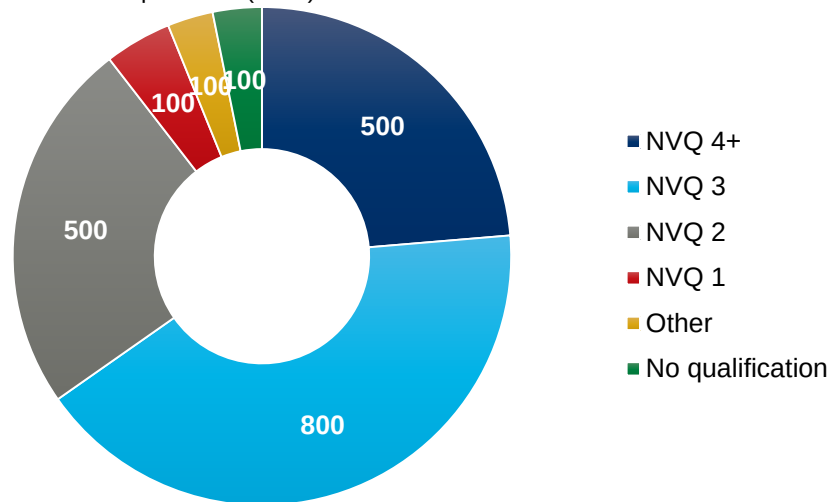
Source: Oxford Economics

When considering the local construction jobs at Horizon, we estimate using national relationships that the bulk (90%) of the 2,000 local construction phase

jobs at Wylfa Newydd will require qualifications of NVQ 2 or above, with 40 percent requiring NVQ 3¹⁵.

Fig. 25. On-site local jobs at Horizon by skill level, 2023

On-site skills requirement (2023)



Source: Oxford Economics

4.3.4 Demand by subject

As in the baseline scenario, we can estimate the subjects required as part of the demand for NVQ level 4+ qualified workers. We find that demand for STEM subjects is equivalent to 4,300 jobs (23 percent), or 600 jobs per annum. The importance of STEM subjects is emphasised in the North Wales Regional Skills & Employment Plan, which seeks the “*greater promotion of digital skills aligned to the STEM agenda, due to its growing cross sector impact on productivity and innovation for businesses of all sizes and within all sectors*”.

600

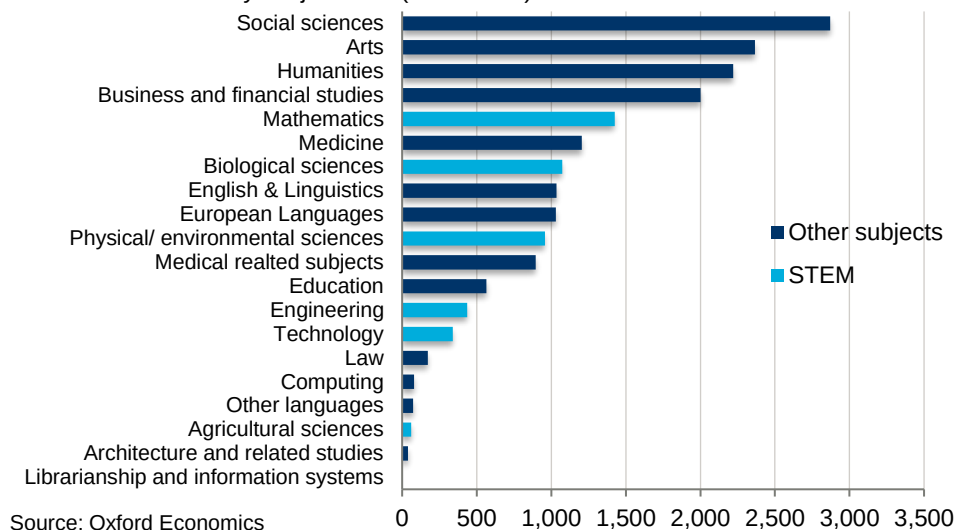
Workers qualified to NVQ4+
in STEM subjects demanded
each year

4,300 required over the
period to 2023.

¹⁵ The exact breakdown of skills required by Horizon may be different from that shown here.

Fig. 26. Cumulative subject requirements, number of jobs at NVQ level 4, Môn a Menai, 2016 to 2023

Cumulative demand by subject level (2017-2023)



Source: Oxford Economics

310

Workers qualified to NVQ3+ in construction/engineering demanded each year in Anglesey

2,150 required over the period to 2023.

Information is not available on the relationship between subject studied and occupation for NVQ levels 2 and 3, largely as a result of multiple topics that can be studied to achieve these qualifications. To approximate demand for these subjects, we take the conservative approach in assuming that demand for skilled trades occupations that will require construction and/or engineering skills for both qualification levels.¹⁶ Across Môn a Menai, up to 2023 the cumulative demand for construction and/or engineering qualifications at NVQ level 3 equates to 2,150 jobs, equivalent to just over 310 jobs per annum, while demand at NVQ level 2 equates to 1,500 jobs, or 210 per annum.

4.4 SUMMARY

The Wylfa Newydd development will enable the local economy to enter a unique period of economic activity. At its peak in 2023, the development will result in one third more jobs than the baseline scenario across Anglesey. Horizon currently estimate that it will create 9,000 (gross) jobs at this peak, and that 22.4 percent (2,000) of these jobs will be open to the 'local' population.

The sectoral composition of the 2,000 local jobs will result in demand being focussed in the skilled trades occupation, alongside growth in managerial, professional and technical occupations. The relatively high skill levels of those in these occupations adds to the generally strong demand for higher qualification levels.

53,500

Jobs to be filled over the period in both Anglesey and Gwynedd

35 percent at NVQ 4+

The growth scenario estimates demand for 18,800 workers in Anglesey up to 2023, an increase of almost a third (4,400 workers) over the baseline scenario. When combined with the requirement in Gwynedd, total demand increases to 53,500 over this period.

The overall requirement is highest for workers qualified to NVQ level 4+, where demand across Môn a Menai equates to 2,700 per year (35 percent of the

¹⁶ Skilled Metal & Electrical Trades, and Skilled Construction & Building Trades.

total), of which Anglesey requires 850 per year. This is followed by NVQ levels 2 and 3, 2,030 and 1,970 workers are required each year respectively, of which 750 and 690 will be required in Anglesey. In each case, only a minority (800 for NVQ level 4+, and 500 for NVQ levels 2 and 3) would be required on-site, with the remaining constituting either new jobs elsewhere in Anglesey or replacement demand.

Analysis of the relationship between occupations and degree-level subjects shows demand for 4,300 workers qualified in STEM subjects to NVQ level 4+ up to 2023, equivalent to 600 jobs per annum. Similarly, it is estimated that demand for construction and/or engineering qualifications will equate to 2,150 and 1,500 for NVQ levels 3 and 2 respectively up to 2023, or 300 and 210 jobs per annum.

5. SUPPLY OF LABOUR

5.1 INTRODUCTION

This section provides an analysis of the available labour in Anglesey and Gwynedd over the forecast period. It discusses commuting patterns, demographic trends and net migration.

5.2 POPULATION AND WORKING AGE POPULATION

Anglesey's population numbered almost 70,000 in 2016 and was therefore the second smallest among the 22 Welsh local authority areas. Population growth on the island has been relatively subdued in recent years. The total number of people living on the island fell over the eight years between 2008 and 2016 (-0.1 percent each year on average). In contrast, population growth in Gwynedd and in Wales generally grew much more strongly—by 0.4 percent annually over the same period. Although the population level in Anglesey is forecast to return to growth over the next decade, we expect it will remain relatively weak, growing at a rate of 0.2 percent each year.

A recent decline in the working age population has reduced the supply of local labour. The share of residents aged between 16 to 64 in Anglesey fell by seven percent, or almost three thousand people, between 2008 and 2016. By contrast, the number of working age people in neighbouring Gwynedd and the rest of Wales remained relatively unchanged over the same period. As a result, the working age share of the total population in Anglesey has fallen significantly—from 62 percent of the total in 2008 to just under 58 percent in 2016.

Fig. 27. Population change, 2008-2026, % y/y

	Total population		Working age (16-64)	
	2008-2016	2016-2026	2008-2016	2016-2026
Anglesey	-0.1%	0.2%	-0.9%	-0.6%
Gwynedd	0.4%	0.3%	0.0%	0.1%
Wales	0.4%	0.3%	0.0%	-0.2%

Source: Oxford Economics

Anglesey's working age population is expected to continue to contract, shrinking by 0.6 percent annually over the next decade, pushing up the dependency ratio and putting further pressure on the current productive population. **We expect Anglesey's working age population under the baseline outlook to fall by 1,900 people by 2023 and increase by only 1,400 in Gwynedd.**

In the growth scenario, the working age population in Anglesey peaks at 45,300 in 2023, 7,000 above the baseline scenario, while Gwynedd remains unchanged over this period. The vast majority of this increase in working age population is due to the temporary labour moving to Anglesey to work on Wylfa Newydd. Consequently, we exclude these people from the analysis.

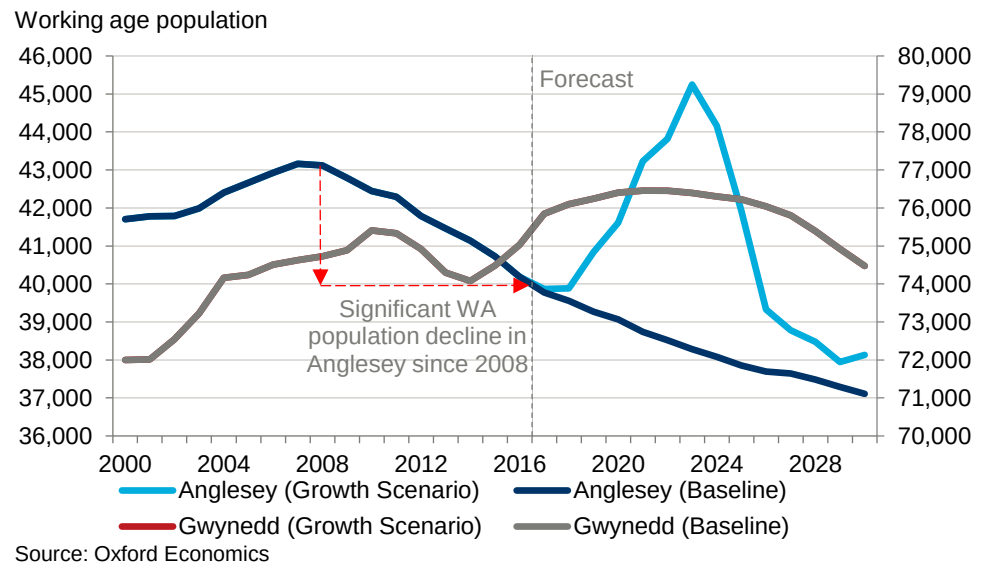
-1,900

The change in working age population in Anglesey over the period to 2023

-500 people of working age across both Anglesey and Gwynedd.

While recent trends have shown people are working later in life, the construction related roles demanded at Wylfa Newydd and in general may limit scope for older workers to help meet the increased demand.

Fig. 28. Working age (16-64) population levels, Anglesey and Gwynedd, 2000-2030



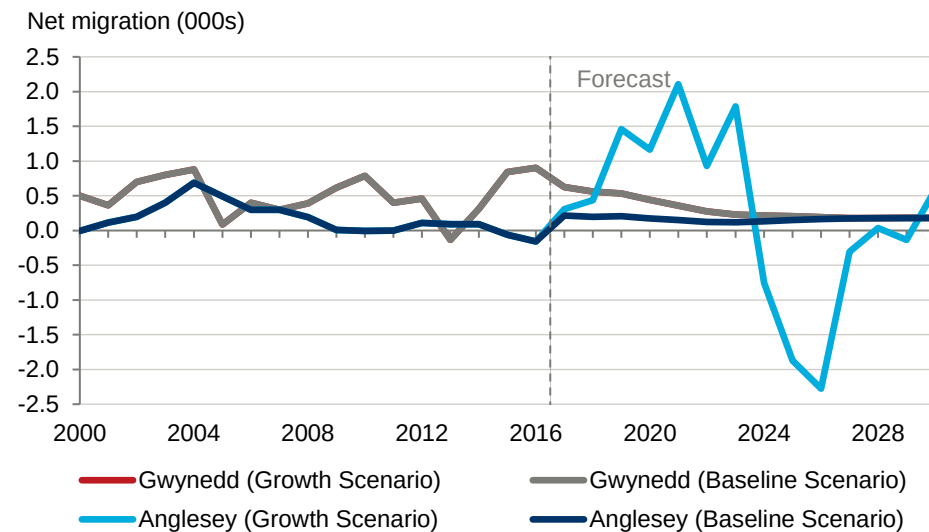
RECOMMENDED ACTIONS

Given the scale of labour market opportunities, Anglesey Council should reach out to ex-Anglesey residents by sharing some of the known forth-coming opportunities. Social media and articles in the local news, along with a dedicated resource for sharing current and upcoming opportunities could be enough to encourage skilled people back. Should this be successful there is also an argument that the Council should work with developers to push forward planned housing developments.

5.3 AGE PROFILE AND MIGRATION

The fall in working age population is due mainly to the age structure of the population rather than migration. ONS population estimates show that both Anglesey and Gwynedd have above average shares of their populations aged 65 and over. According to the latest estimates the respective councils had 25 percent and 22 percent of residents aged 65 and over in 2016, compared to the Welsh average of 20 percent. In addition, ONS estimates show that Anglesey's population aged 65 and over increased by 19 percent since 2008, compared to 17.9 percent at the regional level. By contrast net migration registered as negative, albeit only marginally, for the first time in 2015 (see Fig. 29). Though our baseline projections are for positive net migration to 2030, though we expect tighter migration policy to limit inflows.

Fig. 29. Net migration, Anglesey and Gwynedd, 2000-2030



5.4 UNEMPLOYMENT AND INACTIVITY

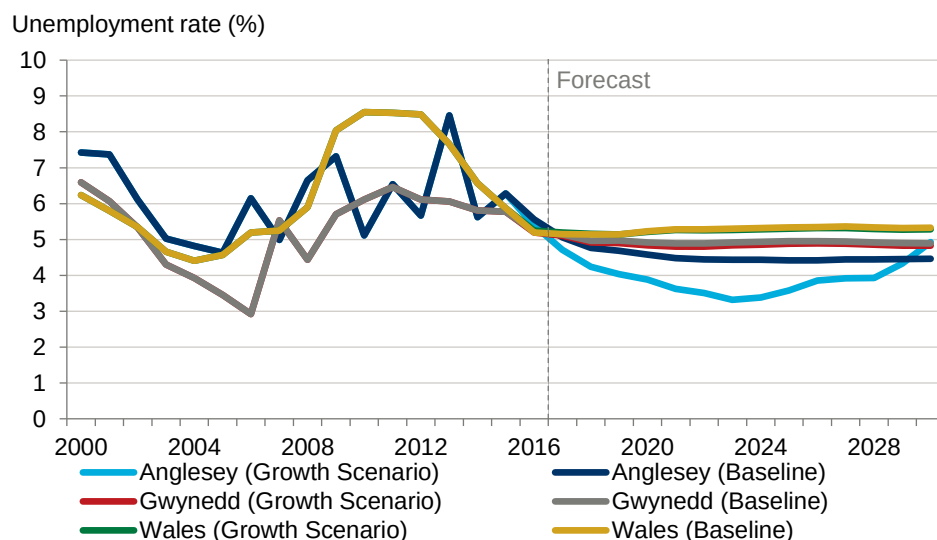
Both the unemployed and inactive are additional sources of labour which could fuel demand. Increased demand for labour under the growth scenario is likely to generate wage inflation; AECOM (2017) estimate that a 36 percent premium on direct construction jobs at Wylfa Newydd, as under the Hinkley Point C pay deal, would lead to average wages in Anglesey rising by 4.2 percent.¹⁷ Higher wages may encourage some economically inactive residents to join the labour force.

Unemployment rates in Anglesey and Gwynedd have fallen in recent years but not to the same extent as that observed regionally. The unemployment rate in Anglesey and Gwynedd stood at 5.6 percent and 5.2 percent respectively in 2016—marginally above the Welsh average.¹⁸ The unemployment rates in both Council areas are forecast to remain above the regional average over the next decade in the baseline scenario, with unemployment in Anglesey under the growth scenario falling to a low of 3.3 percent in 2023. This suggests that there could be existing spare capacity in the labour market, albeit to a limited extent; the lower unemployment rate in the growth scenario equates to just 100 fewer unemployed residents of Anglesey than under the baseline scenario in 2023.

¹⁷ Isle of Anglesey County Council, *Wylfa Newydd Wage Inflation Assessment* (Manchester: AECOM, 2018).

¹⁸ As measured by the ILO definition.

Fig. 30. ILO unemployment rate, Anglesey Gwynedd and Wales, 2000-2030



1,300

Jobseekers in Anglesey and Gwynedd

Almost 75 percent looking for sales/ customers services and/or elementary occupations

All applicants for Job Seekers Allowance are required to fill out a short survey which ask what their usual and sought occupations are. These responses give an indication of the occupations which best match current skill sets. **The latest figures show there were close to 1,300 claiming job seekers in Anglesey and Gwynedd.** As a combined geography, almost three quarters of these jobseekers were searching for employment opportunities in either sales/ customers services and/or elementary occupations.¹⁹ Meanwhile, only 55 or four percent of recent job seekers in the Môn a Menai area registered their usual occupations as 'skilled trades' occupations, suggesting there may be a mismatch between current skills within the unemployed and those required to work within the nuclear new build project.

48 percent

Of jobseekers that are long-term unemployed

And account for two thirds of those seeking skilled trade occupations

Nearly 48 percent of all job seekers in the Môn a Menai area have been out of work for over a year and are therefore classified as long term unemployed.²⁰ However, an even higher share (two thirds) of unemployed seeking employment in skilled trades fall within this category. Therefore, a targeted program of training and up-skilling would likely be required to allow these people to benefit from the opportunities available.

Economic inactivity has been falling throughout the UK over that last decade. ONS figures for Wales show the share of 16 to 64-year olds designated as inactive fell by 1.7 percentage points between 2006 and 2016.²¹ The decline

¹⁹ ONS September 2017

²⁰ The duration of unemployment is an important consideration, as the likelihood of finding work tends to fall in line with the length of time an individual is unemployed. Similarly, the skills required for work may diminish as the duration of unemployment increases. This is likely to have a knock-on effect if re-entering employment, with those who have been unemployed for long periods likely to take up lower skilled positions than they might otherwise have done should they not have been unemployed.

²¹ Economic inactivity captures those residents aged 16 to 64 who are neither in employment nor seeking a job (unemployed). This can include those who do so for choice, such as family reasons, alongside students, early retirees and the long term sick and/or disabled.

27,000

Inactive across Anglesey and Gwynedd

Only 4,500 want a job

was even more significant in Anglesey and Gwynedd, where the share of inactive fell by 3.3 and 4.6 percentage points respectively. The latest full year estimates for 2016 show Anglesey and Gwynedd inactivity shares were below the regional average, with 25 percent and 22.6 percent of the respective working age populations falling into this bracket. Therefore, the economically inactive represented almost 27,000 working age Môn a Menai residents in 2016. However, a relatively high proportion of these people do not want a job—therefore reducing the potential supply of labour that could come from this group (see Fig. 31).

After removing those who are not willing to work we estimate that there still exists a potential untapped source of labour of approximately 4,500 people within the inactive who do want a job. Skill attainment among this group is likely to be main limiting factor to their engagement within the project.

Fig. 31. Economically inactive, Anglesey and Gwynedd, 2006 and 2016

	2006 Share of 16-64 year olds	2016 Share of 16-64 year olds	of which:	
			% want a job	% do not want a job
Anglesey	28.3%	25.0%	22.9%	77.1%
Gwynedd	27.2%	22.6%	12.9%	87.1%
Wales	26.9%	25.2%	25.8%	74.2%

Source: ONS

The ONS data does provide some additional insight into why such relatively small shares of the local inactive population want employment and their reasons. Anglesey for example has a relatively high share of early retirees among its inactive population aged 16-64, whereas students represent a relatively high proportion of the inactive within Gwynedd. Recent estimates suggest that 21 percent of the inactive in Anglesey or 2,200 people were retired. Equally, over 40 percent of the inactive or 6,300 of the resident population were students in Gwynedd. It is unlikely that retirees would re-engage with the labour market given the opportunity, but the relatively large student population should provide a strong flow of future workers (the flow of students from higher and further education is discussed in the next section).

5.5 COMMUTING PATTERNS

Commuters represent an additional source labour supply. Data from the Census shows that over 95 percent of workplace employment in Anglesey was filled by those who reside within Anglesey and neighbouring Gwynedd. The majority (89 percent) of residents working outside of Anglesey do so in Gwynedd. Similarly, 92 percent of Gwynedd's workforce reside in either Anglesey or Gwynedd. Based on the 2011 commuting patterns, it is reasonable to assume that much of the labour demanded through expansion, replacement and new investments in Anglesey and Gwynedd will be sourced mainly from the two local economies.

95 percent

Of jobs taken by residents of Anglesey and Gwynedd

And 89 percent of residents working outside Anglesey do so in Gwynedd

Fig. 32. Commuting patterns, Anglesey and neighbours, 2011

		Place of residence:					
		Isle of Anglesey	Gwynedd	Conwy	Denbighshire	Flintshire	Elsewhere
Place of work:	Isle of Anglesey	87%	8%	2%	0%	0%	2%
	Gwynedd	11%	81%	4%	1%	0%	3%
	Conwy	2%	3%	84%	7%	2%	2%
	Denbighshire	0%	1%	13%	72%	7%	7%
	Flintshire	0%	0%	1%	5%	67%	26%

Source: Census 2011.

5.6 CONCLUSION

Môn a Menai's working age population is forecast to contract. **In the seven years to 2023 we expect the population aged 16 to 64 to fall by over 500 people throughout Anglesey and Gwynedd.**

Unemployment is expected to be at historic lows in Anglesey by 2023. However, the rates of unemployment are expected to remain above the regional average, especially in Gwynedd, indicating some limited capacity in the local economy.

Only a small share of the current unemployed have experience within skilled trade occupations and the prevalence of long-term unemployment suggests up-skilling would be required to involve them in the new build.

Economic inactivity represents a significant segment of the working age population in Môn a Menai, albeit a shrinking one. However, a relatively small share of this pool want a job—further limiting this potential source of labour. **Nonetheless, in 2016 there was over 4,000 working age inactive people who could potentially have joined the labour market.**

6. LOCAL SKILLS

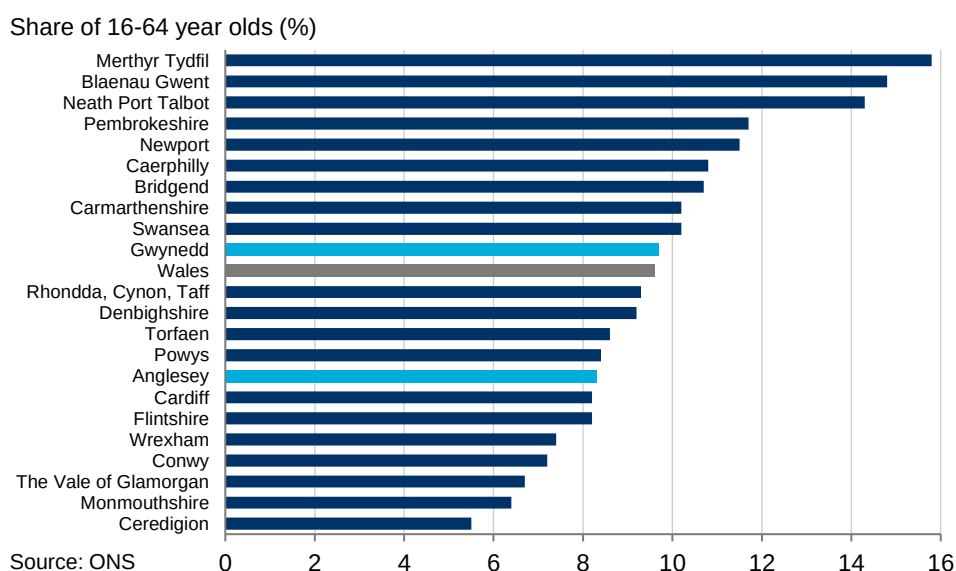
6.1 INTRODUCTION

We consider the skills profile of the available labour in Anglesey and Gwynedd. This analysis consists of an analysis of the stock of skills held by the existing population, in addition to the 'flow' of new incoming skills resulting from the existing population finding work, and incomers from both education and in-migration. While qualification levels are a key determinant of skill levels, it is acknowledged that a range of other factors, including job experience and other soft skills, are also required.

6.2 STOCK OF SKILLS

Historically, educational attainment in Anglesey has trailed that of Gwynedd and the Welsh average. In 2006, 18.4 percent of the island's working age population were recorded as having no qualifications, compared to 16.4 percent throughout Wales. Equally, the share qualified to NVQ level 3 and above trailed the regional average by nearly three percentage points. Gwynedd in comparison has performed consistently better on both fronts. However, over the last decade the island's population have upskilled strongly. So much so that in 2016, both Anglesey and Gwynedd's attainment shares at NVQ level 4 and above now broadly match that of the Welsh average. Furthermore, Anglesey now records a below average share of its working age population with no qualifications.

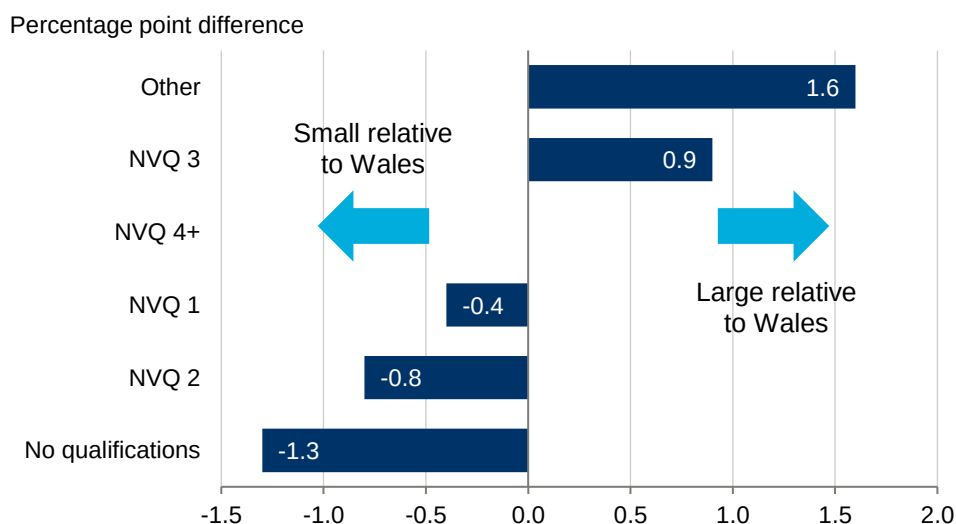
Fig. 33. No qualifications, Welsh Council areas, 2016



Skill levels most pertinent to the planned Wylfa Newydd development will be NVQ level 2 and above, with NVQ 3 the largest group. These levels include vocational/ technical certifications, as well as the higher academic

qualifications.²² The latest full years data shows that although Gwynedd recorded an above average share of working age residents educated to degree level and above, Anglesey had stronger concentrations of those holding NVQ level 3 as their highest level of educational attainment.

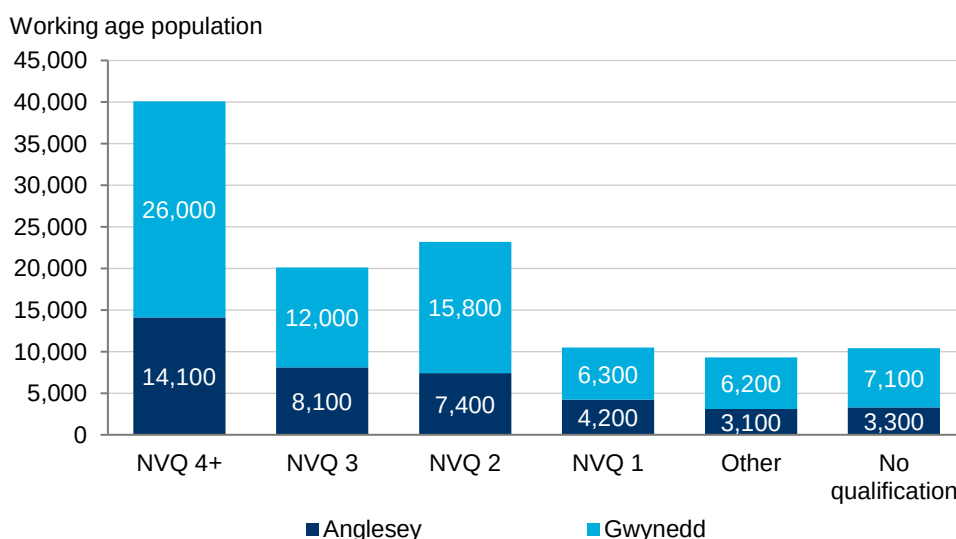
Fig. 34. Highest attainment level shares, Anglesey vs. Wales, 2016



Source: Oxford Economics

In absolute terms, the populations of Anglesey and Gwynedd collectively support over 40,000 residents qualified up to NVQ 4+ level, while an additional 20,100 residents are qualified to NVQ level 3.

Fig. 35. Population aged 16-64 by highest qualification level, Anglesey and Gwynedd, 2016



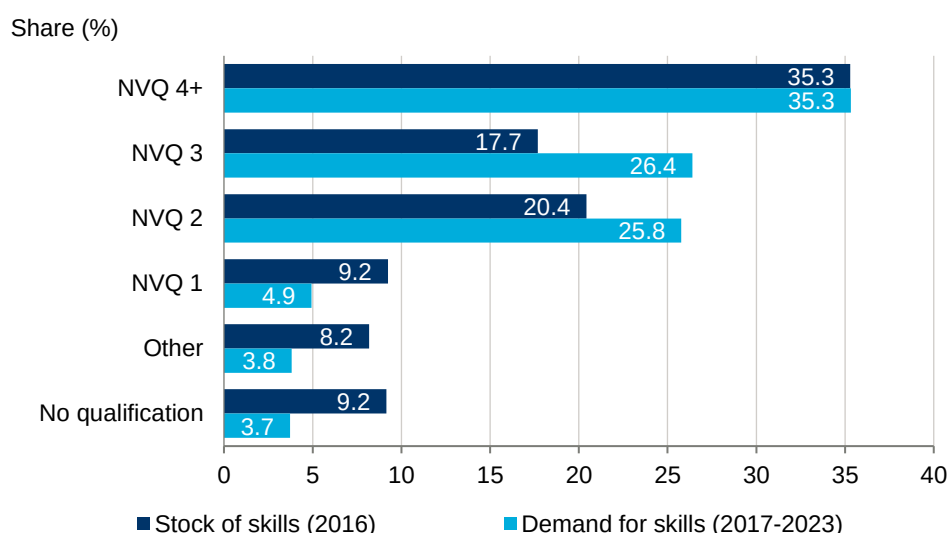
Source: ONS

²² <https://www.cityandguilds.com/qualifications-and-apprenticeships/qualifications-explained/qualification-comparisons>

Comparing the current stock of skills to those likely to be demanded under the growth scenario shows that the existing share of the resident population of Môn a Menai qualified to NVQ level 4+ is almost exactly in line with forthcoming demand. The demand for 18,300 additional jobs equates to a 46 percent increase on the existing population with this qualification level.

For the remaining skills groups, the future demand for NVQ levels 3 and 2 outweigh the existing stock of skills, by 8.7 and 5.4 percentage points respectively, while conversely the share of the population holding the remaining skills levels are around double the required share resulting from forthcoming demand to 2023. In absolute terms, the 13,700 NVQ level 3 jobs equate to a 68 percent increase on the current stock of skills, the highest of all qualification levels, while the 13,400 additional NVQ level 2 jobs is a 58 percent increase on existing levels.

Fig. 36. **Stock of and demand for skills, Growth Scenario, Môn a Menai**

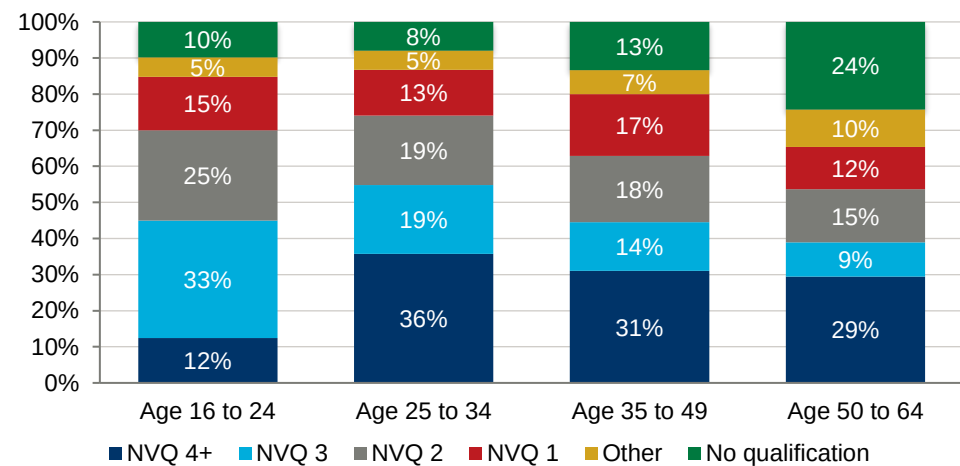


Source: Oxford Economics

As retirees leave the workforce, they will be replaced by new entrants. The younger population tend to be relatively better qualified (Fig 37). Although levels of NVQ 4+ education is lowest for the age group 16 to 24, this is largely attributable to under half of this group being 21 or over (the earliest age at which we might expect someone to achieve this qualification level). The age 25 to 34 are the best qualified, with 54 percent of the population achieving NVQ level 3 or above, compared to just 38 percent of those aged 50 to 64. Therefore, as retirees are replaced in the workforce by younger entrants, we would expect the overall skills level to improve.

Fig. 37. Qualifications by age group, Môn a Menai, 2011

Highest qualification level by age group (%)

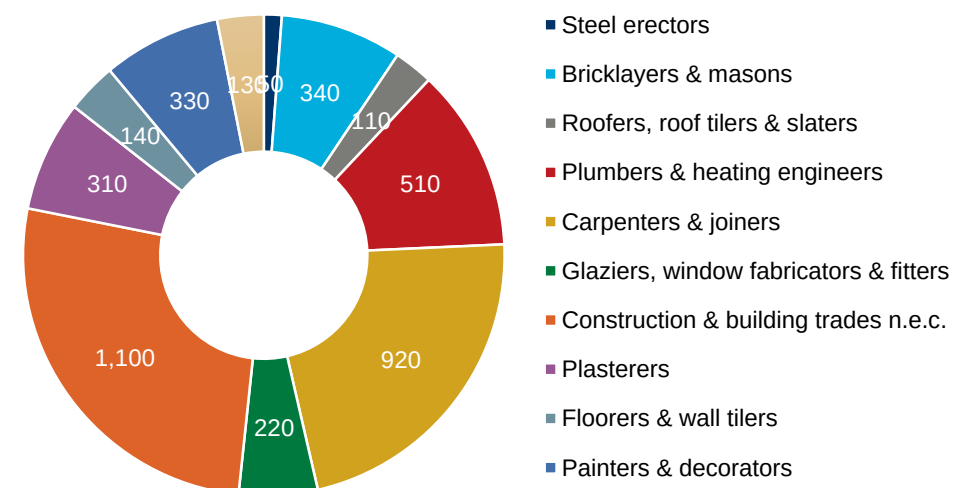


Source: ONS

We have already shown that Wylfa Newydd will demand a significant volume of people to work in skilled trades (1,300). 'Skilled construction and building trade' occupations are well represented within the Môn a Menai area. Published estimates show that this occupational group's share of the total in Anglesey and Gwynedd was 0.3 and 1.7 percentage points larger than the Welsh average respectively in 2016.

Fig. 38. Skilled construction and building trade related occupations- SOC2010 unit group, Môn a Menai, 2016

Stock of construction skills (2016)



Source: ONS

In absolute terms, residents employed within construction related occupations numbered nearly 4,200 in the Môn a Menai region, with 30 percent of this number residing in Anglesey. Common occupations include construction & building trades n.e.c, which account for 1,100 (or 26 percent of) construction jobs, followed by carpenters & joiners (920, or 22 percent) and plumbers & heating engineers (510, or 12 percent).

6.3 FLOW OF SKILLS

In this sub-section we consider potential entrants to the workforce. We estimate the flow of 'joiners' from the unemployed and inactive, alongside the current and future flow of skills from higher education, further education and school.²³ Those leaving education will add to the current stock of skills, just as those retiring or leaving the area will detract from it. To understand the number of students leaving education at each qualification level, while avoiding the 'double-counting' of those who go on to seek additional education, we consider below the trends in reverse order, beginning with higher education. In addition, we consider the profile of in-migrants, the remaining source of new skills.

6.3.1 Existing workforce

While our analysis of skills demand considered those who leave employment (replacement demand), it did not consider those that re-join each year. Just as a proportion of the working population leave their jobs each year, a share of those not employed, find work. As discussed in the North Wales Regional Skills & Employment Plan, one of the measures being considered to meet demand is to encourage *"those currently economically inactive and looking to re-enter employment"*.

To account for this we consider LFS data that on the occupation of employees by their economic activity in the previous year. Following the same approach as taken to estimate replacement demand, we apply this trend to the occupational profile of the Môn a Menai economy to understand the scale of this potential flow.

Cumulatively, up to 2023 we forecast a supply of 47,800 workers from the existing population that could meet demand. This equates to 89 percent of total demand. The profile of these workers is weighted towards elementary occupations, which represents a cumulative supply of 12,000 jobs (or 25 percent of the total), while skilled trades (7,900 jobs, or 16 percent) and personal services (5,700 jobs, or 12 percent) also represent a relatively large share.

89 percent

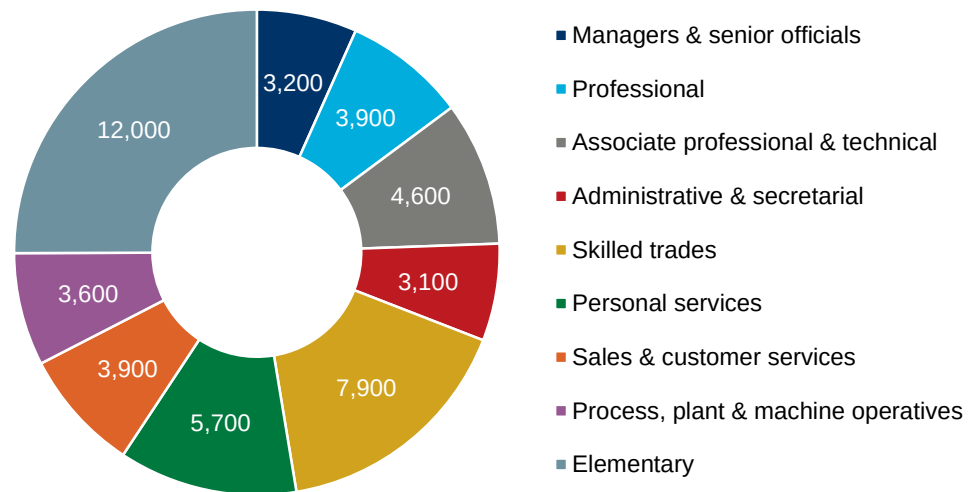
Of demand could be met by
the existing population

Up to 2023 we forecast a
supply of 47,800 workers,
who were previously
unemployed or economically
inactive, that will take up
roles across Môn a Menai.

²³ While we considered those the 'leavers' of employment in calculating replacement demand, the reverse process is likely to happen. Each year, a number of individuals who were previously not in employment will take up jobs. The previous employment status of these 'joiners' mirrors those of the leavers; they may have been unemployed, economically inactive (e.g. students) or located elsewhere (such as incoming migrants). To calculate the true balance between the supply and demand for jobs, we must account for this flow of workers finding employment locally. Note that, in order to ensure we do not double-count those taking up vacancies from other jobs, who in turn create vacancies elsewhere in the local economy, our estimate of 'joiners' accounts for only those who were previously not in employment. Further detail is provided in the Technical Annex.

Fig. 39. Cumulative supply of the existing resident population by occupation, Môn a Menai, 2016-2023

Cumulative supply of joiners (2017-2023)

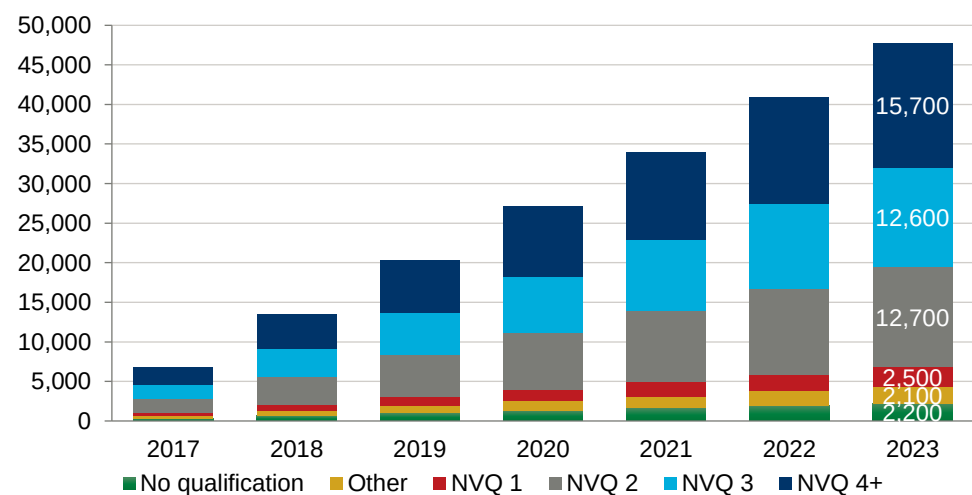


Source: Oxford Economics

As with the demand for occupations, this flow of supply may be translated into a skill level. We estimate that 15,700, or 33 percent of the total, will be qualified to NVQ level 4+. The next largest share is NVQ level 2, equivalent to 12,700, followed by NVQ level 3 (12,600). **On an annual basis, re-joiners to the world of work equates to 2,200 qualified to NVQ level 4+, and 1,800 to both NVQ levels 2 and 3 respectively.**

Fig. 40. Cumulative supply of skills by NVQ level, Môn a Menai, 2016-2023

Joiners by qualification level



Source: Oxford Economics

6.3.2 Higher Education

Bangor University is situated in Gwynedd and is a principal provider of higher education across North Wales. Almost 10,600 students studied at the university

in the 2015/16 academic year, representing just under 10 percent of the Welsh total. The university has a reputation for excellence in teaching.²⁴

The number of students at the university has increased on average by 0.6 percent per year over the ten years from 2005/06. This is in contrast to higher education providers in both Wales and the UK generally, where overall student numbers have fallen over the same period.

Fig. 41. Student numbers in higher education, 2005/06–2015/16, Levels and change

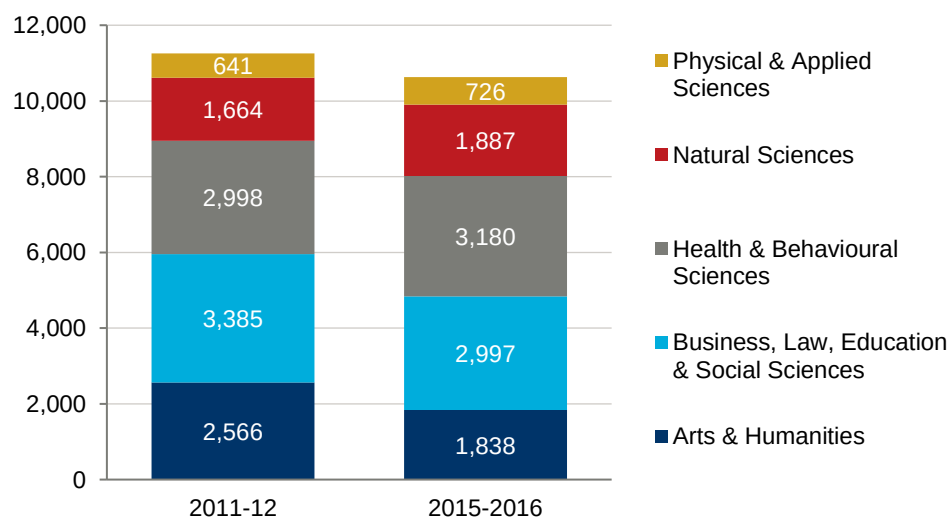
	2005/06	2015/16	Change	% y/y
Bangor University	10,060	10,630	570	0.6%
Total Wales	129,230	128,675	-555	-0.04%
Total UK	2,336,110	2,280,830	-55,280	-0.24%

Source: HESA.

Note: Includes full and part time students.

STEM subjects have become increasingly popular within the university.²⁵ Specifically, Physical & Applied Sciences and Natural Sciences, where student numbers have increased by 13 percent since 2011/12. Collectively, they accounted for 25 percent of all students at the university in the 2015/16 academic year, a four-percentage point increase over just four years.

Fig. 42. Student numbers by subject area, Bangor University, 2011/12–2015/16



Source: Bangor University

Over 3,500 graduate from the university each year. From the perspective of labour demand for Wylfa Newydd, engineering and science related subject

²⁴ Bangor University has achieved a Gold Award, the highest rating possible, in the national Teaching Excellence Framework—the only university in Wales to achieve this standard. <https://www.bangor.ac.uk/about/about-us.php.en>

²⁵ The academic disciplines of science, technology, engineering and mathematics.

Over 300

Graduates from STEM
subjects in 2016/17

Nine percent of total leavers

areas are likely to be the most in demand during the construction phase. The JACS²⁶ subject groups of physical sciences, computer science and engineering & technology (STEM) are the most likely to match the roles demanded by the new build. Over 300 students graduated from STEM subjects at the University in the 2016/17 academic year, accounting for nine percent of the total leavers that year. However, it is noted that a substantial proportion of these subjects tend to be taken up by overseas students, who may have less intention to remain in North Wales once graduated. Data for 2016/17 suggest that 18.7 percent of students in the Physical and Applied Sciences courses were from overseas excluding the EU (slightly higher than the University average of 16.7 percent). At a University wide level, the number of students from Wales has fallen from over 40 percent in 2013/14 to 35.5 percent in 2016/17. There is therefore a real challenge to get the STEM graduates to remain in Wales post-graduation.

Fig. 43. Graduates by subject group, Bangor University, 2011-2017

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Subjects allied to medicine	247	260	229	243	242	258
Biological sciences	952	930	1,008	883	958	969
Agriculture & related subjects	81	79	70	75	111	84
Physical sciences	177	147	156	142	150	166
Computer science	65	57	71	75	67	69
Engineering & technology	26	51	45	52	40	75
Social studies	167	170	189	160	163	181
Law	155	129	154	138	139	136
Business & administrative studies	848	889	1,018	835	820	773
Mass communications & documentation	53	49	66	35	47	43
Languages	224	230	256	216	193	189
Historical & philosophical studies	197	211	140	90	123	118
Creative arts & design	166	148	157	141	135	129
Education	133	128	126	124	128	118
Initial teacher training	19	7	23	13	18	17
Geographical studies	175	147	122	108	124	129
Total	3,685	3,632	3,828	3,328	3,458	3,452

Source: HESA

A recent study carried out by the Higher Education Statistics Agency (HESA) surveyed the destinations of university leavers across the UK in 2012/13. It found that over 17 percent of Bangor University's leavers typically entered further study, whereas the average share was just 12.7 percent throughout the UK. Equally, leavers from the university were typically more employable-with below average unemployment upon graduating.

²⁶ The Joint Academic Coding System (JACS).

Fig. 44. Destinations of Higher Education leavers, 2012/13, Share of total

	In work	Further study	Unemployed	Other
Bangor University	79.4%	17.2%	2.2%	1.2%
Wales HE providers	81.8%	12.6%	2.3%	3.3%
UK HE providers	81.7%	12.7%	2.3%	3.3%

Source: HESA.

Note: Based on a survey carried out in 2016/17

2,900

Of those that graduated in 2012/13, are currently in work

Only an estimated 200 with STEM related qualifications

Combining these results shows that approximately 2,883 students who graduated from Bangor University in 2012/13 are currently in work. However, the location of work for these leavers is not known. Assuming the same proportion of the STEM graduates find work, this equates to just 202 new graduates annually.

Therefore, while we might expect a future annual flow of approximately 2,900 students qualified to NVQ level 4 entering the workforce annually, only 200 will be educated in STEM subjects.

RECOMMENDED ACTIONS

There are a number of actions that the Council could take that might help encourage higher levels of student participation in STEM subjects.

Knowledge exchanges and careers advice could assist this aim. The Council should work with key stakeholders to ensure school children, parents, teachers and careers advisors have as much information on future career opportunities in Anglesey. A better understanding of the future demand for labour could help push up demand for STEM places in Higher Education and STEM and construction related places in Further Education.

However, to encourage a greater number of graduates in these subjects, supply must also be considered. To facilitate the desired outcome of the above and to address undersupply of skills, there is a need to increase STEM places at Higher Education and Further Education institutes. However, it is worth noting that degrees take a minimum of 3 years (postgraduate conversion courses could be a quicker option) and therefore additional places will only be effective at NVQ 4 level if introduced in 2019/20 academic year. In addition, any additional places in proceeding academic cohorts will be graduating post the peak level of demand.

It is also worth noting that our population forecasts for Anglesey suggest that the 20 to 24-year-old age group will contract by 17.3 percent by 2023, or by 570 individuals. In Gwynedd we expect a similar absolute fall of 536. Although this fall might not affect Bangor University enrolment numbers given its wide catchment, the fall in this age cohort will affect the local economies' ability to retain skilled graduates.

6.3.3 Further Education and A Levels

There are two main paths to achieving NVQ level 3 qualifications: to undertake a specific accredited course at college, or achieve 2 or more pass grades at A-level. We consider each in turn below.

Further Education

Pupils in Môn a Menai are served by the Grŵp Llandrillo Menai college. By combining pass rates by subject with the numbers of 'terminations' each year (either through graduating or withdrawing from the course), we may estimate the flow of NVQ level 3 graduates each year. In the academic year 2015/16, the college supported 4,127 graduates of NVQ level 3, up from 3,911 in the preceding year. In this latest year the number of graduates studying engineering and construction equated to 259 and 70 respectively.

Fig. 45. NVQ Level 3 graduates by subject group, Grŵp Llandrillo Menai, 2014-2016

Subject	2014/2015	2015/2016
Health	409	541
Science & Maths	548	522
Agriculture	76	86
Engineering	285	259
Construction	40	70
ICT	131	135
Retail (excluding Catering)	82	104
Hospitality and Catering	28	34
Leisure	296	277
Arts	636	588
History	139	138
Social sciences	174	192
Languages and Literature	237	191
Education	0	1
Foundation for Work	487	576
Business and Law	345	414
Total Leavers	3,911	4,127

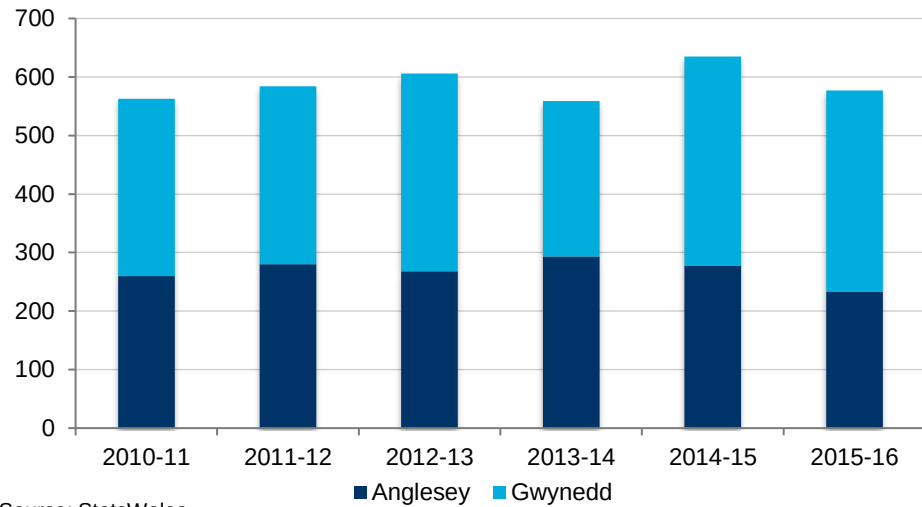
Source: Grŵp Llandrillo Menai, Welsh Government.

A-levels

Those who studied post GCSE tended to perform relatively strongly across Môn a Menai. In comparison to the Welsh average, a higher proportion of Anglesey and Gwynedd pupils achieved the equivalent of two A-level grades A-E between 2010 and 2016 (NVQ level 3). Anglesey's performance has weakened recently, with the share of pupils reaching this threshold falling three percentage points below the regional average. In terms of absolute values, on average the number of students achieving this level across this period was approximately 600 across Môn a Menai, of which 270 were from Anglesey.

Fig. 46. Students achieving two A-levels grade A-E, Anglesey and Gwynedd, 2010/11-2015/16

Students achieving 2 A-level passes (NVQ level 3)



Source: StatsWales

84 percent

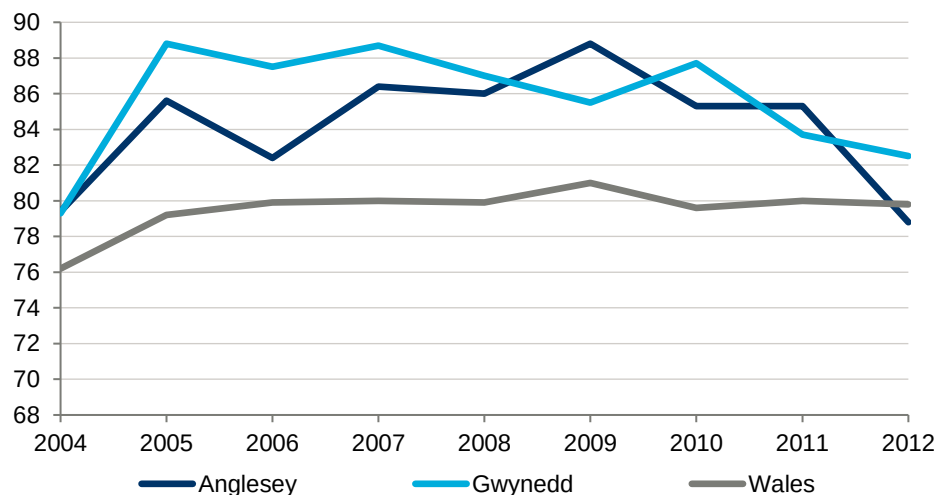
Of school leavers in Anglesey pursue further training or education

Estimated to be 500 students per year across Môn a Menai.

Anglesey and Gwynedd post-NVQ level 3/A-level school leavers exhibited an above average tendency to continue in education or training. The share of students choosing to continue their studies averaged 84 percent and 86 percent respectively between 2004 and 2012, whereas across Wales only 80 percent of school leavers typically took this route. Applying these rates to the 600 students achieving two or more A-level passes implies that approximately 500 pupils would continue in education or training across Môn a Menai, while almost all of the remaining 100 students will join the labour market.

Fig. 47. School leavers (Year 13) continuing in education/training, Anglesey and Gwynedd, 2004-2012

School leavers (Year 13) continuing in education/training (%)



Source: StatsWales

The combination of graduates from colleges and schools provides an indication of the flow of students qualified to NVQ level 3 annually. **Across Môn a Menai,**

we expect an annual flow of approximately 4,200 students qualified to NVQ level 3 per year:

- 4,100 graduating from further education courses, and
- 100 achieving 2 A-level pass grades and leaving education.

As the success of leavers from NVQ level 3 education is not tracked on a longitudinal basis, this may underestimate the true total, which would include those who are unsuccessful in achieving this higher qualification level. Similarly, given the broader catchment of higher education institutions, the extent to which some of this flow of students is duplicated in the calculation of NVQ level 4 graduates from Bangor University.

Analysis of the subjects studied by college graduates shows that only approximately 330 students achieve NVQ level 3 qualifications in construction and engineering qualifications annually.

6.3.4 NVQ 2: School and college performance

Changing demographics have meant that pupil numbers in Welsh secondary schools have been in relative decline. StatsWales figures show that the total number of pupils in secondary education has fallen in Wales by almost 17 percent in the ten years since 2006/07. Although pupil numbers have also fallen in both Anglesey and Gwynedd over this time, they have done so at a relatively slower rate (15.7 percent). Consequently, Anglesey and Gwynedd's share of the regional total has increased marginally from 5.8 percent in 2011/12 to six percent in 2016/17. Secondary school pupils number 10,400 across Môn a Menai in the most recent year, or an average of 2,100 per year.

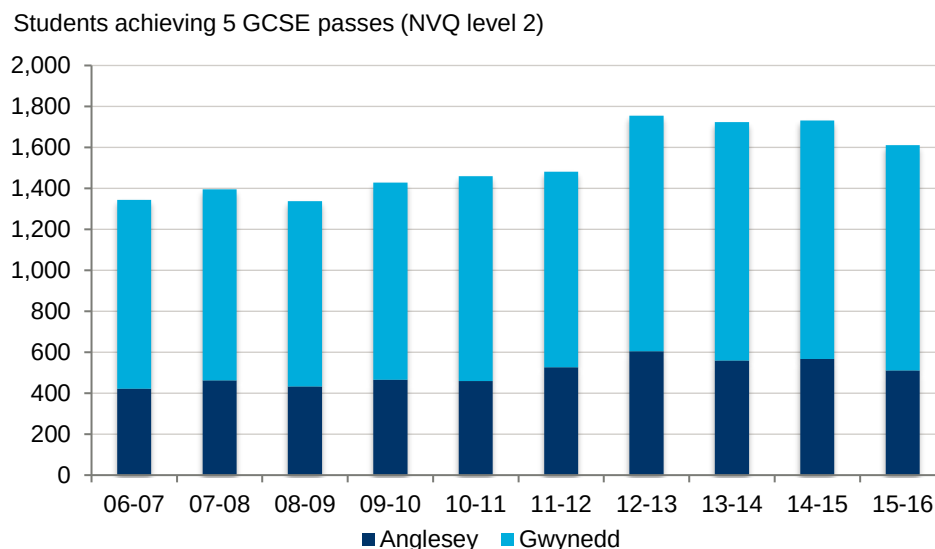
Educational outcomes in schools across Wales have improved over the decade. The proportion of students achieving at least five GCSEs at grade A*-C, equating to NVQ level 2, has risen from 55 percent in 2006/07 to 84 percent in 2015-16. This pattern is broadly reflected by improving performance across both Anglesey and Gwynedd's schools. In the 2015/16 academic year, 86 percent of Gwynedd's students achieved at least five pass grade GCSEs, whereas Anglesey equivalent was slightly below the Welsh average at 83 percent. This equates to approximately 1,600 pupils qualified to NVQ level 2 per annum across Môn a Menai.

84 percent

Pupils achieving at least five
GCSEs pass grades.

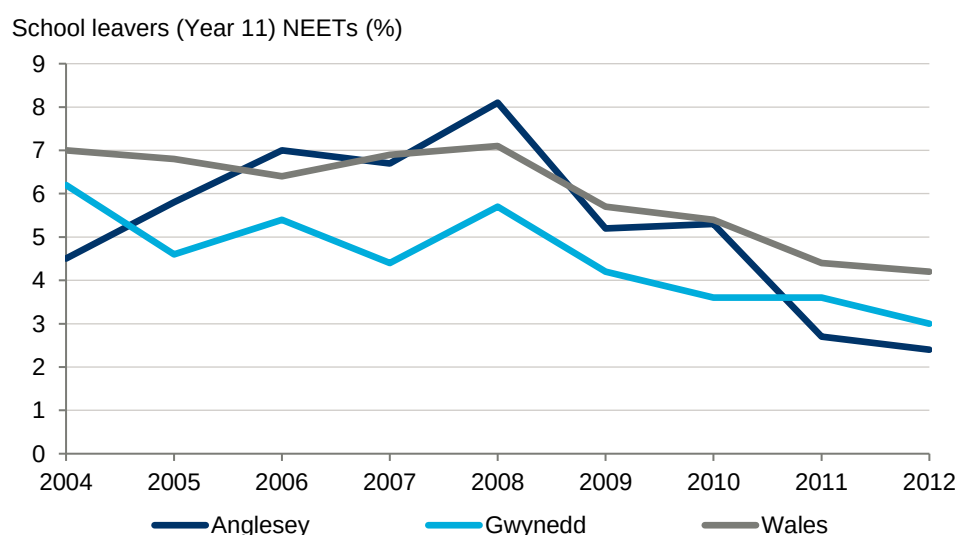
*Approximately 1,600
students per year*

Fig. 48. Students achieving 5 GCSE A*-C grades, Anglesey and Gwynedd, 2006/07-2015/16



The proportion of Welsh 16-year-old school leavers continuing with further education (including A levels) or training has increased from 80 percent of the total to 90 percent between 2004 and 2012. This trend has also been apparent in Anglesey and Gwynedd—broadly following the regional trend. Equally, the share school leavers at 16 years old which were not in education, training or employment (NEETs) has remained well below average in Gwynedd and fallen dramatically in Anglesey after 2008.²⁷

Fig. 49. School leavers (Year 11) NEETs, Anglesey and Gwynedd, 2004-2012



²⁷ NEETs are defined as those in the 16 to 24 age group.

To estimate the number of pupils for whom this is their highest level of education, we can subtract the annual flow of NVQ level 3 graduates from schools.²⁸ Therefore, in net terms, **the annual flow across Môn a Menai equates to 1,300 pupils qualified to NVQ level 2.**

In addition, each year a number of students will graduate with NVQ level 2 qualifications from the Grŵp Llandrillo Menai college. As with leavers from further education, we can combine the pass rates by subject with the numbers of 'terminations' each year (either through graduating or withdrawing from the course), we may estimate the 'flow' of NVQ level 2 graduates each year. This is presented in Fig. 50 below.

Fig. 50. NVQ Level 2 graduates by subject group, Grŵp Llandrillo Menai, 2014-2016

Subject	2014/2015	2015/2016
Health	151	200
Science & Maths	13	10
Agriculture	109	132
Engineering	288	359
Construction	149	182
ICT	50	65
Retail (excluding Catering)	0	0
Hospitality and Catering	114	106
Leisure	61	57
Arts	0	0
History	0	0
Social sciences	0	0
Languages and Literature	0	21
Education	0	39
Foundation for Work	0	0
Business and Law	96	118
Total Leavers	1,031	1,288

Source: Grŵp Llandrillo Menai, Welsh Government.

In the most recent academic year (2015/16), nearly 1,300 students graduated with NVQ level 2 qualifications from the college, while those who studied engineering and construction equates to almost 550 graduates.

The combination of school leavers and graduates from college provides an indication of the flow of students qualified to NVQ level 2 annually. **Across Môn a Menai, we expect an annual flow of approximately 2,600 students qualified to NVQ level 2 per year:**

- 1,300 school leavers graduating with 5 GCSE passes but not obtaining A-Levels, and

²⁸ We assume that all NVQ level 3 qualifications need level 2 as a prerequisite.

- 1,300 achieving NVQ level 2 qualifications from college.²⁹

Analysis of the subjects studied by college graduates shows that only approximately 550 students achieve NVQ level 2 qualifications in construction and engineering qualifications annually.

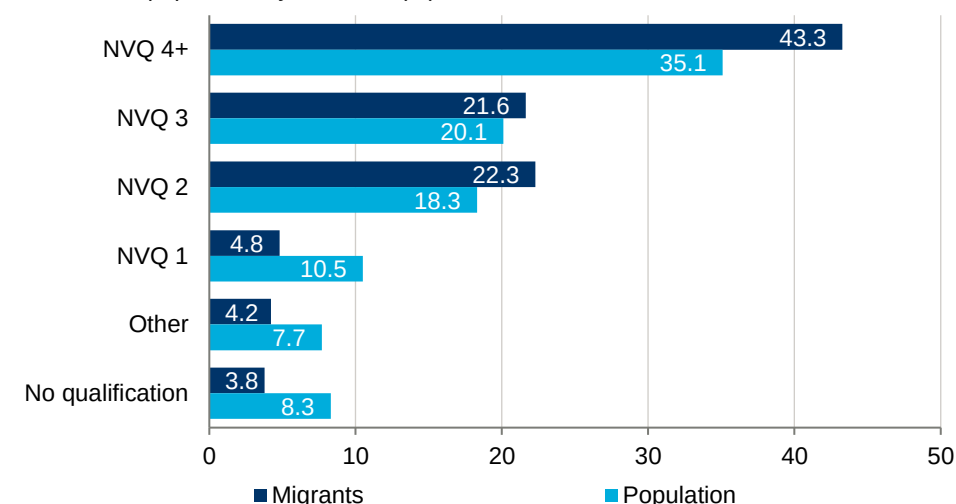
Assuming that NVQ 2 graduates from school or further education are an annual flow of new labour would be an overestimation. A proportion will continue with studies.

6.3.5 In-Migration

Alongside education, the remaining source of skills may come from migration. Specific information on the skills level of migrants joining the labour market in Anglesey is not known. However, through matching the occupations of new migrants³⁰ to the skills requirement for each occupation, we can form an estimate of the skills level of new migrants joining the labour market each year. This regional estimate is adjusted by Anglesey's occupational profile to reflect the local labour market characteristics.³¹

Fig. 51. In-migrants and total population by skill level, Anglesey, 2016

Share of the population by skill level (%)



Source: Oxford Economics

We estimate that migrants finding employment in Anglesey tend to be well qualified. The share with qualification level NVQ 4+ (43.3 percent) exceeds the existing stock by 8.2 percentage points, while migrants are also more likely to be qualified to NVQ levels 2 and 3 (by 4.0 and 1.5 percentage points respectively). Any inflow of migrants to Anglesey attracted by the 2,000 local jobs at Wylfa Newydd (and their supply chain and induced impacts) is therefore

²⁹ Owing to the limited information available on the activity of those leaving college with NVQ level 2 qualifications, we do not know the proportion that are either unemployed/economically inactive or go on to study at further education level.

³⁰ From the LFS at a regional (Wales) level.

³¹ This estimate is indirectly calculated, and therefore does not take into account other factors which may determine levels of migration, such as earnings, the availability and affordability of housing, and other socio-economic or cultural characteristics.

likely to increase the stock of these qualifications across the local labour market.

6.4 SUMMARY

Anglesey's current stock of skills has improved strongly over the last decade, with a relatively low share of working age people having no qualifications and relatively high shares educated to NVQ level 3 and above. The school level attainment among Gwynedd's young people typically outperforms that of neighbouring Anglesey and the Welsh average. Furthermore, relatively few of Anglesey and Gwynedd school leavers end up not being in some form of education, training or employment.

Despite an overall declining working age population, the majority of labour filling vacancies is likely to be supplied from the ranks of both the unemployed and economically inactive. We forecast that approximately 89 percent of demand may be met by existing residents finding employment. However, the extent to which this population may meet the requirements of employers will be determined by the suitability of the skills and qualifications they hold.

Anglesey and Gwynedd benefit from the presence of Bangor University. The university's student numbers have grown relatively strongly, especially in subject areas which lend themselves to engineering and the sciences generally.

The Grŵp Llandrillo Menai college is also a source of supply of new workers to the labour force. Each year approximately 4,100 students graduate to NVQ level 3, of which around 350 have studied engineering or construction. In addition, 1,300 achieve NVQ level 2 qualifications from the college with 550 in construction and engineering. A further 1,300 school leavers graduate with 5 GCSE passes and do not go on to complete A-Levels.

Assuming that NVQ 2 graduates from school or further education are an annual flow of new labour would however be an overestimation. A proportion will continue with studies.

Finally, the migrants joining the labour force are likely to be typically more qualified than the local population.

7. RECOMMENDED ACTIONS

In this section, we introduce possible actions to mitigate against an undersupply of skills. If enacted, it is hoped that these actions will promote and secure a timely supply of local skills to meet anticipated future demands.

7.1 KNOWLEDGE EXCHANGE / CAREERS ADVICE

The Council should work with key stakeholders to ensure school children, parents, teachers and careers advisors have as much information as possible on future career opportunities in Anglesey. A better understanding of the future demand for labour could help push up demand for STEM places in Higher Education and, STEM and construction related places in Further Education.

Linked to the above information through marketing, social media and school visits by professional and sector skills bodies could also highlight future and current job opportunities and the training path required.

7.2 ADDITIONAL PLACES IN EDUCATION

To facilitate the desired outcome of the above and to address undersupply of skills, there is a need to increase STEM places at Higher Education and Further Education institutes. However, it is worth noting that degrees take a minimum of 3 years (postgraduate conversion courses could be a quicker option) and therefore additional places will only be effective at NVQ 4 level if introduced in 2019/20 academic year. In addition, any additional places in proceeding academic cohorts will be graduating post the peak level of demand.

7.3 TRACKING SCHOOL LEAVERS

A tracker system for school leavers along similar lines of Llwybro / Routes could be useful. This would help track individual's careers and development, and could help identify possible candidates for hard to fill vacancies. It could also help identify future ex-pats that might be open to return to North Wales for the right employment opportunity.

In the interim, if possible, it would be useful to understand the education and career paths of recent school leavers in Anglesey and Gwynedd. For example, how many entered further education, higher education, employment, and apprenticeship programmes versus how many are unemployed and inactive. Such information might help formulate additional targeted training programmes to meet the specific requirements of NEETS.

7.4 MAXIMISING LOCAL EMPLOYMENT AT WYLFA NEWYDD

Beyond peak labour demand in 2023, demand for labour will fall in Anglesey. This will have implications for residents who have trained, upskilled and graduated in the skills needed to fill jobs in Anglesey pre-2023. To mitigate against post-2023 job loss and to maximise employment for these individuals, Horizon should consider maintaining residents on site rather than the transient labour who are due to take the 7,000 non-local jobs at peak. A commitment to such objectives might also encourage more residents to pursue a career in

these areas and as such push up demand for STEM and construction related courses.

7.5 REACHING OUT TO EX-PATS

Given the scale of labour market opportunities, Anglesey Council should reach out to ex-Anglesey residents by sharing some of the known forth-coming opportunities. Social media and articles in the local news, along with a dedicated resource for sharing current and upcoming opportunities could be enough to encourage skilled people back. Should this be successful there is also an argument that the Council should work with developers to push forward planned housing developments.

7.6 SEQUENCING INFRASTRUCTURE AND ENERGY INVESTMENTS

We are aware that Wylfa Newydd is not the only planned investment for North Wales or Anglesey. Given the demand for construction related labour for other projects we would suggest the Councils in North Wales work together with the Welsh Government to sequence future infrastructure and energy investments to avoid putting further pressure on the sector and pushing up construction costs.

7.7 PROMOTING RETURN TO WORK PROJECTS

The extent to which the local population can meet labour demand is partially subject to the number of unemployed and economically inactive residents who are able to take up these positions. While many of the residents will have the requisite skills and employment experience to reenter the workforce, others – especially the long-term unemployed – may not. There may be a need to support projects and programmes that ensure that those out of work are aware of the opportunities available in the labour market. Similarly, the Council should seek to provide assistance to support those seeking to return to the labour market, who may lack some of the skills and competencies required to do so. This could take the form of interventions such as supporting residents in filling out application forms and gaining interview practice, in order to maximise the opportunities to return to work.

8. TECHNICAL ANNEX

INTRODUCTION

Oxford Economics have previously undertaken an analysis of the baseline and growth scenarios for IACC. This work provides a forecast of the scale of employment across Anglesey, Gwynedd and wider geographies in both scenarios up to 2030. The task translates these forecasts into a jobs demand requirement, capturing the requirement for both replacement and expansion demand, before understanding the occupational, and in turn skills level, required to meet demand.

REPLACEMENT AND EXPANSION DEMAND

The estimate of total demand in the labour market in a given year is formed by calculating both replacement and expansion demand.

Replacement demand

Replacement demand represents how many more people will be required at each level due to people leaving the workforce. There are many reasons why people leave the labour market and need to be replaced to sustain a given level of employment. Whilst replacing the vacant position creates additional labour demand, it has no net effect on total employment. Reasons for leaving employment include:

- Unemployment;
- Inactivity;
- Out migration;
- Retirement;
- Death; and,
- Leaving for another job in a different occupational group or sector.

This 'replacement' category is much larger than expansion demand and explains why even declining sectors such as manufacturing still require new staff / advertise vacancies. Leaver rates by occupation are calculated from the Labour Force Survey for Scotland. These rates are applied across all geographies. Note: the replacement demand by occupation results are people based.

Expansion demand

Expansion demand refers to the net change in total employment by occupation over the forecast period and thus the results can be positive or negative. The results are presented for each of the 25 occupation minor groupings. As the employment projections are considered on an annual basis, the calculation of expansion demand considers employment in one year relative to the previous year. For example, expansion demand for a given sector in 2017 will equal the difference between employment in that year and in the previous year (2016).

OCCUPATIONS DEMAND

The Annual Population Survey (APS) provides data on employment by occupation for Wales and its local authority districts. The forecasts are derived using a SIC/SOC matrix, combining

the 25 occupation groupings with the 19 broad economic sectors. The ratio of occupations within each sector for 2001 and 2011 is calculated from the Census. For all other years we use Labour Force Survey for Wales. The share of each occupation by sector is forecast based upon trend, and are applied to the sectoral employment data for each local area, to give an estimate of occupations within each sector. The results are adjusted to reflect the APS data for each local area, capturing local differences in the occupational profiles across different geographic areas. The occupations by sector are then aggregated to give occupations by 25 minor occupation groupings. Therefore, the overall economy occupational structure is heavily dependent upon sectoral composition and future trends can be largely explained by sectoral trends.

SKILLS DEMAND

The forecast for skills is formed on a similar basis to that of occupations. However, while occupations are estimated based on the relationship with economic sectors, skills are estimated based on the occupation forecasts. This is because a certain skill level is a better indicator of the occupation an individual may take, rather than their economic sector.

To estimate skills demand, the occupation demand figures are applied to an occupation by highest level of qualification matrix to produce an estimate of the likely skills requirements over the forecast period. The matrix is generated using the Labour Force Survey. The data is filtered to select only those people who were in employment one year ago and who changed their job. A crosstabulation is run on this sample for each of the last three years and taking a three-year average. Rather than use the current qualification structure of all employed people, the qualification structure of 'inflows' is used to try and capture the fact that entry requirements to occupations have increased over time. In other words, it is entirely possible that current corporate managers who are approaching retirement may have climbed up the career ladder without having any formal qualifications whereas, to become a corporate manager now will most likely require a degree or similar formal qualification.

9. MAXIMISING THE GROWTH OPPORTUNITY

INTRODUCTION

As detailed in section 4, the growth scenario assumes that 2,000 (or 22.4 percent) of the construction jobs at the Wylfa Newydd development will be open to the 'local' population. The growth scenario therefore excludes the remaining 7,000 on-site jobs, assuming that they are taken up by workers from elsewhere, although the indirect and induced effects of these workers on the local economy are accounted for.

We have demonstrated that the supply of skills across Môn a Menai to be sufficient in most instances to meet this 'local' demand. This draws into question the extent to which the local supply of skills may be sufficient to capture a greater share of the construction phase jobs.

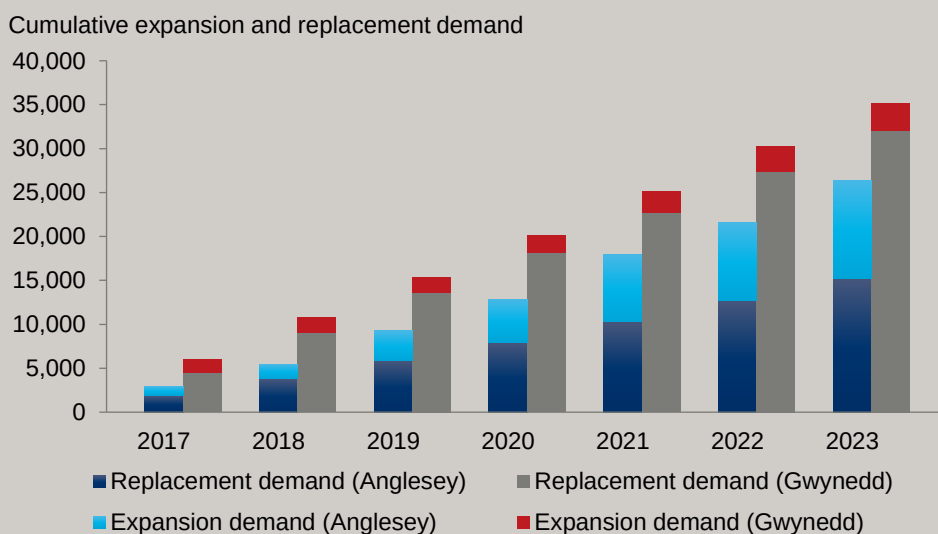
The analysis below sets out the total demand for jobs by occupation and skill level if we assume all construction phase jobs are available to the local labour force. We then compare this to the supply of skills locally.

This analysis is presented for indicative purposes only, and does not represent our best estimate of the likely supply of workers available within Môn a Menai to meet forthcoming demand.

TOTAL ECONOMIC IMPACT OF WYFLA NEWYDD

Across Môn a Menai, the cumulative total demand from 2016 to 2023 equates to a demand for 61,600 jobs. This represents an 8,000 job, or 15 percent, increase on the growth scenario discussed in section 4. When we consider the all construction phase jobs, the composition of jobs demanded changes. Under this final scenario, expansion demand accounts for 14,400 jobs, a 6,800 (or 89 percent) increase on the growth scenario (set out in section 4). Expansion demand now accounts for 23 percent of jobs demand, compared to just 14 percent in the growth scenario. Anglesey accounts for 43 percent of demand across Môn a Menai, 26,400 jobs, a rate 9 percentage points higher than in the growth scenario (34 percent).

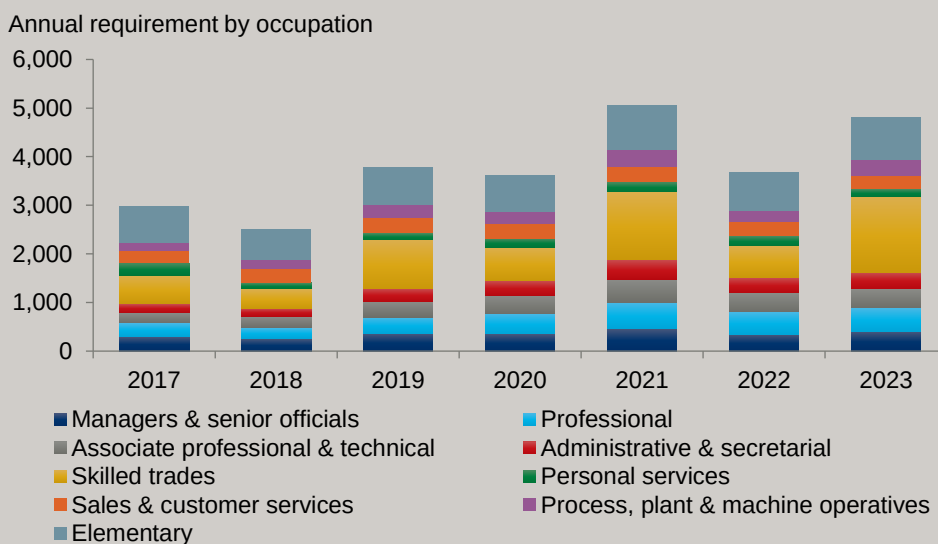
Fig. 52. Cumulative expansion and replacement demand, Anglesey and Gwynedd, 2016 to 2023



Source: Oxford Economics

The occupations required as part of the Wylfa Newydd construction phase are dominated by skilled trades. Therefore construction-related occupations form a greater overall share. Under this scenario demand for skilled trades increases to 6,300 jobs (or 24 percent of the total), a 2,500 (or 66 percent) increase on the growth scenario.

Fig. 53. Total demand for jobs by occupation, Anglesey, 2017 to 2023



Source: Oxford Economics

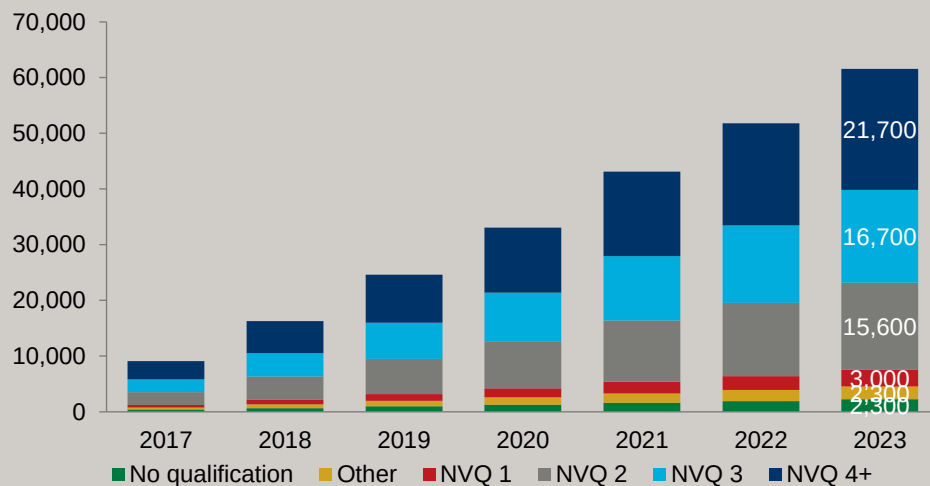
While the relative shares of each skill level remain broadly unchanged, the higher overall demand results in an additional cumulative demand for 2,900 workers qualified to NVQ level 4+ over the period 2017 to 2023, a 15 percent increase on the growth scenario. Similarly, the demand for NVQ levels 3 and 2 have increased by 2,400 (17 percent) and 1,800 (13 percent) respectively. The average annual demand across Môn a Menai is as follows:

- 3,100 workers qualified to NVQ level 4+ (i.e. degree level or higher);

- 2,400 workers qualified to NVQ level 3 (i.e. further education); and
- 2,200 workers qualified to NVQ level 2 (i.e. school-leavers).

Fig. 54. Total demand by skill level, Môn a Menai, 2017 to 2023

Cumulative total requirement for skills



Source: Oxford Economics

When translated into subject requirements, this equates to a demand for 5,100 students of STEM subjects across the period to 2023, at an average rate of 700 per annum. Similarly, of the 6,000 skilled trades that are in construction-related occupations, demand for NVQ level 3 and 2 skills equate to 3,000 and 1,300 over this period, or 430 and 190 per annum respectively.

COMPARISON WITH SUPPLY

On face value, comparing the potential supply with the overall demand for jobs across Môn a Menai shows that the local economy should have a sufficient flow of new workers to meet demand for NVQ levels 2 to 4+, with shortfalls in NVQ level 4+ STEM subjects and NVQ level 3 construction and engineering subjects.

Fig. 55. Annual total demand and supply

Qualification	Demand	Supply	Maximum possible share of demand
NVQ 4+: All subjects	3,100	2,200 joiners are estimated to come from the unemployed and economically inactive each year. - There are approximately 3,500 graduates per annum from Bangor University, of which c.2,900 are expected to join the labour market in the UK.	3,100 jobs (100 percent)
NVQ 4+: STEM subjects	700	- There are over 300 graduates in STEM subjects each year from Bangor University. - c.200 STEM graduates are estimated to find work in the UK each year - However given the small share of Welsh students at Bangor, it may be a significant challenge to retain graduates.	200 jobs (29 percent)
NVQ 3: All subjects	2,380	- We estimate there could be approximately 1,800 joiners from the unemployed/economically inactive with NVQ 3 qualifications. - In addition, there is an annual flow of approximately 4,100 graduates from further education. - Furthermore, 100 school leavers achieve A levels each year.	2,380 jobs (100 percent)
NVQ 3: Construction/ engineering	430	330 graduates in construction and engineering subjects.	330 jobs (77 percent)
NVQ 2: All subjects	2,230	- We estimate there could be approximately 1,800 joiners from the unemployed/economically inactive with NVQ 2 qualifications. - In addition, there is an annual flow of approximately 1,300 graduates from further education and a further 1,300 school leavers who do not continue with their education. .	2,230 jobs (100 percent)
NVQ 2: Construction/ Engineering	190	550 graduates in construction and engineering subjects.	190 jobs (100 percent).

In practice this is misleading. Although there may be a sufficient volume of people at each qualification level, not all of their skill sets are likely to be relevant for work at Wylfa Newydd. In addition, we would expect only a proportion of new students to join the local labour market. A proportion will choose to leave to take up opportunities elsewhere, some will return home and others will remain economically inactive. The extent to which the Môn a Menai labour market can encourage and retain new skilled workers will, in part, be determined by the effectiveness of the recommended actions set out in section 7.

We should also note that there are wider supply side factors that need considered. For example, Horizon are preparing to use hotels, B&Bs, caravan parks and a purpose-built development to house their 7,000 non-local labour force. Therefore, a lack of available housing supply will have implications for the capacity of the local area to retain labour and attract new residents to work on the Wylfa Newydd project. Likewise, there will be implications on the demand put on public services (e.g. public administration, education and health).



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