Keuper Gas Storage Project

Preliminary Environmental Information Report – Socio-economic Characteristics

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ACRONYMS AND ABBREVIATIONS

Acronym	Description
APS	Annual Population Survey
BRES	Business Register and Employment Survey
CAPEX	Project Capital Expenditure
CEMP	Construction Environment Management Plan
EIA	Environmental Impact Assessment
ERM	Environmental Resources Management

Acronym	Description
ES	Environmental Statement
FTE	Full Time Equivalent
GVA	Gross Value Added
IMD	Indices of Multiple Deprivation
KGSL	Keuper Gas Storage Limited
KGSP	Keuper Gas Storage Project
LSOA	Lower Super Output Area
MC	Material Change
NPPF	National Planning Policy Framework
NPS	National Policy Statement
ONS	Office for National Statistics
PEIR	Preliminary Environmental Information Report
PROW	Public Rights of Way
SIC	Standard Industrial Classification
SOC	Standard Occupational Classification
STEM	Science Technology Engineering Maths

13. SOCIO-ECONOMIC CHARACTERISTICS

13.1 INTRODUCTION

13.1.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) assesses the likely significant effects of the Proposed Development with respect to Socio-economic Characteristics, including employment, gross value added (GVA), wider socio-economic effects, and tourism and recreation.

13.1.1.2 The chapter provides:

- the policy context for socio-economic characteristics;
- consultation feedback on the Proposed Development;
- the assessment methodology and criteria;
- the baseline conditions in the defined Study Area;
- the mitigation measures the Applicant is committed to implementing; and
- an assessment of the likely significant effects with these measures adopted, in relation to the construction, operation, and maintenance and decommissioning phases of the Proposed Development.

13.1.1.3 The assessment of socio-economic characteristics is closely associated with the population and human health components **Chapter 14, Population and Human Health**).

13.1.1.4 It also draws on the findings of other relevant assessments including:

- **Chapter 8 Air Quality;**
- **Chapter 9: Noise and Vibration; and**
- **Chapter 11: Landscape and Visual Impact.**

13.2 LEGISLATION, POLICY AND GUIDANCE

13.2.1.1 The assessment considers key legislation, planning policy and guidance that are relevant to the Proposed Development and to socio-economic assessment.

13.2.1.2 For further detail regarding planning policy and the general legislative context of the Proposed Development, please refer to **Chapter 5, Planning and Policy Context**.

13.2.2 LEGISLATION

13.2.2.1 Regulation 5 (2) of the Environmental Impact Assessment (EIA) Regulations requires the EIA to "*identify, describe and assess in an appropriate manner, in light of each individual case, the direct and*

indirect significant effects of the Proposed Development on the following factors—(a) population…"[1].

13.2.2.2 Population is commonly accepted as being both social and economic impacts from a UK EIA perspective, although it is not specifically defined as such. Beyond the above broad requirement there are no legislative requirements for socio-economic assessments.

13.2.3 NATIONAL POLICY STATEMENT

13.2.3.1 The overarching National Policy Statement (NPS) for Energy (EN-1) sets out the national policy for energy infrastructure[2].

13.2.3.2 Section 5.13 concerns socio-economic impacts and identifies the following categories of impacts that should be considered:

- the creation of jobs and training opportunities;
- the contribution to the development of low-carbon industries at the local and regional level as well as nationally;
- the provision of additional local services and improvements to local infrastructure;
- any indirect beneficial impacts for the region hosting the infrastructure;
- effects on tourism and other users of the area;
- the impact of a changing influx of workers during the different construction, operation and maintenance and decommissioning phases of the energy infrastructure; and
- cumulative effects.

13.2.4 NATIONAL PLANNING POLICY FRAMEWORK

13.2.4.1 The National Planning Policy Framework (NPPF) sets out the UK Government's planning policies and provides a framework for sustainable development[3].

13.2.4.2 The NPPF has three overarching objectives: economic, social, and environmental. The economic objective focuses on building a strong, responsive and competitive economy, for example, by identifying and coordinating the provision of infrastructure. The social objective focuses on supporting strong, vibrant and healthy communities. Lastly, the environmental objective focuses on

[1] The Infrastructure Planning (Environmental Impact Assessment) Regulations. 2017. *The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017*. London: UK Government.
[2] NPS. 2023. *Overarching National Policy Statement for Energy (NPS EN-1)*. London: Department for Energy Security and Net Zero. Available online at: EN-1 Overarching National Policy Statement for Energy.
[3] Department for Levelling Up, Housing and Communities. 2024. *National Planning Policy Framework*. London: Ministry of Housing, Communities and Local Government.

protecting and enhancing the natural, built and historic environment.

13.2.5 LOCAL PLANNING POLICY

13.2.5.1 The Cheshire West and Chester Local Plan was adopted in January 2015[4]. The following strategic objectives of the Local Plan are considered relevant to the socio-economic assessment:

- SO02: Support a vibrant, diverse and competitive local economy that provides a range of job opportunities to support sustainable communities; and
- SO07: Support education and skills and ensure that deprived communities have access to services and employment.

13.2.5.2 At the time of writing, Cheshire West and Chester Council is consulting on an update to the Local Plan.

13.2.6 GUIDANCE

13.2.6.1 There is little published guidance for socio-economic or tourism and recreation impact assessment. The assessment methodology has therefore been developed based on established industry best practice, expert professional judgement, and considering consultation feedback.

13.3 CONSULTATION

13.3.1 EIA SCOPING

13.3.1.1 A request for a formal EIA Scoping Opinion was submitted to the Planning Inspectorate on 22 April 2025 (**Appendix 1A, EIA Scoping Report**). A Scoping Opinion from the Planning Inspectorate was received on 5 June 2025 (included as **Appendix 1B, EIA Scoping Opinion**).

13.3.1.2 Comments received within the Scoping Opinion which are considered relevant to socio-economics, tourism and recreation are provided in **Table 13.1** – below, which also explains how and where they have been addressed in this Chapter.

[4] Cheshire West and Chester Council. 2015. *Cheshire West and Chester Local Plan*. Chester: Cheshire West and Chester Council. Available online at: Local Plan - Part One | Cheshire West and Chester Council.

TABLE 13.1 – SCOPING OPINION

Issue	Planning Inspectorate Comments	Response / Action	Reference within this document
Access	This matter is proposed to be scoped out on the basis that the proposed changes would not be materially different to that assessed in the original Environmental Statement (ES) for the Consented Development. The original ES concluded that, during construction, there would be a small short-term impact, temporary in nature, due to increased levels of traffic, but that access to businesses or properties would not be prevented. On the basis of the above, together with the information provided in Technical Appendix E (Traffic and Transport), the Inspectorate agrees that the proposed changes would not result in significantly different access impacts from those assessed in the original ES for the Consented Development and no further assessment is required.	No further action, agreed that this can be scoped out of further assessment.	N/A
Land use and business operators	The Inspectorate agrees that the proposed changes would not result in significantly different land use and business operators impacts from those assessed in the original ES for the Consented Development. No further assessment is required.	No further action, agreed that this can be scoped out of further assessment.	N/A
Accommodation: Socio-cultural effects	The Scoping Report draws on the conclusion of the socio-economic assessment in the ES for the Consented Development, which identified that the majority of construction workers would be drawn	No further action, agreed that this can be scoped out of further assessment.	N/A

Issue	Planning Inspectorate Comments	Response / Action	Reference within this document
	from within a wider study area, but within a 60-minute drive time of the site. The Scoping Report states that this reduces the potential for significant effects on the availability of accommodation and services, and on local demographics, from an incoming construction workforce and it is anticipated that there would be no change to the established regional supply chain. The Inspectorate agrees on the basis of the above that the proposed changes would not result in significantly different effects on accommodation/socio-cultural receptors from those assessed in the original ES for the Consented Development. This matter can be scoped out of further assessment		

13.3.2 OTHER CONSULTATION

13.3.2.1 No other consultation has taken place to date. Details of any further consultation relevant to this chapter will be provided in the ES.

13.4 BASIS OF THE ASSESSMENT

13.4.1.1 The assessment is based on the difference in project scope between the Consented Development, and the Proposed Development (the MC). The difference in scope will impact the construction, operation and maintenance, and decommissioning phases of the Proposed Development.

13.5 ASSESSMENT METHODOLOGY

13.5.1 SCOPE OF ASSESSMENT

13.5.1.1 The scope of the assessment comprises the following categories of impact:

- **Employment impacts:** the direct, indirect and induced socio-economic impacts of the Proposed Development measured in terms of the Full Time Equivalent (FTE) jobs which will be created by the Proposed Development;
- **GVA effects:** the direct, indirect and induced productivity gains to the economy measured by Gross Value Added (GVA);
- **Wider socio-economic effects:** the knock-on effect on wider industries, including skills and training opportunities, which could lead to structural economic change or disruption to traditional industries; and
- **Tourism and recreation:** impacts on Public Rights of Way (PRoW) within the site boundary, including temporary diversions or closures and in-combination effects on amenity.

13.5.2 ELEMENTS SCOPED OUT OF ASSESSMENT

13.5.2.1 The socio-economic assessment in the ES for the Consented Development concluded that, during construction, there would be a small short-term impact, temporary in nature, due to increased levels of traffic, but that access to businesses or properties would not be prevented.

13.5.2.2 It is not anticipated that the impact on access from the Proposed Development would be materially different. On this basis it has been agreed with the Planning Inspectorate that impacts on access can be scoped out of any further assessment.

13.5.2.3 The socio-economic assessment in the ES for the Consented Development concluded that, after mitigation through appropriate compensation arrangements, the impact of land take on agricultural businesses would be negligible. The land take

associated with the Proposed Development is not substantially greater than the Consented Development and so it is not anticipated that there will be a likely significant effect on land use and business operators. On this basis, it has been agreed with the Planning Inspectorate that impacts on land use and business operators can be scoped out of any further assessment.

13.5.2.4 The socio-economic assessment in the ES for the Consented Development concluded that the majority of construction workers would be drawn from within a wider Study Area, including urban centres such as Manchester, Liverpool, Warrington and Northwich, all of which are within a 60-minute drive time of the Site.

13.5.2.5 This reduced the potential for significant effects on the availability of accommodation and services, and on local demographics, from an incoming construction workforce. Given that there is an established sub-regional supply chain, this is not expected to change substantially from the Consented Development for the Proposed Development. On this basis it has been agreed with the Planning Inspectorate that socio-cultural effects can be scoped out of any further assessment.

13.5.3 STUDY AREA

13.5.3.1 The Proposed Development is in the Shakerley ward, within the Cheshire West and Chester local authority area in the North West of England.

13.5.3.2 Socio-economic effects including employment and GVA are assessed for the North West and wider UK Study Areas. The NorthWest of England has been used as the local Study Area because:

- It is anticipated that much of the socio-economic impact will be observed at this spatial scale;
- The Proposed Development is part of HyNet consortium which spans over the wider North West region, including parts of Cheshire, Flintshire, Liverpool City Region and Greater Manchester[5].
- The HyNet consortium is an integral part of the low carbon North West Industrial Cluster where there is an ambition to maximise socio-economic benefits in the region[6].

13.5.3.3 Wider socio-economic effects are considered at the local level and are not expected to have significant effects on the neighbourhood or national UK Study Areas.

13.5.3.4 Tourism and recreation effects are considered at the small area level which includes the Site and the surrounding neighbourhood, defined as the Shakerley ward.

[5] Mace (2023) Hynet North West Socio Economic Impact Assessment December 2023
[6] Mace (2023) Hynet North West Socio Economic Impact Assessment December 2023

TABLE 13.2 – STUDY AREAS

	Neighbourhood Shakerley	Local North West	National UK
Socio-economic (Jobs and GVA)	×	✓	✓
Wider socio-economic effects	×	✓	×
Tourism and recreation	✓	×	×

13.5.4 METHODOLOGY FOR THE ASSESSMENT OF EFFECTS

13.5.4.1 There is limited guidance available for the assessment of socio-economic effects. Therefore, the assessment is based on professional judgement and established industry best practice.

13.5.4.2 An economic model has been built to estimate socio-economic impacts, in terms of jobs and GVA that could arise from construction of operation of the Proposed Development. A detailed methodology for the assessment of socio-economic impacts is provided in **Section 13.8.1**.

13.5.4.3 The economic impact assessment estimates the direct, indirect, and induced economic effects of the Proposed Development. These are explained below:

- **Direct effects**: these are the effects derived from the Proposed Development's direct spend on goods, services, materials and labour;
- **Indirect effects**: indirect effects are the business-to-business purchases in the supply chain resulting from the initial industry input purchases; and
- **Induced effects:** these effects are generated by the spending of the employees within the business' supply chain on further goods and services.

13.5.4.4 It is assumed that decommissioning effects will be comparable to, or less than, those arising during construction and these are considered qualitatively. The assessment also identifies measures that could enhance positive effects for the local supply chain.

13.5.5 SENSITIVITY OF RECEPTORS

13.5.5.1 The sensitivity of receptors is rated from '**High**' to '**Negligible**' based on professional judgement. Factors used to determine sensitivity are defined in **Table 13.3** – below.

TABLE 13.3 – SENSITIVITY OF RECEPTORS

Sensitivity	Receptor
High	• A receptor possesses priority in national socio-economic or land use strategy / policy. • A receptor is of high socio-economic or land use value. It is of importance at a national or international level and has little capacity to absorb change without fundamentally altering its present character. • There is no or low availability of labour and skills in the local workforce, for example, as a result of very low unemployment rates. Therefore, the Proposed Development would lead to labour market pressure and distortions (i.e. skills and capacity shortages, import of labour, wage inflation).
Medium	• A receptor possesses priority in local socioeconomic or land use strategy / policy. • A receptor is of moderate socio-economic or land use value. It is of importance as a national level and has some capacity to absorb change without fundamentally altering its present character. • The area has a constrained supply of labour and skills. Therefore, the Proposed Development may lead to labour market pressure and distortions.
Low	• A receptor is not identified as a priority in local socio-economic or land use strategy / policy. • A receptor is of moderate socio-economic or land use value. It is of importance at a national/local level and can absorb change without fundamentally altering its present character.

13.5.6 MAGNITUDE OF IMPACTS

13.5.6.1 The magnitude of impacts is determined by considering the intensity (or scale), spatial coverage and longevity of an impact. The magnitude assigned will also use professional judgement to take into consideration the application of statutory standards and non-statutory standards or guidelines. The magnitude of impact on the receptors is presented in **Table 13.4**.

TABLE 13.4 – MAGNITUDE OF IMPACT

Magnitude	Description
Large	• Total loss or major alteration (positive or negative) of a socioeconomic or land use receptor. • This could include permanent closure or severe effect upon the viability of a business, community facility or public service, or closure or restricted access to PRoW.
Medium	• Loss of, or alteration to (positive or negative), one or more key elements of a socio-economic or land use receptor's baseline value. • This could include a moderate change to business revenues with potential job losses but no threat to the viability of the business, moderate change to the function or service of community facilities and public services, or a moderate reduction in access to recreational PRoW.
Small	• Slight alteration (positive or negative) of the socio-economic or land use receptor's baseline value. • This could include a low change to business revenues with isolated job losses but no threat to the viability of the business, low change to the function or service of community facilities and public services, or low reduction in access to recreational PRoW.
Negligible	• Very little change from baseline conditions. Change barely distinguishable, approximating to a 'no change' situation.

13.5.7 SIGNIFICANCE OF EFFECTS

13.5.7.1 The significance of an effect is determined by assessing the potential magnitude of impact on the receptors against the sensitivity of the receptor. **Table 13.5** presents the matrix showing the significance of effects. **Moderate** or **Major** effects are considered '**Significant**' in EIA terms.

TABLE 13.5 – SIGNIFICANCE MATRIX

Sensitivity of Receptor	**Magnitude of Impact Example**			
	Negligible	**Small**	**Medium**	**Large**
High	Minor Adverse – Not Significant	**Moderate Adverse - Significant**	**Moderate Adverse - Significant**	**Major Adverse – Significant**
Medium	Not Significant	Minor Adverse – Not Significant	**Moderate Adverse - Significant**	**Moderate Adverse - Significant**
Low	Not Significant	Not Significant	Minor Adverse – Not Significant	Minor Adverse – Not Significant

13.5.8 ADDRESSING UNCERTAINTY

13.5.8.1 There is no legislation governing how socio-economic and tourism effects are assessed. Therefore, industry best practice and professional judgement is used throughout.

13.5.8.2 The impact assessment is based on the construction and operation and maintenance periods. Due to the current lack of information on the decommissioning of the Proposed Development, no quantifiable conclusions on the socio-economic effects of decommissioning can be made at this time. This will be confirmed in the ES and it is assumed that decommissioning effects will be comparable to, or less than, those arising during construction.

13.5.8.3 All efforts have been made to identify tourism and recreation receptors in the Study Area. However, it is possible that some receptors have not been identified through the data collection process due to a lack of published data sources on tourism assets.

13.6 BASELINE

13.6.1 BASELINE DATA SOURCES

13.6.1.1 The previous socio-economic assessment included in the ES for the Consented Development used baseline data from the 2011 Census, the 2013 Annual Population Survey (APS), and the 2010 Indices of Multiple Deprivation (IMD). This Chapter of the PEIR provides an updated baseline, using data from the most recent available sources.

13.6.1.2 The socio-economic baseline is a desk-based study and no baseline surveys have been undertaken. The baseline has been compiled using data from the following credible government sources:

- Office for National Statistics (ONS) Census 2021;
- ONS Population Estimates 2022;
- ONS Annual Population Survey (APS) 2024;
- ONS Annual Survey of Hours and Earnings (ASHE) 2024;
- ONS Gross Value Added (GVA) 2024;
- ONS Business Register and Employment Survey (BRES) 2024;
- ONS Population Projections 2025; and
- MHCLG English Indices of Multiple Deprivation, 2019.

13.6.2 EXISTING BASELINE CONDITIONS

13.6.2.1 This section explains the socio-economic, tourism and recreation baseline conditions and factors which may determine magnitude and receptor sensitivity to potential impacts and effects in the relevant Study Areas.

13.6.2.2 The baseline data is collected at the neighbourhood Study Area (Shakerley), local (North West) and national Study Areas, with Cheshire West and Chester included as a relevant benchmark.

Population and Demographics

13.6.2.3 **Table 13.6**Table 13.6 below shows the population profile[7] of the Local Study Area. The Local Study Area closely mirrors the population profile of the national average. However, the demographic of those living close to the Proposed Development in Shakerley is a small population with a higher proportion of residents over the age of 65 and a lower working-age population.

TABLE 13.6 – POPULATION PROFILE

Demographics	Shakerley	Cheshire West & Chester	North West	England
All usual residents	5,435	361,799	7,515,718	57,112,542
0–15	16%	17%	19%	19%
16–64	57%	61%	62%	63%
65+	27%	21%	19%	19%

Source: ONS (2022), Population estimates

13.6.2.4 **Table 13.7** below shows the change in the population profile over a five-year period from 2017 to 2022[8]. The overall population has increased in the Local Study Area at a greater rate than nationally.

13.6.2.5 However, proportionally the growth closer to the Proposed Development in the Neighborhood Study Area, has increased at almost three times the rate of the Local Study Area.

13.6.2.6 Shakerley has a much higher rate of growth in the 65 plus age group, which suggests there is an ageing population.

TABLE 13.7 – POPULATION CHANGE (2017-2022)

Demographics	Shakerley	Cheshire West & Chester	North West	England
Population Change	9.3%	4.6%	3.3%	2.7%

[7] ONS (2022) Population estimates
[8] ONS (2022) Population estimates

Demographics	Shakerley	Cheshire West & Chester	North West	England
Population aged 0-15	2.9%	3.0%	1.8%	0.6%
Population of working age (16-64)	6.7%	3.5%	2.9%	2.1%
Population aged 65+	19.9%	8.9%	6.1%	6.8%

Source: ONS (2022), Population estimates

Economy and Employment

13.6.2.7 GVA measures the contribution of a producer, industry or sector to an economy. The most recent available data shows that the total GVA in the Local Study Area was £221,845m. This accounts for almost 10% of the UK's total GVA. The Local Study Area and national average are closely aligned in terms of GVA per head.

TABLE 13.8 – GVA, 2022

	Cheshire West & Chester	North West	UK
Total GVA (£m)	£13,222	£221,845	£2,246,047
GVA per Head[9]	£36,522	£32,024	£33,227

Source: ONS (2024)

13.6.2.8 **Table 13.9** –below provides the most recent available labour market participation statistics from the APS. This data is not available at ward level in the APS and so data is presented for the Study Area and the local authority area of Cheshire West and Chester and benchmarked against England. The Local Study Area has below average levels of economic market participation alongside a high unemployment rate. Comparatively the data for Cheshire West & Chester indicates a buoyant economic market with higher rates of economic activity and employment compared to the national average, and a lower rate of unemployment.

[9] GVA per head refers to the total economic output generated within a specific region or area, divided by the population of that area. Therefore, it shows the average economic value produced per person in that location.

TABLE 13.9 – ECONOMIC ACTIVITY

	Shakerley	Cheshire West & Chester	North West	England
Economic activity rate (aged 16–64)	N/A	84.8%	76.4%	78.9%
Employment rate (aged 16–64)	N/A	83.1%	73.2%	75.7%
Unemployment rate (aged 16–64)	n/a	2.0%	4.2%	4.0%

Source: ONS (2024), APS, December 2023 – December 2024

13.6.2.9 Data from the ONS Annual Survey of Hours and Earnings (ASHE[10]) shows that median gross weekly pay for the residents of the Local Study Area was £696, this was below Cheshire West and Chester as well as the national average (£751 and £732 respectively).

13.6.2.10 On a workplace basis, however, average earnings are marginally lower than resident earnings (£693 and £696 respectively) which suggests that residents commute out of the local authority area for higher paid work. This is more profound at the Cheshire West and Chester level (£751 and £708 respectively).

13.6.2.11 **Table 13.10**Table 13.10 shows the reasons for economic inactivity[11], as a proportion of those who are economically active. While the Local Study Area mirrors the national profile relatively closely, it has a greater proportion of residents who are long-term sick. This indicates that there are underlying health issues with a greater proportion of residents economically inactive due to being long-term sick, which relates to a health condition or illness of 12 months or longer.

13.6.2.12 More local to the Proposed Development, the data for Cheshire West and Chester indicates that there is a greater proportion of residents retired compared to the national average. This resonates with the greater proportion of elderly residents outlined below.

[10] ONS (2024) Annual Survey of Hours and Earnings
[11] ONS (2025) Annual Population Survey

TABLE 13.10 – REASON FOR ECONOMIC INACTIVITY

Reason	Shakerley	Cheshire West & Chester	North West	England
Student	N/A	9.0%	23.6%	27.5%
Looking after family/home	N/A	15.6%	16.4%	19.0%
Temporary-sick	N/A	n/a	3.2%	2.2%
Long-term sick	N/A	30.2%	33.3%	27.0%
Discouraged	N/A	N/A	0.2%	0.4%
Retired	N/A	34.3%	12.6%	12.5%
Other	N/A	5.8%	10.7%	11.5%

Source: ONS (2024), APS, December 2023 – December 2024

13.6.2.13 **Table 13.11** Table 13.11below shows the breakdown of employment by sector. It highlights the Local Study Area's strength in the manufacturing sector, which is greater than the national average. This is correlated more locally to the Proposed Development in the Neighbourhood Study Area (as defined in **Table 13.3**). The ward has three dominant employment sectors that together account for almost 46% of all jobs in the area: manufacturing (17.1%), mining, quarrying & utilities (14.3%) and health (14.3%). The proportion of employment in these three sectors is higher than the local and national average.

13.6.2.14 More granular data from the Business Register and Employment Survey (BRES[12]) shows that the majority of employment in mining, quarrying and utilities in Shakerley (400 jobs) is in the distribution of gaseous fuels through mains subsector, with smaller numbers of jobs in the extraction of salt (50 jobs) and in the operation of gravel and sand pits (10 jobs).

13.6.2.15 This reflects the presence of major employers in the area, including companies supporting the Applicant, KGSL, which itself does not directly employ staff. KGSL is supported operationally by Storengy UK and Inovyn, who collectively employ approximately 50 people at the Stublach Gas Storage Facility. The facility is the UK's largest onshore gas storage site and is recognised as an important local employer.

[12] ONS (2024) Business Register and Employment Survey

TABLE 13.11 – EMPLOYMENT BY SECTOR

	Shakerley	Cheshire West & Chester	North West	England
Agriculture, forestry and fishing	2.1%	0.9%	0.5%	0.5%
Mining, quarrying and utilities	14.3%	1.2%	1.0%	1.1%
Manufacturing	17.1%	8.3%	8.9%	7.4%
Construction	2.1%	4.1%	4.9%	4.7%
Motor trades	5.0%	2.4%	1.6%	1.7%
Wholesale	5.0%	2.7%	4.0%	3.8%
Retail	1.4%	9.5%	8.8%	8.2%
Transport and storage	7.1%	3.6%	4.5%	5.1%
Accommodation and food services	5.0%	8.9%	7.4%	7.8%
Information and communication	2.1%	2.1%	3.2%	4.8%
Financial and insurance	1.0%	5.3%	2.5%	3.4%
Property	0.3%	2.1%	1.8%	1.9%
Professional, scientific and technical	7.1%	10.7%	9.8%	9.6%
Business administration and support services	6.4%	8.9%	8.8%	8.9%
Public administration and defence	0.0%	4.1%	4.9%	4.4%
Education	1.4%	8.3%	8.2%	8.6%
Health	14.3%	11.8%	15.0%	13.5%

	Shakerley	Cheshire West & Chester	North West	England
Arts, entertainment, recreation and other	8.6%	5.3%	4.2%	4.5%

Source: ONS (2024), BRES 2023

Occupation

13.6.2.16 The occupation structure in the Local Study Area is outlined in Table 13.12Table 13.12**Table 13.12** below. Within the Local Study Area there is a greater proportion of employees employed in Standard Occupational Classification (SOC[13]) Groups 1-3 (49.8%) compared to Cheshire West and Chester (47.7%) and nationally (46.5%).

13.6.2.17 These occupations are generally considered to be of a higher skill level. The data shows that more locally to the Proposed Development there is an even greater proportion of residents employed in Groups 1-3, 50.5% indicating a highly skilled local workforce.

TABLE 13.12 – OCCUPATION

SOC Groups	Shakerley	Cheshire West & Chester	North West	England
1. Managers, directors and senior officials	18.6%	14.0%	9.7%	12.9%
2. Professional occupations	18.7%	20.5%	25.4%	20.3%
3. Associate professional occupations	13.2%	13.2%	14.7%	13.3%
4. Administrative and secretarial occupations	9.2%	8.9%	9.8%	9.3%

[13] Standard Occupation Classification is used in the annual population survey to group occupations into nine major groups. The groups are broad categories based on, skills, qualifications and training required.

SOC Groups	Shakerley	Cheshire West & Chester	North West	England
5. Skilled trades occupations	11.2%	9.3%	8.2%	10.2%
6. Caring, leisure and other service occupations	7.6%	8.8%	9.2%	9.3%
7. Sales and customer service occupations	5.7%	8.2%	6.7%	7.5%
8. Process, plant and machine operatives	6.1%	6.9%	6.1%	6.9%
9. Elementary occupations	9.7%	10.2%	9.9%	10.5%

Source: Census (2021)

13.6.2.18 **Table 13.13** below displays the qualification profilefor the Local Study Area which indicates a below average level of residents with level 4+ qualifications, while also having above average level of no qualifications.

13.6.2.19 However, the data shows that Cheshire West and Chester has a higher proportion of residents qualified at degree level or higher than nationally (35.7% and 33.9% respectively), which resonates with the higher level of SOC 1-3 occupations above. However, the Neighbourhood Study Area has a marginally smaller proportion of residents with at least a degree level qualification (33.7%).

13.6.2.20 Additionally, both the Neighbourhood Study Area and Cheshire West and Chester have a lower proportion of residents with no qualifications than seen nationally, which indicates an above average skilled workforce located near to the Proposed Development.

TABLE 13.13 – QUALIFICATIONS PROFILE

	Shakerley	Cheshire West & Chester	North West	England
Level 1 and entry level qualifications	10.1%	9.3%	9.7%	9.7%
Level 2 qualifications	13.7%	13.7%	13.6%	13.3%

	Shakerley	Cheshire West & Chester	North West	England
Level 3 qualifications	16.2%	17.8%	17.6%	16.9%
Level 4 qualifications or above	33.7%	35.7%	31.2%	33.9%
Other qualifications	9.8%	7.7%	2.5%	8.1%
No qualifications	16.4%	15.8%	19.5%	18.1%

Source: Census 2021

13.6.2.21 The indices of multiple deprivation (IMD[14]) data is measured at Lower Super Output Area (LSOA) level. LSOAs are areas that contain a population size of between 1,000 and 3,000 people.

13.6.2.22 The IMD data ranks all LSOAs in England from most deprived to least deprived across seven 'domains' of deprivation: income, employment, education, health, crime, and barriers to housing. There are three LSOAs within Shakerley ward, and a total of 212 across the Cheshire West and Chester local authority area.

13.6.2.23 **Table 13.14**Table 13.14 shows the number of LSOAs in Cheshire West and Chester local authority by decile, where 1st represents the 10% most deprived LSOAs in England and 10th represents the 10% least deprived. Across Cheshire West and Chester approximately 40% of LSOAs (~150,000 people) are in the 30% least deprived nationally.

TABLE 13.14 – POPULATION IN EACH DEPRIVATION DECILE

	Local Authority – Cheshire West and Chester	
Decile	LSOAs	Proportion of Population[15]
1st - most deprived	16	7.3%
2nd	18	7.9%
3rd	19	9.2%
4th	16	7.0%

[14] MHCLG (2019) Indices of Multiple Deprivation
[15] Note population does not match the previous population total due to the changing in LSOA's from 2011 to 2021

	Local Authority – Cheshire West and Chester	
5th	13	6.3%
6th	19	9.0%
7th	19	10.0%
8th	27	12.0%
9th	30	14.2%
10th - least deprived	35	17.1%

Source: IMD, 2019

13.6.2.24 Figure 13.1 shows the three LSOAs that make up the Shakerley ward fall within the 5th and 6th deciles – meaning they are roughly in the mid-point of the deprivation rank relative to the rest of England.

Site Boundary
Site Boundary 5km Buffer
Study area - Shakerly Ward
2019 IMD - Decile
1 - 2
3 - 4
5 - 6
7 - 8
9 - 10

0 0.5 1 1.5 2 2.5
Kilometres

N

SCALE: See Scale Bar	VERSION: A01
SIZE: A3	DRAWN: MC
PROJECT: 0755727	CHECKED: BH
DATE: 26/09/2025	APPROVED:

Figure 13.1
IMD 2019

ERM

storengy
A company of ENGIE

PROJECTION: British National Grid

Esri, Intermap, NASA, NGA, USGS, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Path: \\UKSPRDGISFS01\Data\London\Projects\0755727 - Keuper Hydrogen\Map\0755727 - Keuper Hydrogen - PEIR.aprx\0755727 - PEIR - C14 - IMD 2019 - A01

Tourism and Recreation

13.6.2.25 The previous socio-economic assessment included in the ES for the Consented Development identified PRoWs within the Site. These have not changed since the Consented Development was approved. The PRoWs identified within the Site are:

- Lach Dennis restricted byway (RB) 1;
- Lach Dennis RB6;
- and Rudheath RB7.

13.6.3 FUTURE BASELINE CONDITIONS

13.6.3.1 The 2022 mid-year population projection[16] is the most recently available data and it shows the population projection estimation by local authority up to 2047.

13.6.3.2 According to the data, Cheshire West and Chester is estimated to see a greater proportional population increase than the national average across all age brackets. Both Cheshire West and Chester and national average have the greatest uplift in the over 65+ age category.

TABLE 13.15 – POPULATION PROJECTIONS (2022-MID YEAR) 2022 - 2047

	Cheshire West and Chester	England
Total	17.4%	11.2%
0-14	-3.8%	-8.7%
15-64	14.3%	10.4%
65+	42.5%	31.8%

Source: ONS (2025)

13.7 MITIGATION

13.7.1.1 Embedded mitigation measures have been incorporated into the design layout and principles of the Proposed Development as part of the design process.

13.7.1.2 This assessment takes account of the findings of other relevant environmental assessments and their identified mitigation measures. Environmental assessments taken into consideration include:

[16] ONS (2025) Subnational population projections for England: 2022-based. Online. Available at < Subnational population projections for England - Office for National Statistics >

- **Chapter 8: Air Quality;**
- **Chapter 9: Noise and Vibration; and**
- **Chapter 11: Landscape and Visual.**

13.7.1.3 An Updated Outline Construction Environment Management Plan (CEMP) will also accompany the ES.

13.7.1.4 The Traffic and Transport assessment in the ES for the Consented Development concluded that no mitigation would be required as there are no significant effects associated with traffic and transport during construction or operation and has been scoped out of the Proposed Development.

13.8 ASSESSMENT OF EFFECTS

13.8.1 CONSTRUCTION

Employment Effects

Scope of the Assessment

13.8.1.2 The assessment estimates the economic impacts of the Proposed Development in terms of the FTE jobs created and safeguarded during construction, and productivity gains measured by GVA. The economic impact assessment estimates the direct, indirect, and induced economic effects of the Proposed Development.

Appraisal Period

13.8.1.3 The assessment estimates economic benefits during the construction phase of the Proposed Development. The construction of the Proposed Development is staggered due to the nature of the cavern development as shown in **Figure 2.14** of **Chapter 2, Proposed Development Description**.

13.8.1.4 The core construction period is expected to be 10 years over a 13-year period. It is expected that construction would start in 2028 with the site becoming operational in 2032. After this, there will be a 3-year construction break and with project completing in 2040. Construction programme shown in Figure 2.14, Chapter 2 Proposed Development.

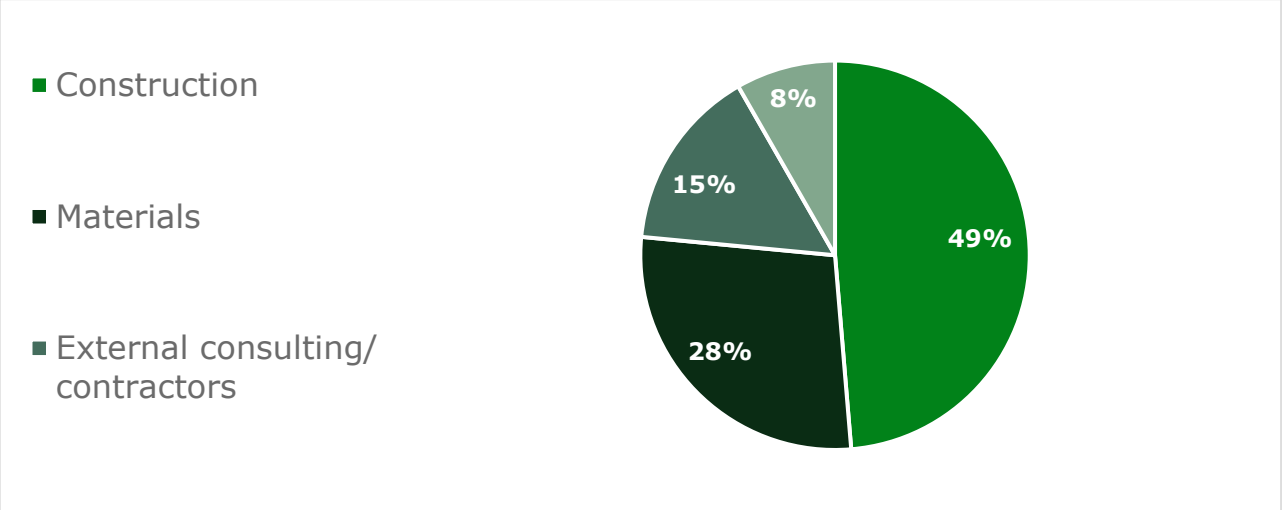
13.8.1.5 The appraisal includes all jobs and GVA benefits across both Phase 1 and Phase 2 construction periods and is presented as one whole construction period.

Detailed Assessment Methodology

13.8.1.6 The construction of the Proposed Development will create jobs directly and indirectly in the supply chain which could have the potential for a significant effect within the local labour market.

13.8.1.7 Socio-economic impacts are assessed at both Local and National Study Areas, which are North West and UK respectively.

FIGURE 13.2 – CAPEX BREAKDOWN



Source: Storengy & Costain PLC, 2024

13.8.1.8 CAPEX data was segmented based on the expenditure breakdown in **Figure 13.2** above. Each segment was mapped to the most relevant UK Standard Industrial Classification (SIC) codes defined by ONS[17]. Employment and GVA effects and multipliers are used from UK Input-Output Analytical Tables (IOATs). These are created by the ONS using the annual Supply and Use Tables (SUTs)[18] from the UK national accounts[19].

13.8.1.9 The SUTs provide a picture of the flows of products and services in the economy for a single year. Relevant GVA and FTE employment effects were applied to the Proposed Development's expenditure to return direct employment and GVA impacts. Type I multipliers were applied to direct effects to estimate indirect employment and GVA benefits. Type II multipliers[20] were applied to derive induced effects[21].

Assumptions

13.8.1.10 The following assumptions underpin the assessment:

[17] ONS (2007) UK SIC 2007. Online. Available at < UK SIC 2007 - Office for National Statistics >
[18] ONS (2025) FTE multipliers and effects, reference year 2022. Online. Accessed < Employment multipliers and effects in the UK - Office for National Statistics >
[19] ONS (2025) UK input-output analytical tables: product by product. Online. Accessed < UK input-output analytical tables: product by product - Office for National Statistics >
[20] Scottish Government (2024) Supply, Use and Input-Output Tables: 1998 – 2021. Online Accessed < Supply, Use and Input-Output Tables: 1998-2021 - gov.scot >
[21] Multipliers are used to estimate indirect economic effects. Type 1 multipliers are used to determine indirect effects. Type II multipliers are used to determine induced effects.

- All costs were supplied in nominal terms, i.e. in current prices excluding inflation;
- The appraisal is conducted and presented in 2024 prices;
- Persistence of effects: Start date, end date, and duration of effects over the Proposed Development's appraisal period from the start of the construction period to the end of the 50 year operational period.
- Leakage: The supply of materials and labour were categorised as UK, EU, or Non-EU supply. Expenditure outside of the UK was removed from the analysis because it is assumed to represent leakage from the UK economy;
- Deadweight: Deadweight is excluded from the assessment. The existing economic benefits associated with the site are excluded. All costs and benefits are incremental to a business-as-usual scenario;
- Displacement effects: Displacement effects are assumed to be factored into the appraisal within the method design by using IOATs based on the UK national accounts;
- Distribution effects: An estimation of the geographic distribution of effects was based on an assumed split of expenditure after removing leakage of expenditure outside of the UK;
- Local expenditure refers to the North West and national expenditure refers to the rest of the UK. Assumptions, as shown in **Table 13.16** Table 13.16below, were taken from existing precedents[22].

TABLE 13.16 – GEOGRAPHIC DISTRIBUTION OF SPEND

	Local North West	**National UK**	**Total**
CAPEX	85%	15%	100%
OPEX	93%	7%	100%

Source: Economic Impacts of HyNet North West, AMION Consulting, 2018

- CAPEX and OPEX were deflated for the employment effects using ONS GDP deflators[23] to ensure consistent market prices were used across the appraisal. GVA effects were estimated in the base year prices (2024);

[22] AMION Consulting – Potential Economic impacts of the HyNet North West Project. Accessed Online at < economic-impacts-report-040518.pdf (hynet.co.uk)>
[23] ONS (2025) GDP Deflators at Market Prices , and Money GDP. Accessed Online at < GDP deflators at market prices, and money GDP - GOV.UK >

- Type II multipliers were applied using Scottish IOATs[24] because ONS does not currently produce these for England;
- Person years is a term commonly used to measure job impacts. This equates to one year of FTE employment over the total construction or operation period. So, for example, 1,000 person years over five construction years could mean 1,000 individuals employed for one year each. Or it could mean 200 individuals employed for a period of five years each; and
- In line with Green Book[25] guidance, a discount rate of 3.5% has been applied to monetised benefits i.e. GVA, to show results in present values (2024).

Assessment Findings

13.8.1.11 Table 13.17**Table 13.17** below shows that the Proposed Development is expected to create or safeguard a total of 9,213 person years of employment locally over the total construction period.

13.8.1.12 In summary, this would account for 921 local FTE jobs per construction annum.

TABLE 13.17 – JOB IMPACTS DURING CONSTRUCTION (PERSON YEARS) (2028 - 2040)

	Local	National	Total
Direct FTEs	3,346	590	3,937
Indirect FTEs	3,423	604	4,027
Induced FTEs	2,445	431	2,876
Total	9,213	1,626	10,839

Source: ERM 2025

13.8.1.13 A large proportion of construction employment is estimated to be metal workers and assemblers (~17%), and approximately 39% of the construction trades employment being construction labourers and managers[26]. Additionally, the construction phase is expected to

[24] Scottish Government (2024) Supply, Use and Input-Output Tables: 1998 – 2021. Accessed Online at < Supply, Use and Input-Output Tables - gov.scot >
[25] HMT (2022) The Green Book. Online. Available at < https://assets.publishing.service.gov.uk/media/6645c709bd01f5ed32793cbc/Green_Book_2022__updated_links_.pdf >
[26] Rhodium Group (2023) Clean Hydrogen Workforce Development Opportunities by Occupation

employ administrative support professionals, cleaning, and security workers[27].

13.8.1.14 As shown in **Table 13.17**, approximately 85% of jobs created from the construction phase are expected to be based in the North West. This is based on the presence of a strong construction workforce and associated supply chain in the North West[28].

13.8.1.15 As noted by the North West Hydrogen Alliance, many of the skills that will be required to support the deployment of low-carbon technologies, including hydrogen, already exist within the region due to the density of employment in complementary industries such as oil and gas[29]. However, the Engineering Construction Industry Training Board[30] notes that there will need to be some upskilling required from similar engineering occupations in the transition to hydrogen storage using salt caverns.

13.8.1.16 The sensitivity of the local labour market is assessed as **Medium.** This is assessed because despite local strengths in the sectors (construction and manufacturing) which would be required during the construction phase, there is an ageing workforce locally and low levels of economic in-activity.

13.8.1.17 As such the Proposed Development could constrain labour locally, this is especially prevalent as there needs to be a rise in skills to meet demand[31]. As such it is assessed that while there is capacity to absorb change without fundamentally altering its present character, there are some existing sensitivities.

13.8.1.18 The magnitude of the impact is assessed as **Small** for the following reasons:

- There will be a slight alteration to the existing sectors (construction and manufacturing), but it will be temporary;
- And spread over a longer timeframe as the construction phase is staggered in two phases; and
- The peak construction workforce would account for just 0.2% of the North West's construction and manufacturing sectors.

13.8.1.19 This results in a Minor Beneficial effect (Not Significant)

13.8.1.20 The construction phase would create employment elsewhere in the UK. The sensitivity of the labour market is assessed as **Low** due to the size and flexibility of the national labour market. The

[27] CCSA (2023) CCSA Workforce & Skills Position Paper
[28] Net Zero North West, Pioneering a Net-Zero Future. Accessed Online at < manifesto_e4d6d5143e.pdf >
[29] North West Hydrogen Alliance, 'North West poised to deliver £7bn investment into low carbon skills in the region'. Available online at: North West poised to deliver £7bn investment into low carbon skills in the region – NWHA (nwhydrogenalliance.co.uk)
[30] BEIS (2022) Hydrogen Sector Development Action Plan. Online Accessed at < Hydrogen Sector Development Action Plan >
[31] Parliament UK (2025) Written evidence submitted by Hydrogen Skills Alliance. Online. Available at < committees.parliament.uk/writtenevidence/133813/pdf/ >

magnitude is assessed as **Negligible** as any alterations would be temporary and the alteration to existing industries would be barely perceptible due to the relative size of the increase compared to the national labour force. This results in a **Negligible** effect (**Not Significant**).

GVA Effects

13.8.1.21 **Table 13.18** below shows the GVA impacts over the whole construction period. Over the construction period of the Proposed Development it is estimated to generate a total of £1,572m in GVA in the North West. This would equate to £181m for 2028 which would account for 0.4% of the North West construction and manufacturing sectors total GVA.

TABLE 13.18 – GVA IMPACTS DURING CONSTRUCTION (TOTAL PV 2028 - 2040)

	Local	National	Total
Direct GVA (m)	£325	£63	£388
Indirect GVA (m)	£678	£69	£747
Induced GVA (m)	£569	£54	£623
Total (m)	£1,572	£187	£1,758

Source: ERM 2025

13.8.1.22 It is estimated that the construction of the Proposed Development will generate a total of £187m in additional GVA across the rest of the UK over the total construction period. The Proposed Development is estimated to contribute £22.3m in that year. This would account for 0.01% of the of the relevant sectors[32] GVA in the UK.

13.8.1.23 The sensitivity of the local economy is assessed as **Low**. The size of the North West's economic base means that it can absorb change without fundamentally altering its present character.

13.8.1.24 The magnitude of the impact is assessed as **Negligible**. This is based on:

- There being an existing strong and established construction sector;

[32] Construction and manufacturing sectors

- Already established supply chains present and complementary industries existing in the area which would absorb economic change; and
- The GVA from the Proposed Development would account for just 0.4% of the existing GVA for the relevant sectors (construction and manufacturing) in the North-West.

13.8.1.25 This results in a **Negligible Effect (Not Significant)**.

13.8.1.26 The construction phase would create further GVA benefits elsewhere in the UK. The sensitivity of the baseline for the UK is assessed as **Low**, as the economy is large, diverse and receptive to change. The magnitude is assessed as **Negligible** as the change to GVA would be temporary. Additionally, the UK economy has sufficient capacity to absorb additional economic activity, and the alteration would be barely perceptible. This results in a **Negligible Effect** (**Not Significant**).

Wider Socio-economic Effects

13.8.1.27 The construction of the Proposed Development could have wider and knock-on socio-economic effects including contributing to the development of the hydrogen sector and supporting the continued development of a skilled local hydrogen workforce across the North West of England.

13.8.1.28 The North West of England is a major industrial centre and is identified as having the potential to become one of the primary regions for developing a decarbonised, hydrogen-based energy market for the UK[33].

13.8.1.29 The Proposed Development is a crucial component of HyNet consortium providing geological storage connected to centres of production and demand, which is estimated to directly generate almost £1.8bn of GVA during construction[34]. As well as an opportunity to stimulate economic growth, investment in hydrogen storage is also recognized as a key enabler of industrial decarbonisation which could help to safeguard jobs in existing industrial sectors across the region.

13.8.1.30 The construction of the Proposed Development will create jobs and training opportunities which could support the development of the skills needed for the Net Zero transition within the local labour market.

13.8.1.31 Employment opportunities created by the Proposed Development are likely to stimulate labour demand, which could create knock-on investment in skills by other organisations in the supply chain

[33] North West Hydrogen Alliance. 2025. *Hydrogen in the North West*. Manchester: NWHA. Accessed July 2025.
[34] University of Chester, Mace and HyNet North West. 2023. *HyNet North West Socio-Economic Impact Assessment*. Chester: University of Chester.

including apprenticeships. This can help connect people across the region to the sector and develop the skills needed to deliver the transition to Net Zero.

13.8.1.32 The Applicant's commitments to local skills development include working with local schools to engage with students at key stages in their academic journey, working with A-level students in relevant subjects including STEM and geography, and offering school visits to local gas storage facilities. The Applicant currently encourages the hiring of apprentices at local gas storage facilities sites.

13.8.1.33 Data presented in the baseline shows that the neighbourhood and Local Study Areas both record high levels of employment, including above average employment in relevant sectors including manufacturing and mining, quarrying and utilities, reflecting existing supply chain strengths in this area.

13.8.1.34 The data also suggests that the local labour market is relatively highly skilled, with high proportions of residents with degree-level qualifications, and working in highly-skilled occupations. However, the workforce is ageing and there is a risk that capabilities could be lost if young people are not attracted to work in the industry and able to develop the skills required.

13.8.1.35 The sensitivity of the local labour market is therefore considered to be **Medium**. Although jobs created during construction would be temporary and relatively short-term, the magnitude of the impact in terms of stimulating further growth and providing opportunities for skills development within the wider hydrogen economy is assessed as medium. This results in a **Moderate Beneficial** effect (**Significant**).

Tourism and Recreation

13.8.1.36 Impacts on PRoW within the Site Boundary are scoped into the assessment. While impacts on PRoW arising from the construction of the Proposed Development, such as closures or temporary diversions, are not expected to be materially different from those assessed in the ES for the Consented Development, effects on amenity from a combination of noise and visual changes could be materially different due to changes in the design of the Proposed Development.

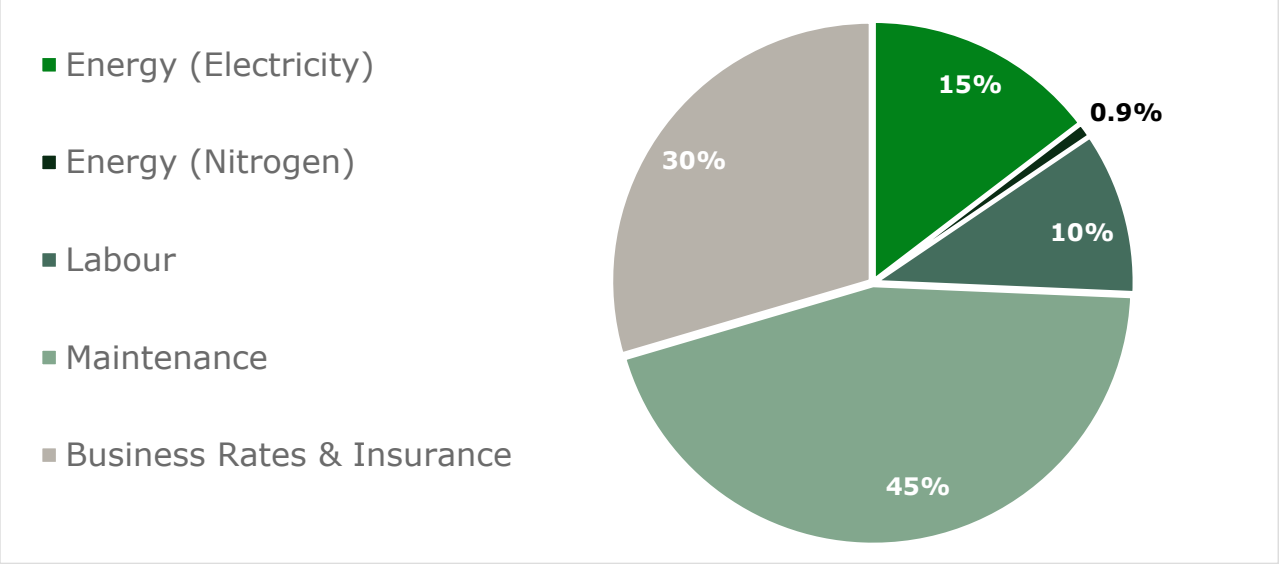
13.8.1.37 Chapter 9 Noise and Vibration assesses noise effects for noise sensitive receptors within the relevant study area and reports that, after mitigation, there would be no significant adverse noise effects for noise sensitive receptors arising from construction activity. While the assessment does not include users of PRoW, any construction noise would be temporary and short-term and would be unlikely to result in significant adverse effects. Chapter 11 Landscape and Visual reports minor adverse effects that would not be significant for users of the PRoW network during construction.

13.8.1.38 The sensitivity of the PRoW within the Site is assessed as low. The magnitude of the impact on amenity for users of the PRoW is assessed as small. This results in a Not Significant effect.

13.8.2 OPERATION AND MAINTENANCE

13.8.2.1 Operation expenditure (OPEX) was segmented based on the expenditure breakdown presented in Figure 13.3 – OPEX Spend Profile**Figure 13.3** below.

FIGURE 13.3 – OPEX SPEND PROFILE



Source: Storengy & Costain PLC, 2024

Employment Effects

13.8.2.2 The OPEX covers the day-to-day operation and maintenance cost of the hydrogen storage facility, including labour, maintenance and energy costs. The operation and maintenance jobs are permanent FTE jobs that will be created from the first year of operation being 2032.

13.8.2.3 The Applicant has provided data on the on-site direct employment which will be 30 FTEs once fully operational. The costs on-site are not expected to change, however, financial operations will increase, this is driven by changing energy costs. While the energy costs are estimated to increase over the operation period, the direct workers are expected to remain the same.

13.8.2.4 **Table 13.19** below outlines the headline operational employment impacts for the year 2032.

TABLE 13.19 – JOBS DURING FIRST YEAR OF OPERATION (2032)

	First year of operation (2032)		Grand Total
	Local	National	
Direct FTEs	30	2	32
Indirect FTEs	35	3	38
Induced FTEs	26	2	28
Total	91	7	98

Source: ERM 2025

13.8.2.5 During the first year of operation in 2032, the Proposed Development is estimated to create or safeguard a total of 91 FTEs. This would account for 0.02% of the relevant sectors[35] employment in the North West.

13.8.2.6 The majority of jobs, over 90%, are expected to be local within the North West and are most likely to be in occupations related to science, technology, engineering and maths (STEM[36]) subjects and often highly skilled jobs requiring Level 4/5 qualifications[37].

13.8.2.7 It is estimated that during the first year of operation (2032), the Proposed Development would create or safeguard 7 FTEs across the rest of the UK. This would account for 0.0002% of the relevant sectors[38] employment in the UK.

13.8.2.8 Within the North West of England, it is recognised that there is already a strong pool of labour with existing skills to support the growth of the hydrogen economy[39]. However, the workforce is ageing, and there is therefore the potential that skills and capabilities could be lost from the workforce if young people are not attracted into the industry.

13.8.2.9 The sensitivity of the local labour market is assessed as **Medium**. The operational employment would be permanent, however there is an existing labour force locally due to the local expertise in the hydrogen sector and the complementary industries e.g. oil and gas. Despite an existing labour force, as mentioned above, the operational employment requirements are typically highly skilled and the North West has a lower proportion of residents with level

[35] Mining, quarrying and utilities and professional, scientific and technical
[36] Climate X Change (2023) Skills demand in the hydrogen sector. Accessed Online at < Skills demand in the hydrogen sector | ClimateXChange >
[37] CCSA (2023) CCSA Workforce & Skills Position Paper
[38] Mining, quarrying and utilities and professional, scientific and technical
[39] Mace. 2023. *HyNet North West Socio-Economic Impact Assessment*. London: Mace.

4+ qualifications compared to the national average. Additionally, as part of the wider HyNet development highly skilled employees will be in high demand and this could cause a strain on the labour pool.

13.8.2.10 The magnitude of the impact is assessed as **Small**. This is based on:

- Small anticipated increase in jobs, accounting for just 0.02% of the current Northb West baseline;
- The type of operational employment is in high demand and highly skilled; and
- There is anticipated investment in the sector to try and help meet demand through upskilling.

13.8.2.11 This results in a **Minor Beneficial** effect (**Not Significant**).

13.8.2.12 At the UK level the sensitivity of the Proposed Development is assessed as **Low** due to the size and flexibility of the labour market.

13.8.2.13 Employment estimates for the hydrogen sector vary slightly between Government estimates, that there would be 9,000[40] direct jobs supported by 2030 or BEIS estimating the sector supporting 12,000[41] jobs also by 2030. As such the magnitude is assessed as **Negligible** due the increase in employment during peak operation only accounting for 0.0004% or 0.03% of projected demand in 2030. This results in a **Negligible** effect (**Not Significant**).

GVA Effects

13.8.2.14 In relation to GVA, it is estimated the during the first year of operation (2032), the Proposed Development would contribute £15m in GVA in the North West. This would account for 0.1% of the of the relevant sectors[42] GVA in the North West.

TABLE 13.20 – GVA DURING FIRST YEAR OF OPERATION (2032)

	First year of operation (2032)		Grand Total
	Local	National	
Direct GVA (m)	£5.3	£0.4	£5.7
Indirect GVA (m)	£5.5	£0.4	£5.9
Induced GVA (m)	£4.1	£0.3	£4.4
Total (m)	£14.8	£1.1	£15.9

[40] HM Government (2021) UK Hydrogen Strategy. Online. Available at < UK Hydrogen Strategy >
[41] BEIS (2022) Hydrogen Sector Development Action Plan. Online. Available at < Hydrogen Sector Development Action Plan >
[42] Mining, quarrying and utilities and professional, scientific and technical

Source: ERM 2025

13.8.2.15 As mentioned above around 90% of benefits are estimated to be realised within the North West. However, there are additional GVA benefits across the rest of the UK. It is estimated that during the first year of operation (2032), the Proposed Development would contribute £1.1m in GVA across the rest of the UK. This would account for 0.0004% of the of the relevant sectors[43] GVA in the UK.

13.8.2.16 The sensitivity of the local labour market is assessed as **Low**. The size of the existing economic base means that it can absorb change in GVA without fundamentally altering its present character.

13.8.2.17 The magnitude of the impact is assessed as **Negligible** this is because:

- There would barely be a perceptible alteration to the baseline GVA, as during peak operation this would account for just 0.1%.

13.8.2.18 This results in a **Negligible** effect (**Not Significant**).

13.8.2.19 The operation phase would generate a further £1.1m in GVA in the rest of the UK. Therefore, at the national level the sensitivity is assessed as **Low**. This is because the national economy is large, diverse and receptive to change. The magnitude of the impact is assessed as **Negligible** as there will be a barely perceptible alteration to the existing GVA through the additional GVA during the operation phase of the Proposed Development. The effect is estimated as **Negligible (Not Significant).**

Wider Socio-economic Effects

13.8.2.20 Once in operation, the Proposed Development could have wider and knock-on socio-economic effects including contributing to the development of the hydrogen sector and supporting the continued development of a skilled local hydrogen workforce in Cheshire and across the North West of England.

13.8.2.21 As discussed above, the North West of England is a major industrial centre and is identified as having the potential to become one of the primary regions for developing a decarbonised, hydrogen-based energy market for the UK[44]. The Proposed Development is a crucial component of HyNet, a regional hydrogen network providing geological storage connected to centres of production and demand, which is estimated to directly generate almost £1.8bn of GVA during construction[45]. As well as an opportunity to stimulate

[43] Mining, quarrying and utilities and professional, scientific and technical
[44] North West Hydrogen Alliance. 2025. *Hydrogen in the North West*. Manchester: NWHA. Accessed July 2025.
[45] University of Chester, Mace and HyNet North West (2023), HyNet North West Socio-Economic Impact Assessment.

economic growth, investment in hydrogen storage is also recognized as a key enabler of industrial decarbonization which could help to safeguard jobs in existing industrial sectors across the region.

13.8.2.22 The operation of the Proposed Development will create jobs and training opportunities which could support the development of the skills needed for the Net Zero transition within the local labour market. As discussed above, once in operation the Proposed Development is estimated to create 98 FTE jobs at its peak of operation of which 32 are expected to be created directly by the Proposed Development, with a further 65 FTEs in the supply chain. Over 90% of operational jobs are expected to be retained within the North West, and are most likely to be in occupations related to STEM subjects[46] and often highly skilled jobs requiring Level 4/5 qualifications[47]. Storengy, one of the organisations supporting KGSL, has commitments to local skills development include working with local schools to engage with students at key stages in their academic journey, working with A-level students in relevant subjects including STEM and geography, and offering school visits to their gas storage facilities. Storengy currently encourages the hiring of apprentices at its gas storage facilities.

13.8.2.23 Data presented in the baseline shows that the neighbourhood and local study areas both record high levels of employment, including above average employment in relevant sectors including mining, quarrying and utilities, reflecting existing supply chain strengths in this area. The data also suggests that the local labour market is relatively highly skilled, with high proportions of residents with degree-level qualifications, and working in highly-skilled occupations. However, the workforce is ageing and there is a risk that capabilities could be lost if young people are not attracted to work in the industry and develop the skills required.

13.8.2.24 The sensitivity of the local labour market is therefore considered to be **Medium**. While operational employment would be relatively small, the jobs and training opportunities created would be permanent. The magnitude of the impact in terms of stimulating further growth and skills development within the wider hydrogen economy is therefore assessed as **Medium**. This results in a **Moderate Beneficial** effect (**Significant**).

Tourism and Recreation

13.8.2.25 Impacts on PRoW within the Site Boundary are scoped into the assessment, as in-combination effects on amenity from the operation of the Proposed Development could be materially

[46] ClimateXChange. 2023. *Skills Demand in the Hydrogen Sector*. Edinburgh: ClimateXChange. Accessed July 2025.
[47] Climate Capture and Storage Association (CCSA). 2023. *CCSA Workforce & Skills Position Paper*. London: CCSA.

different due to the removal of a vent stack and potential visible flaring of hydrogen.

13.8.2.26 Chapter 9 Noise and Vibration assesses noise effects for noise sensitive receptors within the relevant study area and reports that, the applicant intends to implement the mitigation presented in Section 9.7.3 with the aim of ensuring that operational noise impacts are no worse than Minor, which would be **Not Significant**. While the assessment does not include PRoW, users of ProW are by their nature transient and it is therefore unlikely that they would experience any significant adverse effects. Chapter 11 Landscape and Visual reports minor adverse effects that would not be significant for users of the PRoW network during operation.

13.8.2.27 The sensitivity of the PRoW within the Site is assessed as low. The magnitude of the impact on amenity for users of the PRoW is assessed as small. The effects on the PRoW within the Site have been assessed as **Not Significant**.

13.8.3 DECOMMISSIONING

13.8.3.1 It is assumed that effects arising during decommissioning will be comparable, or less severe, than those associated with construction. Decommissioning effects are therefore considered as part of the construction assessment.

13.9 SUMMARY OF CUMULATIVE EFFECTS

13.9.1.1 The cumulative effects of impacts from the Proposed Development together with impacts from other planned projects or developments on the same resources and / or receptors are assessed in **Chapter 18, Cumulative Effects Assessment**.

13.9.1.2 The ES will summarise the conclusions of the Cumulative Effects Assessment (CEA) that are relevant to Socio-economic Characteristics.

13.10 SUMMARY AND CONCLUSIONS

13.10.1 SUMMARY OF INDIRECT EFFECTS

13.10.1.1 No indirect effects are currently anticipated in relation to socio-economic characteristics. This will be reviewed in the ES and assessed if required.

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