Supply Chain Employment

Ethanol to Jet Fuel Facility

May 2023

Introduction

1. This Supply Chain Employment analysis has been produced by Turley Economics on behalf of LanzaTech UK Limited to inform various elements of the planning application for the proposed development of the Ethanol to Jet Fuel production facility, Port Talbot, hereafter referred to as 'The Proposed Scheme'.

2. The purpose of this note is to set out the economic impacts to supply chains within Neath Port Talbot and Wales as a result of the Proposed Scheme coming forward. The note quantifies the impact on supply chains during both the construction and operational phase, aswell as qualitatively outlining some of the ambitions of LanzaTech's procurement strategy.

3. The analysis within this note is intended to be used to inform the assessment of economic impacts and subsequently, communications about the scheme though it should be acknowledged that specific details are liable to change as development progresses.

Operational Phase - Supply Chain Costs

4. LanzaTech expect there to be a significant capital expenditure outlay in the construction of the Proposed Scheme. Additionally, they anticipate that the scheme will require considerable annual maintenance costs.

Construction Phase - Supply Chain Strategy

5. LanzaTech's build strategy is to prefabricate the main process equipment as modules off-site in order to reduce some construction risk.

6. LanzaTech believes that there is the capability within South Wales for fabrication to be undertaken by existing contractors within the region.

7. Using local firms for fabrication will greatly reduce the cost and risk of shipping from international locations which have a lower cost base.

8. However, during the front-end engineering design stage (FEED) LanzaTech will undertake an investigation of costs and other important factors to evaluate local and international options.

9. Ultimately, the chosen contractor will not be selected until after the Final Investment Decision (FID) and will depend on both fabricator capabilities and the total landed cost.

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10. LanzaTech will look to use specialist local contractors for maintenance and other work vital to the ongoing operation of the Proposed Scheme. This will include tasks such as water treatment, waste management, chemical management and ship loading / unloading.

11. Applying Business Population Estimates to LanzaTech's anticipated annual capital maintenance, it is estimated that approximately 130 FTE jobs will be supported on an annual basis in the supply chain[1] . This is shown in the table below.

12. Neath Port Talbot is already well placed to take advantage of these opportunities. The ONS' Business Counts and the Business Register and Employment Survey indicate there that are 30 firms involved in the 'Repair and installation of machinery and equipment' who employ 500 people, 35 firms operating in the 'Water supply; sewerage, waste management and remediation activities' sector that employ 600 people[2][3] and a further 10 firms involved in the 'Manufacture of chemicals and chemical products', who also employ 600 people.

13. When this data is converted to Location Quotients it is evident that the area has an above average concentration of these activities, indicating an area specialism[4]. This is particularly the case for 'Repair and installation of machinery and equipment' (LQ 1.80) and the 'Manufacture of chemicals and chemical products' (LQ 2.52).

14. This is summarised in Table 1 below, in which the national figures for Wales are also provided.

15. A concentration of suitable firms within Neath Port Talbot means that businesses in the area are well placed to take advantage of supply chain opportunities. This will provide economic benefit within the area rather than these leaking elsewhere across the country and UK.

[1] ONS (2022) Business population estimates for the UK and regions 2022
[2] ONS (2022) UK Business Counts - local units by industry and employment size band
[3] ONS (2022) Business Register and Employment Survey 2021
[4] Location quotients compare the concentration of an industry within a specific area (Neath Port Talbot) to the concentration of that industry nationwide (Wales). A Location Quotient of greater than 1, therefore, would mean that Neath Port Talbot has proportionally more workers employed in a specific sector than Wales.

Table 1: Business and Employment Counts in Neath Port Talbot and Wales

Industry	Neath Port Talbot			Wales	
	Business Counts	Employment	Location Quotient	Business Counts	Employment
Repair and installation of machinery and equipment	30	500	1.80	785	7,000
Water supply; sewerage, waste management and remediation activities	35	600	1.16	650	13,000
Manufacture of chemicals and chemical products	10	600	2.52	185	6,000
Total	**75**	**1,700**	**-**	**1,620**	**26,000**
As a % of area total	*1.9%*	*3.2%*	-	*1.2%*	*1.9%*

Source: ONS

16. The ONS also provide Gross Value Added (GVA) multipliers, broken down by industry, that indicate that on-site activities specific to the Proposed Scheme should induce significant levels of further economic activity elsewhere in the local economy[5]. When there is an increase in demand for a product, it is assumed that there will be an increase in the output of an industry as producers react to meet increased demand, this is a direct effect. As producers increase their output, there will also be further increases in use down the supply chain; this is the indirect effect. Combining the direct and indirect effects means that the level of household income throughout the economy will increase due to these higher employment levels.

17. A product having a GVA multiplier of 1.5 means that an increase of £1 million in the final demand for the product is estimated to increase total GVA by £1.5 million. The Homes & Communities Agency (now Homes England) Additionality Guide advises that they have identified an average composite multiplier of 1.45 at the regional level[6]. In comparison, the GVA multiplier for 'Petrochemicals - 20.14/16/17/60' is 2.217, 'Waste collection, treatment and disposal services; materials recovery services' is 2.211 and 'Natural water; water treatment and supply services' is 1.341. The on-site activities will likely stimulate a greater economic impact than the average. This is summarised in the table below.

[5] ONS (2022) United Kingdom Input-Output Analytical Tables, 2019
[6] Homes and Communities Agency (2014) Additionality Guide: Fourth Edition

Table 2: Summary of Economic Multipliers

Sector	GVA Multiplier Value
Petrochemicals - 20.14/16/17/60	2.217
Waste collection, treatment and disposal services; materials recovery services	2.211
HCA Composite Multiplier (Regional)	1.45
Natural water; water treatment and supply services	1.341

Source: ONS; HCA Additionality Guide

18. In this scenario therefore, if an additional £1 million worth of petrochemicals was produced then the direct and indirect impact on the economy would be £2.217 million, as the supply chain reacts to the initial increase in production[7]. This is a step above the standard regional multiplier of 1.45, which would have a direct and indirect impact of £1.45 million.

19. Further, Experian data allows us to estimate an average GVA per FTE worker in Neath Port Talbot for Manufacturing activities. Over the period 2018 – 2022, the average GVA per FTE worker for manufacturing was £51,000. Therefore, it is possible to estimate that for every 100 Gross FTE jobs on site, there will be a net direct operational impact of £5.1 million.

20. The Welsh Government published their latest industrial strategy in April 2023 titled *A Manufacturing Future for Wales: Our Journey to 'Wales 4.0'*, within this there was a strategic objective to '*Develop the conditions to anchor key manufacturing companies in Wales, including provision of modern infrastructure and resilient supply chains*'[8]. Having more localised supply chains that are able to absorb sudden shocks around the world is a specific element of this objective. The Proposed Scheme has the potential to contribute to this objective.

Key Findings

21. This Supply Chain Employment analysis has been produced by Turley Economics on behalf of LanzaTech UK Limited to inform various elements of the planning application for the proposed development of the Ethanol to Jet Fuel production facility, Port Talbot.

22. This analysis will particularly inform reporting relating to the economic impacts of the Proposed Scheme, with figures relating to recurring supply chain employment and productivity multipliers, set to be utilised in order to be reviewed against standard assumptions to enable modelling to be adapted and tailored to the proposed scheme where appropriate.

23. The following key findings will be used to inform the application of multipliers:

[7] The estimates provided within this assessment do not allow for leakage and displacement effects.
[8] Welsh Government (2023) A manufacturing future for Wales: our journey to Wales 4.0

- LanzaTech will seek to use local contractors where feasible, during the construction phase as this will reduce costs and shipping risks.
- LanzaTech anticipates significant annual capital expenditure, which could support up to 130 FTE jobs in the supply chain.
- It expects to use local firms involved in activities such as water treatment, waste management, chemical management and ship loading / unloading wherever possible.
- ONS data indicates that there is a considerable pool of firms and workers operating in these sectors who will be able to take advantage of the opportunity created by the Proposed Scheme.
- More firms and employees within Neath Port Talbot are operating in activities specific to the Proposed Scheme when compared to Wales, demonstrating an area specialism and an ability to benefit from associated supply chains.
- ONS GVA multiplier data indicates that the economic activity taking place on-site will induce significant further economic activity elsewhere in the supply chain, and the wider region, helping to augment the economic benefits generated by development.
- Comparing this to the HCA's usual composite regional multiplier indicates that the Proposed Scheme would generate a higher than usual increase in total productivity in the economy. These multipliers will be applied where appropriate in the economic impact modelling (though noting that in some instances the worst-case position i.e. the composite regional multiplier, is likely to be used, such as in the EIA).

24. The Welsh Government has stated its intention to attract key manufacturing companies in Wales and develop strong supply chains to support their operation. The Proposed Scheme will be able to readily contribute to this ambition.

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31 May 2023

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