MIDLANDS NET ZERO HUB

Midlands Clean Energy Workforce Mapping Study

June 2026

Note

This study was commissioned by Nottingham City Council (NCC) as the accountable body for the Midlands Net Zero Hub (MNZH).

This study was funded by MNZH, which is itself directed and funded by the Department for Energy Security and Net Zero (DESNZ). The study does not represent the views of the Department for Energy Security and Net Zero.

MNZH is one of five Net Zero Hubs in England. It is hosted by NCC on behalf of the Midlands region. Working with local authorities, combined authorities, government departments, industry and delivery partners, MNZH supports the development and delivery of projects that contribute to the UK's net zero ambitions, including clean energy generation, energy efficiency, retrofit, skills training and low-carbon heat programmes.

MNZH's current mission includes supporting the delivery of national clean energy and warm homes objectives by enabling local and regional projects, building capacity across the Midlands, and helping attract investment into net zero infrastructure and skills development.

The Hub's objectives are

- to attract commercial and public investment into regional net zero and clean energy projects.
- to increase the number, quality and scale of local net zero projects across the Midlands, including supporting the early-stage development and delivery of projects.
- to support local authorities and regional partners to deliver decarbonisation, retrofit, skills training and clean energy programmes.
- to facilitate collaboration, knowledge sharing and capacity building across the Midlands to accelerate the transition to net zero.
- to support the development of local supply chains, workforce capability and market readiness required to deliver the clean energy transition.

Executive summary

This report examines the evidence available to understand clean energy workforce demand across the Midlands. Funded by the Department for Energy Security and Net Zero (DESNZ), through the Office for Clean Energy Jobs (OCEJ), the study supports Midlands Net Zero Hub (MNZH) in assessing current workforce capacity, future demand signals, evidence gaps and the data used by Mayoral Strategic Authorities (MSAs).

The study reviewed 24 datasets, 51 reports and studies, evidence from three MSA interviews, and responses from 23 local authorities. The analysis uses a layered evidence approach. The Clean Energy Jobs Plan (CEJP) provides the national benchmark for clean energy sectors, occupations and 2030 assumptions, while Low Carbon and Environmental Goods and Services (LCEGS) data provide the main Midlands-specific evidence base, as they include local authority and sub-regional workforce estimates. Labour market datasets, project pipeline evidence, stakeholder engagement and regional studies are used to supplement and test the findings. It is important to note that LCEGS, is broader than the DESNZ CEJP definition of clean energy jobs, including wider low-carbon, supply-chain and environmental activities (such as water and waste-related sectors). For this reason, figures presented should be interpreted as clean energy-related workforce estimates, rather than a direct measure of CEJP-defined clean energy jobs.

Review of the evidence indicates that the Midlands has a substantial and growing clean energy-related workforce. The mapped LCEGS analysis shows an increase from 90,971 full-time equivalent (FTE) roles in 2019/20 to 111,701 FTE in 2023/24, representing growth of approximately 22.8%. Workforce growth is broad-based across sectors. Wind, Building Technologies and photovoltaic (PV) are the largest LCEGS-classified clean energy-related workforce categories, while Nuclear Power and Energy Management provide important specialist and enabling capability.

Key findings and indicative sector strengths are summarised below.

Table ES1: Key headline findings

Key metric	Finding
Total workforce (2023/24)	111,701 FTE
Growth since 2019/20	+22.8%
Largest sectors	Wind; Building Technologies; PV
Key demand drivers	Retrofit; clean heat; PV; wind; energy management

Table ES2: Indicative sector strengths within the Midlands clean energy workforce

Sector	Relative workforce scale	Role in workforce
Wind	High	Supply-chain, engineering, component, systems and technical activity
Building Technologies	High	Retrofit and building decarbonisation
Photovoltaics (PV)	High	Distributed energy and installation
Nuclear Power	Medium	Strategic infrastructure and specialist skills
Energy Management	Medium	Enabling systems and optimisation

The evidence suggests that future workforce demand is likely to span skilled trades, engineering, manufacturing, construction, project management, digital, planning and professional roles. Demand is expected to be shaped by retrofit, building technologies, wind and PV supply chains, nuclear, heat networks, public sector decarbonisation, smart systems, energy management, clean heat, storage and alternative fuels. Project evidence, including West Burton STEP and Solihull Energy Network, illustrates how both major strategic programmes and local delivery projects can act as workforce demand signals. These examples should not be treated as precise job forecasts, but they help identify the types of skills and occupations likely to be required.

Stakeholder engagement highlighted that MSAs do not rely on a single dataset. Instead, they combine official statistics, administrative data, commercial labour market intelligence, commissioned research, academic evidence, employer intelligence and internal analysis. This reflects the fragmented nature of the current evidence landscape. Local authority survey findings also suggest that relevant data exists, but familiarity, analytical capacity and organisational ownership vary across the region.

Taken together, the report finds that the Midlands has a meaningful clean energy workforce opportunity, but no single dataset can fully answer all workforce questions. Evidence is strongest for current workforce capacity, sector strengths, local distribution, recent growth and explaining differences between CEJP and Midlands evidence. It is weaker for precise local authority-level occupation forecasts, 2050 demand, project-specific job estimates, replacement demand, supply-chain location and training provision mapping.

The report concludes that the existing evidence is sufficient to support strategic workforce planning, provided it is interpreted carefully. Future evidence development should focus on improving consistency, local granularity, occupation-level insight, project-to-workforce mapping and links between workforce demand and skills provision.

Contents

MIDLANDS NET ZERO HUB

List of abbreviations

The following abbreviations and shortened terms are used in this report.

Abbreviation / term	Meaning
APS	Annual Population Survey
BRES	Business Register and Employment Survey
CBI	Confederation of British Industry
CCUS	carbon capture, usage and storage
CEJP	Clean Energy Jobs Plan
DfE	Department for Education
ECIU	Energy and Climate Intelligence Unit
EMCCA	East Midlands Combined County Authority
EPC/DEC	Energy Performance Certificate / Display Energy Certificate
FE/HE	further education / higher education
FTE	full-time equivalent
GCSE	General Certificate of Secondary Education
GGR	greenhouse gas removals
GLCCA	Greater Lincolnshire Combined County Authority
GVA	gross value added
HNPD	Heat Networks Planning Database
HVAC	heating, ventilation and air conditioning
ILR	Individualised Learner Record
KRQ	Key Research Question
LA	Local Authority
LCEGS	Low Carbon and Environmental Goods and Services

Abbreviation / term	Meaning
LCREE	Low Carbon and Renewable Energy Economy
LSIP	Local Skills Improvement Plan
MNZH	Midlands Net Zero Hub
MSA	Mayoral Strategic Authority
NEET	not in education, employment or training
NSIP	Nationally Significant Infrastructure Project
OCEJ	Office for Clean Energy Jobs
ONS	Office for National Statistics
PV	photovoltaic
R&D	research and development
REPD	Renewable Energy Planning Database
SEND	special educational needs and disabilities
SIC	Standard Industrial Classification
SME	small and medium-sized enterprise
SOC	Standard Occupational Classification
STEP	Spherical Tokamak for Energy Production
DESNZ	Department for Energy Security and Net Zero
UKAEA	UK Atomic Energy Authority
UKIFS	UK Industrial Fusion Solutions
WMCA	West Midlands Combined Authority

1. Introduction and methodology

1.1 Aim and research questions

The transition to a net zero economy is expected to increase demand for workers across a range of clean energy sectors, occupations and supply chains. Understanding the scale, distribution and characteristics of this workforce is important for workforce planning, skills development and delivery of clean energy projects.

This research was commissioned by the Department for Energy Security and Net Zero (DESNZ), through the Office for Clean Energy Jobs (OCEJ), to improve understanding of the clean energy workforce across the Midlands. It forms part of a wider programme of regional workforce mapping across England's Net Zero Hub regions.

The research examines the evidence available to support clean energy workforce analysis across the Midlands. It considers current and future workforce demand, differences between national and regional evidence sources, the reasons these differences occur, and the sectors and projects most likely to influence future workforce demand.

The study was designed to address the following research questions:

- What clean energy workforce data do Mayoral Strategic Authorities (MSAs) hold and use?
- What priority occupations in clean energy sectors are expected to be in demand for baseline (present), 2030 and 2050 at regional and local authority level?
- What discrepancies and/or gaps exist between DESNZ's national data and regional data on clean energy workforce forecasts?
- What are the causes of these discrepancies?
- What are the key clean energy sectors and projects driving job creation in each region?

Taken together, the findings are intended to support a clearer understanding of the Midlands clean energy workforce, identify evidence gaps and provide a foundation for future workforce planning and evidence development.

1.2 Methodology

The study used a mixed-methods approach, combining quantitative evidence review, qualitative stakeholder engagement and comparative assessment of workforce datasets.

The study comprised four principal stages:

1. Development of an evidence catalogue of workforce datasets, reports and supporting studies relevant to clean energy employment and skills.
2. Analysis of national, regional and local workforce evidence, including sector, occupation and workforce trend data.
3. Engagement with Midlands stakeholders to understand current workforce evidence use, limitations and future evidence needs.
4. Synthesis of findings to address the commissioned research questions.

Evidence Review

Review of the evidence indicates that a broad range of workforce datasets, labour market evidence, sector studies and clean energy reports are relevant to understanding the Midlands workforce position. An evidence catalogue was developed to assess the availability, coverage and suitability of these sources.

The review covered national datasets, regional workforce studies, labour market intelligence, skills datasets, project-specific evidence and wider clean energy research. Particular attention was given to evidence capable of providing workforce insight at regional and local authority level. Table 1.1 summarises the evidence reviewed.

Table 1.1: Summary of Evidence Reviewed

Evidence Type	Number Reviewed
Datasets	24
Reports and studies	51
MSA interviews	3
LA survey responses	25 responses from 23 LAs

Further detail on the evidence reviewed is provided in Annexes.

Stakeholder Engagement

Stakeholder engagement was undertaken to understand how clean energy workforce evidence is currently used across the Midlands, and to identify perceived strengths, limitations and evidence gaps.

Engagement included interviews with representatives from three MSAs and a short survey of LAs across the Midlands Net Zero Hub (MNZH) geography.

MSA interviews explored the datasets currently used, applications of workforce evidence, perceived dataset limitations, challenges in workforce planning and forecasting, and opportunities to improve future workforce intelligence.

Findings from stakeholder engagement are presented in Chapter 4 and Annex C and D.

Analytical Approach

Findings were developed through triangulation of multiple evidence sources. Workforce datasets, labour market evidence, project evidence and stakeholder insights were considered together to identify recurring patterns, areas of agreement and evidence gaps.

Where evidence sources produced different results, the study considered the likely causes of variation, including differences in definitions, classifications, geography, methodology and data collection approaches.

The analysis also drew on two illustrative case studies selected from projects listed on DESNZ's Clean Energy Map. These were chosen to reflect different scales of clean energy delivery—one nationally significant programme and one local infrastructure project—and are not intended as a comprehensive review of clean energy projects in the Midlands. They provide indicative context on future workforce demand rather than a systematic assessment of the project pipeline.

Clean Energy Jobs Plan Methodology

The CEJP provides DESNZ's national framework for assessing clean energy jobs and workforce requirements. It identifies occupations considered relevant to the clean energy transition and provides a national benchmark for workforce analysis.

CEJP adopts an occupation-based approach focused on occupations expected to contribute to clean energy deployment and net zero delivery. It therefore provides a useful framework for considering workforce demand across clean energy sectors and occupations.

Throughout this study, CEJP evidence has been used primarily as a national benchmark against which regional evidence can be compared and interpreted.

Methodological Limitations

Several limitations should be recognised when interpreting the findings.

No single dataset provides a complete picture of the clean energy workforce. Datasets adopt different definitions, sector boundaries, occupational classifications and geographical coverage. This also means that sector labels used within workforce datasets should be interpreted as analytical classifications rather than direct statements of regional strategic priority.

Workforce forecasting becomes less certain over longer time horizons. While the evidence can indicate likely trends and areas of demand, forecasts should be interpreted as indicative rather than predictive.

Occupation-level and local authority-level workforce evidence remains more limited than regional-level sector evidence. Confidence in some findings therefore varies according to the evidence available.

Major clean energy projects can also influence workforce demand in ways that are difficult to quantify using existing workforce datasets alone. For this reason, project evidence and stakeholder insights have been used alongside workforce datasets to provide a more complete picture of future demand.

These limitations do not prevent meaningful analysis, but they should be considered when interpreting the findings and confidence assessments presented throughout the report.

This report does not include a comprehensive review of apprenticeship or skills datasets. Where referenced, skills and training evidence is used illustratively to highlight relevant pathways rather than as a systematic assessment of training provision.

1.3 Selection of primary evidence base

A wide range of datasets, reports and stakeholder evidence sources were reviewed. Each source contributes insight, but no single dataset was capable of fully answering all five research questions.

Review of the evidence therefore considered which combination of sources was most capable of addressing the commission and which source should act as the primary analytical dataset.

Table 1.2: Role of Principal Evidence Sources

Evidence Source	Primary Role in the Report
Low Carbon and Environmental Goods and Services (LCEGS)[1]	Primary Midlands workforce, sector and geographical evidence
CEJP	National benchmark for clean energy occupations and workforce requirements
Labour market datasets	Supplementary workforce and employment evidence
Skills datasets	Skills provision and training evidence
Project and sector studies	Future workforce demand signals
Stakeholder engagement	Context, interpretation and identification of evidence gaps

Review of the evidence catalogue identified the LCEGS dataset as the most suitable primary analytical source for Midlands workforce mapping.

CEJP provides the national benchmark for clean energy occupations and workforce requirements. LCEGS provides consistent regional and local authority-level evidence across the Midlands, including workforce estimates, sector activity, historical trends and sub-regional analysis not consistently available from other sources.

The study therefore uses LCEGS as the primary source of regional and local workforce evidence, supplemented by CEJP, labour market datasets, project evidence and stakeholder engagement.

The evidence review and stakeholder engagement indicate that different sources are needed for different purposes, depending on the level of geographical detail, occupational insight or future workforce information required.

CEJP and LCEGS serve different purposes and are not directly equivalent. CEJP adopts an occupation-focused framework for national clean energy workforce analysis, while LCEGS provides a broader sector-based view of low-carbon and environmental economic activity. As a result, LCEGS sector categories should be read in the context of the activities they capture and the regional economies in which they operate. Some categories include wider supply-chain and enabling activity that may support several clean energy or smart energy system priorities. The analysis therefore uses LCEGS to identify clean energy-related workforce capacity, while recognising that regional strategic priorities may describe the same capability differently.

Throughout the report, CEJP is used as the national benchmark and LCEGS as the primary source of Midlands workforce evidence. Other datasets and stakeholder evidence are used to supplement, contextualise and test the findings.

1.4 Report structure

The report is structured as follows:

- **Chapter 2** provides context on clean energy, workforce demand and the clean energy.
- **Chapter 3** present the findings from the evidence review and workforce analysis.
- **Chapter 4** presents findings from stakeholder engagement with MSA's and LAs.
- **Chapter 5** answers the commissioned research questions, drawing together evidence from the preceding chapters and assessing confidence in the findings.
- **Chapter 6** presents overall conclusions and identifies evidence improvement priorities emerging from the research.

Supporting information is provided in the annexes, including the research question assessment framework, evidence catalogue summary, regional sector strength summaries, supporting workforce tables, stakeholder engagement evidence and evidence gaps and improvement opportunities.

[1] Developed by kMatrix Data Services and commissioned by MNZH

2. Midlands clean energy workforce context

The transition to a net zero economy is expected to increase demand for workers across a wide range of sectors, occupations and supply chains. Delivering clean energy generation, energy infrastructure, low-carbon technologies and energy efficiency improvements requires technical, professional and vocational skills.

For the purposes of this report, clean energy refers to activities that support the generation, distribution, storage and efficient use of energy while contributing to reduced greenhouse gas emissions. This includes established sectors and emerging technologies expected to support the transition to net zero.

Workforce demand associated with clean energy extends beyond specialist energy occupations. Many relevant occupations are also found in construction, manufacturing, engineering, transport, professional services and digital technologies. Understanding future workforce requirements therefore requires both sectoral and occupational evidence.

Effective workforce planning depends on evidence about current workforce capacity, future demand, skills provision and emerging employment opportunities. As Chapter 1 notes, no single dataset provides a complete picture of the clean energy workforce; different sources provide different perspectives depending on scope, methodology and geography.

Understanding the strengths and limitations of available evidence is therefore central to this study.

2.1 Midlands Clean Energy Workforce Opportunities

Review of the evidence indicates growth across sales, employment and business numbers in all eight Midlands regions between 2021 and 2024. The pace of growth varies by geography, but the overall pattern suggests a strengthening LCEGS economy across the Midlands.

Stakeholder and regional evidence also highlight persistent workforce and skills constraints. The scale and direction of change differ between areas, but demand for skilled workers continues to exceed supply in several places, particularly where sector expansion is linked to net zero delivery.

A consistent group of core sectors appears across the Midlands. Wind, Building Technologies and Alternative Fuels are repeatedly identified as leading areas of activity, while Water Supply & Waste Water Treatment also appears frequently. Waste Management, Recovery & Recycling, Biomass and Anaerobic Digestion are locally specific strengths linked to industrial, rural or coastal characteristics.

Taken together, the evidence suggests that clean energy workforce opportunities are both region-wide and locally distinctive. Shared sector strengths sit alongside place-specific opportunities, including offshore renewables in Greater Lincolnshire, industrial decarbonisation in Stoke-on-Trent and Staffordshire and the South Humber Bank, and bioenergy activity in areas such as The Marches and Leicestershire and Rutland. Workforce planning therefore needs to reflect both common Midlands-wide demand and local specialisms.

Table 2.1: Midlands Clean Energy Workforce Opportunity by Region with priority subsectors as per LCEGS 2023/24 Regional Reports (kMatrix)

Region	Summary of Clean Energy Workforce Opportunity	Priority Sub-sectors Identified
Coventry and Warwickshire	The skills gap has remained broadly unchanged, reflecting continued pressure as demand outpaces supply. Activity remains concentrated in wind, building technologies and alternative fuels, with increasing focus on retrofit, low carbon heat and transport.	Building Technologies; Alternative Fuels; Water Supply & Waste Water Treatment
Worcestershire	Continued growth across key indicators, with a reduced but still constraining skills gap. Wind has historically dominated, although building technologies and alternative fuels are now similarly significant, driven by demand for retrofit and low carbon heating.	Building Technologies; Alternative Fuels; Water Supply & Waste Water Treatment
The Marches	Strong growth since 2021, alongside a slightly improved but still significant skills gap. Activity centres on wind, building technologies and alternative fuels, with a particular need to upskill retrofit professionals. Rural characteristics support additional activity in biomass and anaerobic digestion.	Building Technologies; Alternative Fuels; Water Supply & Waste Water Treatment
Leicestershire and Rutland	Steady growth since 2021, with a slightly increased skills gap. The sector is anchored in wind, building technologies and alternative fuels, with biomass also playing a notable role linked to the area's agricultural base.	Building Technologies; Alternative Fuels; Water Supply & Waste Water Treatment
Greater Lincolnshire	Growth across key metrics, albeit at a slower pace than other areas, with a widening skills gap. The sector is led by wind, building technologies and alternative fuels, alongside distinctive strengths in offshore renewables (particularly around Grimsby) and industrial decarbonisation on the South Humber Bank.	Water Supply & Waste Water Treatment; Waste Management; Recovery & Recycling
East Midlands Combined County Authority	Steady growth across sales, employment and businesses, with a slightly reduced but persistent skills gap. Demand continues to exceed supply. Activity remains centred on wind, building technologies and alternative fuels.	Alternative Fuels; Building Technologies; Water Supply & Waste Water Treatment
Stoke-on-Trent and Staffordshire	Strong growth across all metrics, supported by significant opportunities in industrial decarbonisation. Activity is led by wind, building technologies and alternative fuels, with additional strength in waste, water and recycling. The industrial base provides strong potential for low carbon innovation and deployment.	Wind; Building Technologies; Alternative Fuels
West Midlands Combined Authority	Strong recent growth with a skills gap that has remained largely unchanged. Smart energy systems, energy management, demand management and environmental infrastructure are regionally important, with rapid growth in building technologies and alternative fuels reflecting increasing demand in retrofit, low carbon heat and transport.	Building Technologies and Energy Efficiency; Alternative Fuels and Low Carbon Transport; Waste Management, Recovery & Recycling, and Water Treatment

3. Research findings

3.1 Evidence base overview

This chapter presents the evidence used to understand clean energy workforce activity across the Midlands. Review of the evidence combined DESNZ and OCEJ material, the Clean Energy Jobs Plan (CEJP), Midlands-specific Low Carbon and Environmental Goods and Services (LCEGS) data, labour market statistics, skills evidence, project pipeline sources and stakeholder evidence.

The analysis uses a layered evidence approach. CEJP provides the national benchmark for clean energy sectors, occupations and 2030 assumptions; LCEGS provides the main local authority and sub-regional workforce evidence for the MNZH geography; and labour market, skills and project datasets provide supporting context.

Detailed source-by-source descriptions are provided in Annex A and B. Chapter 3 therefore focuses on the findings that emerge from the evidence rather than repeating the full methodology.

3.1.1 LCEGS-CEJP comparison

CEJP and LCEGS both provide important evidence, but they measure different things. CEJP is the national clean energy jobs benchmark, while LCEGS provides broader local and sub-regional evidence of low-carbon and clean energy-related workforce capacity.

For this report, CEJP is used to maintain alignment with the national clean energy framework, priority sectors, priority occupations and 2030 assumptions. LCEGS is used to understand where the Midlands already has relevant workforce capacity, sector strengths and economic activity.

Table 3.1: Role of main evidence sources

Evidence source	Best use in this report	Main limitation
CEJP	National benchmark for clean energy sectors, jobs, priority occupations and 2030 assumptions	Limited local authority-level detail
LCEGS	Midlands local and sub-regional evidence on clean energy-related workforce capacity	Broader than CEJP and not directly equivalent
Low Carbon and Renewable Energy Economy (LCREE), BRES, APS, Census Standard Occupational Classification (SOC) and apprenticeships	Supporting labour market, occupation and skills context	Do not identify clean energy jobs directly
Project pipeline data	Future demand signals	Does not consistently provide job numbers or occupations

Review of the evidence indicates strong conceptual alignment between CEJP and LCEGS in areas such as wind, solar/PV, nuclear, energy efficiency, building technologies, energy management and selected alternative fuels. Some categories require Level 3 review before they can be treated as clearly clean energy-aligned. Interpretation is particularly important where broad LCEGS sector labels do not fully describe the nature of the underlying workforce activity.

3.2 How clean energy was defined and mapped for the Midlands

For this study, clean energy was defined using CEJP as the national benchmark and the kMatrix LCEGS dataset as the principal Midlands evidence source. This enables the analysis to remain aligned with DESNZ/OCEJ while using the local authority and sub-regional detail required for the MNZH geography.

Mapping was undertaken at LCEGS Level 1, Level 2 and Level 3 as defined in Table 3.2. This was necessary because some Level 2 categories are too broad to classify safely without reviewing the detailed activity beneath them.

Table 3.2: LCEGS Sector disaggregated into Levels 1 & 2 (as per kMatrix Table 1 of LCEGS Methodology)

Sector	Level 1	Level 2	Level 3
LCEGS	Low Carbon	Additional Energy Sources	9 sub-sectors
		Alternative Fuel Vehicle	2 sub-sectors
		Alternative Fuels	5 sub-sectors
		Building Technologies	4 sub-sectors
		Carbon Capture & Storage	11 sub-sectors
		Carbon Finance	5 sub-sectors
		Energy Management	6 sub-sectors
		Nuclear Power	7 sub-sectors
	Renewable Energy	Biomass	5 sub-sectors
		Geothermal	5 sub-sectors
		Hydro	4 sub-sectors
		Photovoltaic	5 sub-sectors
		Renewable Consultancy	2 sub-sectors
		Wave & Tidal	6 sub-sectors
		Wind	3 sub-sectors
	Environmental	Air Pollution	6 sub-sectors
		Contaminated Land	2 sub-sectors
		Environmental Consultancy	4 sub-sectors
		Environmental Monitoring	3 sub-sectors

Sector	Level 1	Level 2	Level 3
LCEGS	Environmental	Marine Pollution Control	3 sub-sectors
		Noise & Vibration Control	3 sub-sectors
		Recovery and Recycling	18 sub-sectors
		Waste Management	4 sub-sectors
		Water & Waste Water Treatment	4 sub-sectors

Table 3.3: LCEGS clean energy mapping categories

Mapping category	Meaning
CEJP-aligned clean energy	Categories clearly aligned with an official CEJP/OCEJ clean energy subsector.
Clean energy enabling / partial alignment	Categories that may support clean energy deployment, operation or supply chains, but require Level 3 evidence or interpretation.
Clean energy-adjacent	Categories relevant to the wider net zero transition, but not treated as direct clean energy under CEJP/OCEJ.
Wider green economy / environmental context	Environmentally relevant categories not included in clean energy FTE subset aligned with DESNZ and OCEJ by default.

The strongest matches retained for the Midlands analysis were those where Level 2 and Level 3 both supported clear CEJP/OCEJ alignment, including Wind, Photovoltaic (PV), Nuclear Power, and building and energy efficiency activities where they map to clean energy subsectors.

Other categories were treated more cautiously. Alternative Fuels, Biomass and Geothermal were included only where Level 3 evidence supported a clear link to hydrogen, biomethane, storage, clean flexibility, heat networks or low-carbon heat. Alternative Fuel Vehicle activity was treated as clean energy-adjacent unless a direct link to clean energy infrastructure was evident.

This approach enables LCEGS to be used as the local Midlands workforce evidence base while avoiding over-claiming. The resulting figures should be interpreted as clean energy-related FTE evidence rather than exact counts of individual employees or direct reproductions of CEJP national estimates.

3.3 Midlands clean energy-related workforce profile

The LCEGS analysis indicates that the Midlands has a substantial clean energy-related workforce base. Using the mapped subset, total FTE increased from 90,971 in 2019/20 to 111,701 in 2023/24: an increase of approximately 20,730 FTE, or 22.8%.

The trend shows an initial reduction from 90,971 FTE in 2019/20 to 86,431 in 2020/21, followed by sustained growth to 91,816 in 2021/22, 100,050 in 2022/23 and 111,701 in 2023/24. By 2023/24, the workforce was materially above the 2019/20 baseline.

The evidence suggests that clean energy-related activity in the Midlands is expanding. The strongest increase occurred between 2022/23 and 2023/24, when the mapped workforce grew by 11,651 FTE, indicating a growing platform for clean energy delivery, supply-chain activity and wider net zero implementation.

The headline trend indicates a clear growth trajectory. Although employment reduced in 2020/21, subsequent years show sustained increases, with 2023/24 materially above the 2019/20 baseline. This suggests an established and growing clean energy-related workforce base that could support skills planning, project delivery and supply-chain development.

Clean energy-related employment is not evenly distributed across the Midlands. In 2023/24, the West Midlands Combined Authority (WMCA) area had the largest workforce base, with 32,308 FTE, followed by East Midlands Combined County Authority (EMCCA) with 18,910 FTE and Coventry & Warwickshire with 16,578 FTE (Annex A, Graph 2).

Other significant workforce bases include Leicestershire County & Rutland County with 13,373 FTE and Stoke-on-Trent & Staffordshire with 12,237 FTE. Greater Lincolnshire, Worcestershire and The Marches also show meaningful employment bases, with 8,014 FTE, 7,493 FTE and 6,929 FTE respectively.

The Level 1 split indicates that both Low Carbon and Renewable Energy activities make a material contribution to the Midlands clean energy-related workforce. Renewable Energy accounts for a larger share in most MNZH geographies, but both categories are present in every geography.

WMCA has the largest totals in both categories, with 12,504 FTE in Low Carbon and 19,804 FTE in Renewable Energy. EMCCA follows with 7,377 FTE in Low Carbon and 11,533 FTE in Renewable Energy. Coventry & Warwickshire has a more balanced profile, with 7,847 FTE in Low Carbon and 8,730 FTE in Renewable Energy.

This split shows that the Midlands workforce opportunity is broader than renewable electricity generation. Low Carbon activities include building technologies, energy management, alternative fuels, nuclear-related services and other enabling activity, while Renewable Energy includes wind, PV, biomass and geothermal-related activity.

3.4 Clean energy sector strengths across the Midlands

The LCEGS sector analysis shows that Midlands clean energy-related workforce strengths are concentrated in a small number of major sectors. In 2023/24, LCEGS-classified Wind, Building Technologies and PV were the largest sectors by FTE, linking the workforce profile to renewable energy supply chains, retrofit, solar PV systems and related manufacturing or technical services.

In the LCEGS classification, Wind is the largest clean energy-related sector by FTE, with 40,720 FTE in 2023/24. It is also the largest sector by sales and GVA, with approximately £5.261bn in sales and £4.145bn in GVA. This should be interpreted with care. The category includes supply-chain, component, engineering, systems and technical activity, as well as direct renewable energy activity.

Building Technologies is the second-largest sector by FTE, with 37,251 FTE, and generated approximately £4.808bn in sales and £3.807bn in GVA. This is significant for LAs because the sector links directly to retrofit, insulation, glazing, monitoring and control systems, building fabric improvements and energy efficiency.

PV is the third-largest sector, with 25,333 FTE, approximately £3.272bn in sales and £2.560bn in GVA. This indicates a substantial solar PV-related workforce and economic base across systems, equipment, components, research and wider supply-chain activity.

Nuclear Power and Energy Management are smaller in FTE terms but remain strategically important. Nuclear Power accounts for 8,801 FTE and Energy Management for 3,736 FTE. These sectors support specialist capability in engineering, commissioning, safety, testing, monitoring, controls, smart systems and demand reduction.

Level 3 sector detail

Level 3 analysis provides detail on the activities beneath the largest sectors. Within Building Technologies, the largest activities include Windows, Doors, Monitoring and Control Systems, and Insulation and Heat Retention Materials, confirming the importance of building fabric and energy performance activity.

Within PV, the largest activities include Systems & Equipment, PV Cells, Other Related Equipment and Chemicals, and Research & Development. The evidence suggests that the PV sector extends beyond installation into manufacturing, equipment supply, chemicals, R&D and wider technical supply-chain capability.

The Nuclear Power breakdown highlights specialist activities including Commissioning Engineering Services, Manufacture of Cooling Equipment for the Nuclear Power Industry, Construction of Plant & Equipment, Nuclear Science Services, Nuclear Safety Engineering Services and Sampling & Testing Services. This points to engineering, technical, manufacturing and compliance-related functions, rather than only power plant operations.

Interpretation

The evidence points to three main types of clean energy strength across the Midlands.

First, the region has strong renewable energy and clean energy-related supply-chain capability, especially in LCEGS-classified Wind and PV. This suggests that the Midlands can support national clean energy deployment through manufacturing, engineering, systems integration, technical services and component supply, even where generation assets are located elsewhere.

Second, the region has a major building energy efficiency and retrofit-related workforce base. Building Technologies is one of the largest sectors by FTE, sales and GVA, indicating that retrofit and energy-efficient building products are central to the Midlands clean energy economy.

Third, the region has specialist enabling sectors, including Nuclear Power and Energy Management. These sectors are smaller in scale but important because they provide technical, engineering, monitoring, safety and systems capability.

3.5 Local authority and sector specialisms by place

The local authority analysis indicates that clean energy-related workforce capacity is unevenly distributed across the Midlands. Employment is concentrated in major urban, industrial and economically diverse areas, but activity is also present in smaller and mixed urban-rural authorities.

Birmingham is the largest workforce centre, with 15,075 FTE in 2023/24. This reflects its scale as the largest economic centre in the Midlands and suggests a broad employment base across building technologies, energy management, renewable energy supply chains, engineering, construction and professional services.

A second tier of workforce centres includes Warwick, Stoke-on-Trent, Coventry, Leicester, Solihull, Shropshire, Derby City, Rugby, Nottingham City, Dudley, Worcester and Sandwell. These areas show that the Midlands clean energy workforce is distributed across several substantial employment bases.

Table 3.4: Largest local authority clean energy-related workforce concentrations, 2023/24

Local authority	2023/24 FTE	Local authority	2023/24 FTE	Local authority	2023/24 FTE
Birmingham	15,075	Warwick	4,799	Stoke-on-Trent	4,466
Coventry	4,208	Leicester	4,166	Solihull	4,093
Shropshire	3,750	Derby City	3,669	Rugby	3,352
Nottingham City	3,188	Dudley	3,012	Worcester	2,984
Sandwell	2,752				

mixed urban-rural areas may support distributed opportunities such as retrofit, local renewable generation, biomass, solar and SME supply-chain activity.

Sector specialism also varies by place. Wind, PV and Building Technologies are particularly visible across the Midlands, reflecting renewable energy supply chains, solar PV systems and equipment, retrofit, energy efficiency, building fabric and monitoring systems.

Birmingham is the largest and most diversified centre across the selected sectors. It has the highest FTE values in Wind and PV, with a substantial Building Technologies workforce. Across the wider Midlands, LCEGS-classified Wind activity is prominent in many authorities, including Warwick, Coventry, Solihull, Shropshire, Derby City, Nottingham City, Leicester, Dudley, Sandwell and Stoke-on-Trent.

Building Technologies is also a recurring strength across many places, reflecting the local relevance of retrofit, insulation, glazing, monitoring and control systems, and energy efficiency. PV is smaller than Wind and Building Technologies in most authorities shown, but remains a meaningful part of the workforce profile in several urban and industrial areas.

Taken together, the evidence suggests that clean energy workforce capacity should be understood through both scale and specialism. Larger authorities dominate in absolute FTE terms, while smaller authorities may still hold important sector-specific strengths. Workforce planning therefore needs to consider where capacity is largest, which sectors are strongest locally and how these strengths can support clean energy delivery across the region.

3.6 Workforce growth trends

The clean energy-related workforce trend shows an initial contraction followed by sustained growth. Across the selected sectors, total FTE fell from 90,971 in 2019/20 to 86,431 in 2020/21, before increasing to 91,816 in 2021/22, 100,050 in 2022/23 and 111,701 in 2023/24. This represents overall growth of approximately 22.8% between 2019/20 and 2023/24.

The evidence suggests that workforce activity gained momentum after 2021/22, increasing by more than 19,800 FTE between 2021/22 and 2023/24. By 2023/24, the clean energy-related workforce was above its 2019/20 baseline.

Wind remained the largest sector throughout the period, increasing from 32,364 FTE in 2019/20 to 39,203 FTE in 2023/24: an increase of around 6,839 FTE. This confirms Wind as the Midlands' largest clean energy-related workforce sector and a major source of employment growth.

Building Technologies followed a similar pattern, falling from 29,520 FTE in 2019/20 to 27,540 in 2020/21 before increasing to 35,712 in 2023/24. The sector added approximately 6,192 FTE over the period and remains closely linked to retrofit, energy efficiency, building fabric, insulation, monitoring systems and local authority decarbonisation priorities.

PV increased from 20,179 FTE in 2019/20 to 24,401 in 2023/24, adding around 4,222 FTE. This indicates a strengthening solar PV-related workforce base across systems, equipment, components, installation, R&D and supply-chain activity.

Nuclear Power shows the strongest proportional growth among the sectors shown. It fell from 5,939 FTE in 2019/20 to 4,426 in 2020/21, then rose to 7,529 in 2021/22 and 8,789 in 2023/24. This represents growth of approximately 48% from 2019/20 to 2023/24 and suggests increasing specialist activity in nuclear engineering, commissioning, safety, testing and related supply-chain services.

Energy Management remained the smallest selected sector, increasing from 2,967 FTE in 2019/20 to 3,596 in 2023/24. It remains strategically important because it supports energy efficiency, monitoring, controls, smart systems, optimisation and demand management.

Overall, workforce growth was broad-based rather than confined to a single sector. Wind, Building Technologies and PV delivered the largest absolute increases, while Nuclear Power showed the strongest proportional growth. Energy Management grew more modestly but remains an important enabling sector.

3.7 Occupation and skills evidence

The occupation and skills evidence shows that clean energy workforce demand across the Midlands cuts across a wide range of roles rather than sitting within a single energy labour market. CEJP identifies clean energy jobs across technical roles such as machine operators, welders, engineers and designers, as well as desk-based roles including planners and project managers.

For the Midlands, this matters because the largest clean energy-related sectors identified through LCEGS require different but overlapping occupational profiles. Wind and PV create demand for engineering, manufacturing, electrical, installation, maintenance and technical supply-chain roles. Building Technologies creates demand for retrofit, construction, insulation, glazing, heating, ventilation, monitoring and control occupations. Nuclear Power requires specialist engineering, commissioning, testing, safety and compliance roles, while Energy Management requires digital, data, controls, monitoring and optimisation skills.

The main occupation and skills areas likely to be relevant are summarised below.

Table 3.5: Occupation and skills areas relevant to Midlands clean energy sectors

Occupation / skills area	Relevance to Midlands clean energy sectors
Skilled construction and building trades	Retrofit, insulation, windows, doors, building fabric and public estate decarbonisation.
Electricians and electrical fitters	Solar PV, EV charging, heat pumps, energy management, grid connection and flexibility.
Plumbers, heating and ventilation engineers	Clean heat, heat pumps, heat networks, efficient HVAC and building decarbonisation.
Engineers and technicians	Wind, PV, nuclear, energy systems, clean flexibility, alternative fuels and project delivery.
Manufacturing and assembly roles	Wind components, PV equipment, nuclear supply chains and building technology products.
Project managers and planners	Clean energy projects, retrofit programmes, heat networks, public estate decarbonisation and infrastructure.
Health, safety, compliance and quality roles	Nuclear, construction, engineering, heat networks, manufacturing and high-risk clean energy environments.

The evidence suggests that the Midlands clean energy workforce opportunity is strongly linked to skilled trades and technical and professional occupations. Many relevant workers may be employed in manufacturing, construction, engineering, digital services, professional services or equipment supply, rather than in firms that appear to be purely energy businesses.

The evidence is sufficient to identify broad occupation groups and likely skills pressures. It is not sufficient to produce precise local authority-level occupation forecasts for 2030 or 2050. More granular evidence would strengthen occupation forecasting, replacement demand analysis, employer validation and training provision mapping.

3.7.1 Skills implications by main Midlands clean energy sector

Table 3.6: Skills implications by main Midlands clean energy sector

Sector strength	Likely priority skills and occupations
Wind	Mechanical and electrical engineers, technicians, manufacturing operatives, component specialists, systems integration, maintenance, logistics and project management.
Building Technologies	Retrofit assessors and coordinators, insulation installers, glazing, doors and windows specialists, construction trades, heating and ventilation, building control systems and energy assessors.
PV	Electricians, PV installers, roofers, system designers, grid connection specialists, electrical engineers, maintenance technicians and equipment supply roles.
Nuclear Power	Commissioning engineers, nuclear safety engineers, science and technical roles, testing services, manufacturing, cooling equipment, quality assurance and compliance.
Energy Management	Energy managers, monitoring and control specialists, digital systems roles, data analysts, building management system technicians, smart systems and demand management roles.

The evidence suggests a distinction between new entrant demand and upskilling demand. Some clean energy roles are likely to require new workers entering through apprenticeships, further education, higher technical education and universities. However, a significant share of future demand is likely to be met by existing workers in adjacent sectors, including construction, manufacturing, automotive, energy, engineering and professional services. CEJP notes that most of the 2030 workforce is already in employment.

This is particularly relevant to the Midlands because many clean energy opportunities build on existing regional strengths. Automotive and advanced manufacturing skills can support low-carbon transport, batteries and alternative fuels; construction and building services skills can support retrofit and public sector decarbonisation; engineering and manufacturing skills can support wind, solar, nuclear and supply-chain activity; and digital and data capability can support energy management, flexibility and smart systems.

The occupation evidence should be interpreted carefully. Standard occupational datasets such as SOC do not identify whether a worker is employed in clean energy activity. Occupation data is therefore best treated as evidence of relevant workforce capacity, not as a precise count of clean energy workers.

There is also a gap between national occupation evidence and local authority-level workforce intelligence. CEJP provides a strong national and regional benchmark for priority occupations, while LCEGS provides stronger local and sub-regional evidence on sector capacity. The report therefore interprets LCEGS as estimated clean energy-related FTE evidence rather than as a direct one-to-one reproduction of CEJP national estimates.

3.7.2 Evidence gaps

The main occupation and skills evidence gaps are:

Table 3.7: Evidence gaps for occupation and skills analysis

Evidence gap	Implication
Limited local authority-level occupation forecasts	The report can identify likely occupation groups, but not precise 2030 or 2050 occupation demand by LA.
SOC codes do not identify clean energy activity directly	Occupation data must be interpreted as relevant workforce capacity rather than clean energy employment.
Training data does not map neatly to clean energy sectors	Apprenticeship and skills provision should be treated as proxy evidence unless mapped to specific clean energy pathways.
Supply-chain occupations are difficult to locate	Workers supporting clean energy projects may be located outside the authority where projects are delivered.
Replacement demand is not fully captured	Future workforce need may be understated if retirements and labour market exits are not modelled.
Emerging technology skills are uncertain	Hydrogen, CCUS, fusion, clean flexibility and smart systems require skills that are still developing.

3.8 Project pipeline and likely drivers of job creation

Project pipeline evidence provides a forward-looking view of where clean energy workforce demand may emerge across the Midlands. While LCEGS shows existing clean energy-related workforce capacity, project evidence helps identify what is moving through the planning and delivery system and which sectors may create future workforce demand.

The main datasets for this section are the REPD, the HNPD, DESNZ's Clean Energy Projects Map, local authority project evidence and strategic project case studies. These sources identify future demand signals, but should not be treated as direct workforce forecasts because they do not consistently provide job numbers or occupational requirements.

The project pipeline indicates likely demand across construction, civil engineering, electrical installation, project management, planning, surveying, grid connection, mechanical and electrical engineering, heating and ventilation, manufacturing, maintenance, digital systems and specialist technical roles. Some employment will be created where projects are located, while a significant share may sit in wider Midlands supply chains, professional services, manufacturing and technical support functions.

For the Midlands, solar PV and battery storage are particularly relevant because they create demand for electrical trades, civil works, grid connection specialists, designers, planners, project managers, construction contractors and operations and maintenance technicians. These roles align with the LCEGS evidence showing PV as one of the largest clean energy-related sectors in the region.

The Cottam Solar Project illustrates this type of demand. The project is a proposed solar and energy storage development crossing the Lincolnshire and Nottinghamshire border, and has been awarded development consent by the Secretary of State for DESNZ. It is likely to create short-term construction and installation demand, followed by lower but longer-term demand for monitoring, maintenance, asset management and technical services.

Heat networks, clean heat and public estate demand

Heat networks, clean heat and public sector decarbonisation are particularly relevant for LAs because they connect to public buildings, housing, planning, local area energy planning, fuel poverty and local net zero delivery. HNPD provides evidence on district and communal heat network deployment through inception, planning, construction, operation and decommissioning.

This evidence captures clean heat and public estate demand. Heat network and clean heat projects are likely to require heating engineers, pipework specialists, mechanical engineers, building services engineers, surveyors, planners, project managers, procurement specialists, maintenance technicians and energy managers. These roles align with LCEGS evidence on Building Technologies and Energy Management.

Public estate decarbonisation and retrofit demand are also likely to be major job creation drivers. Unlike some large energy infrastructure projects, retrofit and building energy efficiency demand is distributed across every local authority and may create ongoing demand for retrofit assessors, retrofit coordinators, insulation installers, glazing specialists, heating and ventilation engineers, electricians, energy managers and project delivery roles.

Strategic clean energy projects and illustrative demand signals

Strategic projects provide another route to understanding future demand. The Department's Clean Energy Projects Map is useful because it identifies clean energy and low-carbon projects supported by government schemes since July 2024, including jobs and investment information where available.

For the Midlands, strategic project evidence includes nationally significant programmes, local energy infrastructure projects and clusters of related clean energy activity. Wider clean energy activity around West Burton, Cottam and High Marnham, including the Trent Clean Energy Supercluster, provides evidence that future workforce demand may be shaped by clusters of related projects as well as individual schemes.

The following boxed case studies present two illustrative demand signals. West Burton STEP demonstrates the potential workforce implications of a long-term, nationally significant clean energy programme. Solihull Energy Network illustrates how local clean energy infrastructure can generate more immediate skills, supply-chain and community benefits. The case studies should be interpreted as evidence of the types of occupations and skills likely to be associated with project delivery, not as workforce forecasts for the wider region.

Renewable electricity and storage pipeline

Renewable electricity and storage projects are likely to be important drivers of future workforce demand. REPD identifies solar, wind, battery storage, biomass, anaerobic digestion and other renewable projects by technology, location, capacity and status, helping assess where construction, installation, grid connection and operational demand may occur.

For the Midlands, strategic project evidence includes nationally significant programmes, local energy infrastructure projects and clusters of related clean energy activity. Wider clean energy activity around West Burton, Cottam and High Marnham, including the Trent Clean Energy Supercluster, provides evidence that future workforce demand may be shaped by clusters of related projects as well as individual schemes.

The following boxed case studies present two illustrative demand signals. West Burton STEP demonstrates the potential workforce implications of a long-term, nationally significant clean energy programme. Solihull Energy Network illustrates how local clean energy infrastructure can generate more immediate skills, supply-chain and community benefits. The case studies should be interpreted as evidence of the types of occupations and skills likely to be associated with project delivery, not as workforce forecasts for the wider region.

Box 3.1: Case Study - West Burton STEP Programme	
Project overview	West Burton is the selected site for the Spherical Tokamak for Energy Production (STEP) prototype fusion energy plant. The programme is being delivered by UK Industrial Fusion Solutions (UKIFS) and UK Atomic Energy Authority (UKAEA) and is located at West Burton in Bassetlaw, close to the Nottinghamshire and Lincolnshire border, on a site of approximately 330 hectares.
Why this matters as a workforce demand signal	STEP is a long-term clean energy programme expected to combine construction activity, advanced energy research, specialist engineering, technical services, manufacturing, operations and maintenance. It therefore provides evidence of the type of workforce demand that may arise from major innovation-led clean energy infrastructure.
Workforce and skills evidence	Construction activity is expected to peak in the mid-to-late 2030s. Almost half of construction roles are expected to require Level 3 or higher qualifications. Around 1,200 people are expected to be trained during the construction phase, including around 330 apprenticeships. Once fully operational, the STEP Campus is forecast to support approximately 6,500 on-site FTE jobs, with around 73% expected to require Level 4 or higher qualifications.
Supply-chain and local economic relevance	The programme is expected to generate supply-chain demand across advanced manufacturing, specialist engineering, construction services, professional and technical services, facilities management and long-term maintenance. This is relevant to wider regional workforce planning where clean energy developments are concentrated around former energy and industrial sites.
Interpretation for the Midlands evidence base	STEP illustrates how major clean energy infrastructure can create long-term demand for high-skilled occupations, apprenticeships and specialist supply-chain capability. It also highlights the importance of qualification levels, training pathways and regional supply chains when assessing future workforce requirements.

Box 3.2: Case Study - Solihull Energy Network	
Project overview	Solihull Council's Low Carbon Energy Network is a local clean energy infrastructure project designed to transform how key buildings in the town generate and use energy. The network will provide low-carbon heating, hot water and electricity to buildings including Solihull College, Tudor Grange Academy, The Core theatre and Tudor Grange Leisure Centre. The project is in construction and is the first of its kind to secure funding from the National Wealth Fund.
Why this matters as a workforce demand signal	The project provides an example of local clean energy delivery creating demand for construction, engineering, heat network, low carbon heat, electrical infrastructure, maintenance and project delivery skills. It demonstrates how local authority-scale decarbonisation projects can contribute to workforce demand even where direct job numbers are smaller than in major national infrastructure programmes.
Workforce and skills evidence	The project includes 161 weeks of total experience for eleven apprentices, seven weeks of work placements and 26 hours of local school and college engagement. Site tours of the energy centre are also being provided for local school children and residents.
Supply-chain and local economic relevance	The project has generated more than £3 million of local supply-chain spend. Additional local benefits include volunteering activity, community engagement events and charitable donations.
Interpretation for the Midlands evidence base	Solihull Energy Network illustrates how local clean energy infrastructure can create practical workforce and skills opportunities through apprenticeships, placements, supply-chain spend and community engagement. It complements the STEP case study by showing that demand signals arise from both nationally significant projects and local delivery programmes.

Taken together, the case studies indicate that future clean energy workforce demand in the Midlands is likely to be shaped by both strategic infrastructure programmes and local delivery projects. They suggest demand across construction, engineering, technical services, project management, manufacturing, operations, maintenance and professional roles, while also highlighting the importance of apprenticeships, qualification pathways, local supply chains and early engagement with learners.

Project pipeline to workforce implications

The project-to-workforce implication matrix translates project types into the occupations and skills likely to be required.

Table 3.8: Project and sector drivers of workforce demand

Project / sector driver	Evidence source	Likely workforce demand	Interpretation
Solar PV and battery storage	REPD, Clean Energy Projects Map, Nationally Significant Infrastructure Project (NSIP)/local project evidence	Electricians, PV installers, roofers, civil engineers, grid connection specialists, planners, project managers, maintenance technicians	Likely to create construction and installation demand, with longer-term operation and maintenance roles.
Heat networks and clean heat	HNPD, local heat network plans, public estate evidence	Heating engineers, mechanical engineers, pipework specialists, surveyors, project managers, building services engineers, maintenance roles	Strong local authority relevance because projects link to heat zoning, public buildings and anchor loads.
Public sector decarbonisation	Local authority estate plans, public sector decarbonisation evidence, Energy Performance Certificate/Display Energy Certificate (EPC/DEC) evidence	Energy managers, retrofit coordinators, building services engineers, procurement specialists, project managers, installers	Likely to create repeatable local delivery demand across schools, council buildings, health estates and other public assets.
Domestic and non-domestic retrofit	EPC, fuel poverty, local housing and net zero strategies	Retrofit assessors, retrofit coordinators, insulation installers, glazing specialists, electricians, heating and ventilation engineers	One of the most distributed workforce opportunities because every local authority has retrofit need.
Fusion and advanced nuclear	West Burton STEP, Trent Supercluster, Clean Energy Projects Map	Engineers, researchers, technicians, construction workers, safety specialists, quality assurance, project managers, advanced manufacturing roles	Strategic long-term driver with high technical and higher-level skills demand.
Wind and renewable supply chains	LCEGS, REPD, CEJP evidence	Manufacturing roles, mechanical and electrical engineers, component specialists, systems integration, maintenance, logistics	Important because jobs may sit in Midlands supply chains even where wind generation assets are outside the region.
Alternative fuels, hydrogen and biomethane	REPD, local industrial strategies, LCEGS Alternative Fuels evidence	Process engineers, plant operatives, safety specialists, mechanical and electrical technicians, logistics and maintenance roles	More project-dependent, but relevant to industrial decarbonisation, rural energy and fuel switching.
Energy management and smart systems	LCEGS Energy Management, clean flexibility evidence	Data analysts, controls engineers, building management system technicians, energy managers, software and monitoring specialists	Cross-cutting enabler for buildings, storage, networks, flexibility and local energy systems.

Taken together, project pipeline evidence indicates that future clean energy job creation in the Midlands is likely to come from three sources.

First, direct project delivery jobs may be linked to construction, installation, commissioning, operation and maintenance. These are likely to be most visible in solar, storage, heat networks, public sector decarbonisation, retrofit and strategic infrastructure projects.

Second, supply-chain and enabling jobs may arise in manufacturing, engineering, components, systems integration, technical services, professional services, logistics and digital energy systems. This is particularly relevant to the Midlands because its clean energy opportunity is strongly linked to industrial and supply-chain capability.

Third, longer-term specialist jobs may be linked to advanced clean energy technologies such as fusion, nuclear innovation, hydrogen, smart systems and clean flexibility. Evidence relating to West Burton STEP and wider clean energy activity in the Trent Valley suggests that former energy and industrial sites could become anchors for clean energy skills, innovation and employment.

The key limitation is that project pipeline datasets are not workforce datasets. They identify projects, technologies, capacity, location and status, but do not consistently identify jobs by occupation, duration, skill level or supply-chain geography. They should therefore be used as future demand signals, not precise employment forecasts.

3.9 Comparison with CEJP evidence

This section compares the Midlands LCEGS evidence with the CEJP framework. The purpose is to clarify where the evidence aligns, where interpretation is required, and how the Midlands figures should be used in responding to the Key Research Questions.

The comparison confirms that CEJP and LCEGS are complementary but not directly equivalent. CEJP provides the national clean energy jobs benchmark; LCEGS provides practical local and sub-regional evidence of clean energy-related workforce capacity across the Midlands.

Table 3.9: CEJP/LCEGS comparison by analytical dimension

Dimension	CEJP / DESNZ-OCEJ evidence	LCEGS / Midlands evidence	Implication for the MNZH report
Purpose	National clean energy jobs benchmark and 2030 workforce framework	Local and sub-regional evidence of low-carbon and clean energy-related economic activity	Use CEJP for national alignment and LCEGS for Midlands place-based analysis
Definition	Clean energy jobs in defined OCEJ subsectors	Low-carbon, renewable energy and environmental goods and services activity	LCEGS is broader than CEJP
Geography	Strongest at national and broad regional level	Available at Midlands, sub-regional and local authority level	LCEGS provides the local granularity needed for MNZH
Metric	Jobs / workforce estimates	FTE, sales, GVA, company count and forecasts	Avoid treating all metrics as directly comparable
Scope	Clean energy deployment, operation and supply-chain jobs	Core sector activity plus supply-chain and enabling activity	LCEGS can include activity beyond direct clean energy jobs
Time horizon	Baseline and 2030 workforce demand	Historic trend evidence from 2019/20 to 2023/24, with some forecast evidence	CEJP is stronger for future demand; LCEGS is stronger for recent local profile
Best use	National benchmark, sector definition, priority occupations and 2030 assumptions	Local workforce profile, sector strengths, spatial distribution and place-based specialisms	Use both sources together, but for different analytical purposes

3.9.1 Areas of alignment

Review of the evidence indicates strong conceptual alignment between CEJP and Midlands LCEGS evidence in Wind, PV, Nuclear Power, Building Technologies and Energy Management. These are also among the most important sectors in the Midlands workforce profile by FTE, sales, GVA or strategic relevance.

Wind aligns with CEJP's offshore and onshore wind sectors, while PV aligns with CEJP's solar sector. Nuclear Power aligns with CEJP's Nuclear Fission sector and, where relevant, fusion-related clean energy activity. These alignments provide confidence that the Midlands has existing workforce capacity in sectors that are nationally significant.

Building Technologies and Energy Management align with CEJP's energy efficiency, retrofit, clean heat, smart systems and flexibility themes. These sectors connect national clean energy policy to local delivery through building fabric improvements, monitoring and control systems, low-carbon heat and energy management services.

3.9.2 Areas requiring interpretation

Some LCEGS sectors are broader than CEJP and therefore require careful interpretation. Alternative Fuels may include activity relevant to hydrogen, biomethane, batteries, long-duration storage or clean flexibility, but may also include activity that is not directly aligned to CEJP clean energy subsectors.

Similarly, Biomass, Geothermal, Alternative Fuel Vehicle and wider environmental sectors should not automatically be treated as direct clean energy employment.
They are included only where Level 3 evidence indicates a clear relationship with clean energy generation, clean heat, energy efficiency, storage, smart systems, clean flexibility or associated supply chains.

The evidence therefore does not support presenting the LCEGS total as a direct CEJP clean energy jobs figure. LCEGS includes broader supply-chain, enabling and environmental activity, while CEJP is designed around a specific national clean energy jobs framework.

Taken together, the comparison has three implications. Midlands findings should be described as clean energy-related FTE evidence rather than exact CEJP job counts; Level 3 classification is essential where LCEGS sectors are broad; and differences between CEJP and LCEGS should be treated as methodological differences rather than data errors.

3.9.3 Evidence limitations

The evidence base is sufficient to describe current Midlands clean energy-related workforce capacity, identify major sector strengths, map local authority and sub-regional distribution, and explain the main methodological differences between CEJP and local evidence. It is weaker for precise local authority-level forecasts to 2030 and 2050, project-to-occupation mapping, replacement demand, supply-chain leakage and separating direct clean energy jobs from wider enabling activity.

Overall, Chapter 3 provides an evidence-led picture of the Midlands clean energy-related workforce. It shows the scale and distribution of current workforce capacity, the sectors and places where activity is concentrated, the occupations most closely associated with delivery, and the project evidence that provides indicative signals of future demand.

4. Stakeholder engagement evidence

Chapter 3 presented the desk-based and quantitative evidence on the Midlands clean energy-related workforce, including CEJP, LCEGS, labour market datasets, project pipeline evidence and local authority-level analysis. This chapter complements that analysis by examining how workforce evidence is understood, accessed and used by stakeholders across the Midlands. It focuses on whether the available evidence is practical for regional and local workforce planning, and where limitations remain around definitions, granularity, data quality, comparability and interpretation.

The primary evidence comes from engagement with the three MSAs: WMCA, EMCCA and Greater Lincolnshire Combined County Authority (GLCCA). Their feedback provides insight into the data sources, analytical approaches and evidence challenges shaping clean energy workforce planning. Findings from the LA survey are used as supporting evidence, particularly on data familiarity, capacity, organisational ownership and practical use. Taken together, the engagement findings explain why a layered approach is needed, combining CEJP, LCEGS, labour market data, skills evidence, project evidence and stakeholder intelligence.

4.1 MSA engagement

Engagement with the three MSAs - WMCA, EMCCA and GLCCA - was treated as the primary qualitative evidence for this chapter. The interviews explored what clean energy workforce data MSAs use, how they apply it in strategic planning, and what limitations they experience when using current datasets for workforce intelligence.

Stakeholder engagement highlighted that all three MSAs rely on mixed evidence ecosystems rather than a single authoritative dataset. Workforce intelligence is drawn from official statistics, administrative data, private labour market analytics, commissioned research, academic evidence, employer intelligence, surveys and sector-specific studies. This reflects the difficulty of measuring clean energy workforce demand through standard datasets alone, particularly where emerging sectors do not fit neatly into SIC or SOC classifications.

Table 4.1: Main themes emerging from MSA engagement

Evidence theme	MSA engagement finding
Diversity of data sources	MSAs use hybrid evidence systems rather than one clean energy workforce dataset.
Strategic use of workforce data	Workforce data is increasingly used to inform LSIPs, skills gaps, regional economic strategies and workforce interventions.
Definitions and classifications	Inconsistent definitions and SIC/SOC limitations make clean energy workforce analysis difficult.
Data quality and transparency	Private datasets can be timely and granular, but may lack methodological transparency and reproducibility.
Geographic granularity	Datasets are often too aggregated for local intervention design.
Timeliness	Official data is robust but delayed; private data is faster but harder to validate.
Data linkage and integration	Education, employment, sector and project datasets are not consistently linked.
Governance and coordination	Fragmented data ownership and inconsistent formats limit cross-agency use.

The evidence suggests that MSA workforce data is increasingly used for more than retrospective reporting. MSAs reported using workforce intelligence to inform LSIPs, identify skills shortages and mismatches, support regional economic strategies, prioritise workforce development interventions and align skills provision with expected sector demand. However, forecasting, modelling and data integration capability varies across authorities.

A major cross-cutting issue is the lack of consistent clean energy definitions. The MSA evidence identifies recurring challenges around sector definitions, occupational classifications, overlapping categories and the limitations of SIC and SOC frameworks. Where authorities develop bespoke approaches to support local analysis, comparability between places can be reduced.

The MSA insights table in Annex C reinforces this finding. It identifies the need for stronger governance, harmonised definitions, systematic triangulation, standardised taxonomies, improved data quality assurance and better integration across datasets. It also highlights the need for more local data collection and greater granularity, particularly where national datasets are too broad to support place-based workforce planning.

Review of the evidence indicates a tension between timeliness and reliability. Official statistics are generally viewed as more robust and reproducible, but they often lag behind fast-moving clean energy labour market developments. Private labour market analytics can provide more timely insight, particularly around emerging skills demand, but stakeholders raised concerns about transparency, validation and methodological consistency.

Taken together, the MSA interviews show that the Midlands has access to a wide range of workforce evidence, but that this evidence is fragmented, methodologically varied and not yet fully integrated. This supports the wider conclusion that CEJP, LCEGS, labour market data, skills data, project evidence and stakeholder intelligence should be used as complementary evidence layers, with clear explanation of what each source can and cannot show.

The consistency of findings across all three MSAs, supported by the local authority survey responses, provides a strong and reliable basis for understanding how workforce data is currently used across the Midlands. This supports a high confidence assessment for KRQ 1.

4.2 Local Authority survey

The LA survey was used as supporting evidence to test how far clean energy workforce data is recognised, accessed and used at local level. The survey was completed by 37% of Midlands LAs. Respondents were mainly officers working in climate, sustainability, skills, employability, economic development and finance, so the findings reflect perspectives from teams involved in clean energy delivery and workforce planning.

The survey indicates that many LAs are still at an early stage in using clean energy workforce evidence. Familiarity with relevant data sources is low: 44% of respondents reported being not very familiar with clean energy workforce data sources, while a further 16% were unsure. Only 24% described themselves as somewhat familiar or better. Practical use is also limited: 16% of respondents had used regional or national workforce data to inform clean energy discussions, while 12% had considered using it but had not yet done so.

The strongest message from the survey is that data use is constrained by capacity and ownership. Limited staff capacity or time was cited by 84% of respondents, making it the most common barrier. In addition, 44% reported that they had not yet explored clean energy workforce needs in depth, and 48% cited difficulty accessing relevant data, particularly at a useful local geographic level.

Internal analytical capability is also limited. Of respondents, 24% reported no internal capability to analyse labour market or workforce data, 32% reported some capability but limited capacity, 20% reported limited capability, and 20% were unsure. Only 4%, represented by Warwickshire County Council, reported strong internal capability supported by a permanent Business Intelligence Team.

Organisational responsibility is often unclear. In total, 48% of respondents said it is unclear which team is responsible for clean energy workforce analysis, while 32% reported that responsibility is fragmented across multiple teams. This suggests that workforce evidence often sits between climate, sustainability, economic development, skills, data and delivery functions rather than being clearly owned by one team.

The survey also suggests that clean energy workforce planning is not yet consistently embedded as a strategic priority. Only 4% of respondents described it as a high priority, while 28% rated it as a moderate priority. A further 20% said it was a low priority, 20% said it was not currently a priority, and 28% were unsure.

Overall, the LA survey indicates that the issue is not only data availability. Relevant evidence exists, but many LAs lack the familiarity, capacity, ownership and analytical structures needed to turn it into practical workforce intelligence. This reinforces the value of clearer definitions, regional coordination and practical tools that help authorities connect clean energy projects to jobs, occupations and skills.

Taken together, stakeholder engagement suggests that clean energy workforce planning operates within a complex and evolving evidence landscape. A wide range of workforce intelligence is available, but challenges relating to definitions, granularity, integration, interpretation and organisational capacity continue to affect how evidence is used. These findings provide important context for the assessment of workforce evidence strengths and limitations presented in Chapter 5.

5. Key research questions answers

5.1 Approach

This chapter draws together the evidence presented in Chapters 3 and 4 to answer the five Key Research Questions. It focuses on synthesis rather than re-presenting the underlying analysis. Chapter 3 provides the workforce, sector, occupation and project evidence; Chapter 4 provides stakeholder evidence on data use and limitations.

The assessment uses CEJP as the national benchmark for clean energy sectors and priority occupations, and LCEGS as the main Midlands evidence source because it provides local authority and sub-regional workforce data. Project pipeline evidence, stakeholder engagement and other labour market sources are used to test and contextualise the findings. Overall, the evidence is strongest for current workforce capacity, sector strengths, local distribution and recent growth, and weaker for precise occupation-level forecasts, 2050 projections, project-specific job estimates and supply-chain location.

5.2 KRQ 1: What clean energy workforce data do MSAs hold and use?

Answer status: Partially answered
Confidence rating: High

Stakeholder engagement with the three Midlands MSAs – EMCCA, WMCA and GLCCA - highlighted that no single dataset is used consistently across authorities to understand clean energy workforce demand. Instead, workforce intelligence is drawn from a mixed evidence base, including official statistics, administrative datasets, commercial labour market analytics, commissioned research, academic studies, employer intelligence and internal evidence.

Table 5.1: Workforce Data Sources Used by Midlands MSAs

EMCCA	WMCA	GLCCA
ONS data APS Beauhurst industry Lightcast LCEGS reports Chambers surveys ILR Employers Skills Survey National survey data DfE data (e.g. NEET, SEND-related data) GCSE data Internal EMCCA data	CBI ECIU Coventry University research data Internal report: Net Zero Future Skills Report University College London research data Energy Systems Catapult (Smart Energy cluster lead) Skills England occupational maps Local universities data (graduates and skills pipelines) Internal WMCA data	ONS data. Particularly the BRES DfE Cube ILR dataset Lightcast Data City (validation tool) Oxford Economics model Internal GLCCA data

The data sources used by the three authorities vary according to organisational priorities, analytical capability and local economic context. However, the evidence suggests a common pattern: all three combine official datasets with commercial labour market intelligence and locally generated evidence to compensate for limitations in any individual source. Workforce analysis therefore relies on triangulation rather than a single authoritative dataset.

Official and administrative datasets remain an important foundation. Commonly used sources include ONS datasets, the APS, BRES, ILR data, DfE datasets and Employer Skills Survey data. These sources support baseline labour market analysis and trend monitoring, although stakeholders noted limitations in granularity and timeliness for fast-moving clean energy sectors.

The evidence also indicates that authorities supplement official sources with commercial and proprietary datasets. Lightcast is used by EMCCA and GLCCA; EMCCA also uses Beauhurst and LCEGS; GLCCA uses Data City and Oxford Economics modelling; and WMCA draws on specialist sources such as the ECIU. These sources can provide more timely and detailed labour market intelligence, but stakeholders highlighted concerns about transparency, reproducibility and validation.

Academic and commissioned research plays a further role. WMCA draws on research from Coventry University, University College London and local universities, alongside commissioned work such as the Net Zero Future Skills Report and Energy Systems Catapult analysis. Internal analytical products produced by each authority help tailor external evidence to local priorities.

Stakeholder engagement highlighted that workforce evidence is increasingly used for strategic planning rather than only retrospective reporting. Authorities reported using data to inform LSIPs, identify skills shortages and mismatches, support regional economic strategies, prioritise workforce interventions and align skills provision with anticipated sector demand. The sophistication of modelling and integration varies between organisations.

A consistent finding across the three authorities is that no existing dataset provides a comprehensive picture of clean energy workforce dynamics. Stakeholders identified challenges relating to inconsistent definitions, SIC and SOC limitations, variable data quality, insufficient local authority-level granularity and weak integration between workforce, education and economic datasets. As a result, workforce planning depends on combining data with professional judgement and qualitative intelligence from employers, business networks and sector stakeholders.

Overall, Midlands MSAs use a broad portfolio of workforce intelligence sources to support clean energy workforce planning. This hybrid approach reflects the complexity of the clean energy economy and the limitations of the current evidence landscape. It also reinforces the need to interpret datasets together when assessing workforce demand, skills needs and future labour market requirements.

The evidence shows consistent and aligned findings across all three Midlands MSAs, supported by local authority survey responses. Together, this provides a strong and reliable representation of how workforce data is currently used across the Midlands, giving high confidence in the overall conclusion.

5.3 KRQ 2: What priority occupations in clean energy sectors are expected to be in demand for baseline, 2030 and 2050 at regional and Local Authority level?

Answer status: Partially answered
Confidence rating: Medium for baseline and 2030; low for 2050

The evidence identifies the main priority occupation groups likely to be in demand across the Midlands clean energy economy and explains how they relate to the region's strongest sectors. It does not, however, provide precise local authority-level occupation forecasts for 2030 or 2050.

Review of the evidence indicates that demand is likely to span skilled trades, engineering, manufacturing, digital, project management and specialist technical occupations. It will not sit within a narrow energy occupation group, but will cut across construction, manufacturing, engineering, energy systems, professional services, digital systems, public sector delivery and supply-chain activity.

Occupation demand should be interpreted alongside the LCEGS sector strengths identified in Chapter 3. The largest clean energy-related sectors are Wind, Building Technologies, PV, Nuclear Power and Energy Management. These sectors point to demand for electricians, heating engineers, construction trades, retrofit roles, engineers, technicians, manufacturing workers, project managers, planners, digital systems roles, energy managers, safety specialists and maintenance technicians.

The main priority occupation groups are summarised below.

Table 5.2: Priority occupation groups and Midlands clean energy relevance

Priority occupation group	Midlands clean energy relevance
Electricians and electrical fitters	Solar PV, battery storage, EV charging, heat pumps, building systems, grid connection and flexibility.
Plumbers, heating and ventilation engineers	Heat pumps, heat networks, clean heat, efficient HVAC and building decarbonisation.
Skilled construction and building trades	Retrofit, insulation, windows, doors, building fabric, public estate decarbonisation and energy efficiency.
Engineering professionals and technicians	Wind, solar, nuclear, fusion, energy systems, alternative fuels and clean energy supply chains.
Manufacturing and assembly workers	Wind components, PV equipment, nuclear supply chains, building technologies, batteries and low-carbon products.
Project managers and planners	Renewable projects, retrofit programmes, heat networks, public estate decarbonisation and strategic infrastructure.
Digital, data and control systems roles	Energy management, smart buildings, monitoring and control systems, clean flexibility and demand management.
Health, safety, quality and compliance roles	Nuclear, fusion, construction, heat networks, manufacturing and high-risk technical environments.

At baseline, the evidence is strongest for broad occupation groups rather than exact job counts. LCEGS shows where current clean energy-related workforce capacity exists by sector and place, while CEJP provides the national priority occupation framework. Taken together, these sources identify the main occupational groups relevant to the Midlands, but not precise clean energy occupation numbers for every local authority.

For 2030, the evidence is stronger than for 2050 because CEJP focuses on workforce growth to 2030. Demand is likely to be strongest where CEJP priority occupations intersect with Midlands sector strengths. Building Technologies points to retrofit and construction-related roles; PV to electrical and solar installation skills; Wind to engineering, manufacturing and maintenance occupations; and Nuclear Power to specialist engineering, safety, science and technical roles.

Strategic projects also shape likely demand. West Burton STEP, the Trent Clean Energy Supercluster, Cottam, High Marnham and related clean energy projects indicate potential demand for construction, engineering, research, advanced manufacturing, professional and technical services, facilities management, operations and long-term maintenance roles.

For 2050, the evidence is weaker. The report can identify the kinds of occupations likely to remain important, but cannot produce reliable 2050 occupation-level forecasts by local authority. Long-term demand will depend on technology pathways, project delivery, replacement demand, supply-chain location, policy and funding decisions, and how the skills system responds.

The main limitations are that CEJP is strongest at national and broad regional level, LCEGS is broader than CEJP, SOC-based datasets do not identify whether a worker is specifically working in clean energy, and LAs often lack the capacity or systems to produce detailed local workforce intelligence.

Conclusion for KRQ 2: the evidence identifies a clear set of priority occupation groups expected to be in demand across the Midlands clean energy economy. The strongest baseline and 2030 demand is likely to come from Building Technologies, Wind, PV, Nuclear Power, Energy Management, heat networks, retrofit, solar PV, storage and strategic projects. The evidence should therefore be treated as a strong qualitative and sector-based assessment of priority occupations, rather than a precise numerical occupation forecast.

5.4 KRQ 3: What discrepancies and/or gaps exist between DESNZ national data and regional data on clean energy workforce forecasts?

Answer status: Partially answered
Confidence rating: Medium to high

The evidence identifies the main discrepancies and gaps between CEJP evidence and Midlands regional/local evidence. It does not allow every difference to be quantified because CEJP and LCEGS are built for different purposes, use different definitions and operate at different geographic levels.

Review of the evidence indicates that discrepancies between CEJP and Midlands evidence should not be treated as simple data errors. They mainly reflect differences in definition, scope, geography, metric, methodology, sector classification and forecast horizon.

CEJP provides the national benchmark for clean energy jobs. It defines the clean energy workforce around specific subsectors such as wind, solar, nuclear, fusion, clean flexibility, electricity networks, hydrogen, CCUS, long-duration storage, greenhouse gas removals, heat pumps, heat networks, biomethane, energy efficiency and retrofit.

The Midlands evidence base uses LCEGS because it provides local authority and sub-regional evidence for the MNZH geography. LCEGS is broader than CEJP because it covers low-carbon, renewable energy and environmental goods and services activity, including core, supply-chain and enabling activity. The Midlands analysis therefore treats LCEGS as clean energy-related workforce capacity evidence, not as a direct equivalent to CEJP clean energy jobs.

The key discrepancies are summarised below.

Table 5.3: Discrepancies between CEJP and Midlands/LCEGS evidence

Discrepancy	CEJP position	Midlands / LCEGS position	Implication
Definition	Defines clean energy around specific OCEJ subsectors.	Covers wider low-carbon, renewable energy and environmental activity.	LCEGS totals cannot be presented as direct CEJP job counts.
Scope	Focuses on clean energy jobs and clean energy supply chains.	Includes core, supply-chain, enabling and wider environmental activity.	LCEGS may capture broader activity than CEJP.
Geography	Strongest at national and broad regional level.	Provides Midlands, sub-regional and local authority-level data.	CEJP cannot directly answer LA-level questions.
Metric	Uses jobs and workforce estimates.	Uses FTE, sales, GVA, company count and forecasts.	Jobs and FTE should not be compared without caveats.
Time horizon	Focuses on baseline and 2030 workforce demand.	Provides historic data from 2019/20 to 2023/24 and some forecast evidence.	CEJP is stronger for 2030; LCEGS is stronger for local baseline and trends.
Sector classification	Uses clean energy subsectors.	Uses LCEGS Level 1, Level 2 and Level 3 categories.	Mapping requires judgement, especially for broad Level 2 categories.
Occupation detail	Identifies national priority occupations.	Provides sector evidence and some occupational proxies, but not precise LA-level forecasts.	Occupation demand can be described, but not precisely forecast locally.
Project evidence	Provides national policy and workforce framing.	Uses REPD, HNPD, Clean Energy Projects Map, local strategies and case studies.	Project data is a demand signal, not a direct jobs forecast.

The most important gap is the absence of a directly comparable CEJP-aligned local authority-level dataset for the Midlands. CEJP provides national consistency but not the local granularity needed for place-based workforce planning. LCEGS provides local granularity but uses a broader definition. This creates a trade-off between national definitional alignment and local usability.

In terms of definitions, LCEGS sector labels may be broader than how regional partners describe their strategic priorities. In these cases, the underlying workforce activity may still be relevant to regional clean energy delivery, but the label used in the dataset may not fully reflect how that capability is understood locally. The Wind category is an example of this. LCEGS-classified Wind activity in some regions reflects engineering, manufacturing, systems and technical capability that supports wider clean energy and smart energy systems priorities, rather than just direct wind generation.

The mapping challenge is clearest in sectors that are only partially aligned. Wind, PV and Nuclear Power align relatively strongly with CEJP. Building Technologies and Energy Management align where the underlying activity supports energy efficiency, retrofit, clean heat or smart systems. Alternative Fuels, Biomass and Geothermal require Level 3 review. Alternative Fuel Vehicle activity is relevant to the wider net zero transition but is not treated as direct CEJP clean energy by default. Waste, water and recycling activities are treated as wider environmental context unless a direct clean energy link is evident.

Occupation and project gaps also remain. CEJP provides a useful national framework for priority occupations, but Midlands evidence does not provide precise local authority-level occupation forecasts for 2030 or 2050. SOC datasets can identify relevant occupations, but not whether a worker is specifically working in clean energy. Project pipeline evidence can identify likely drivers, but does not consistently provide job numbers, occupation requirements, skill levels, timing or supply-chain locations.

Stakeholder engagement highlighted a further gap between data availability and local use. Relevant datasets are not yet consistently embedded in local authority planning. Low familiarity with workforce datasets, limited analytical capacity, unclear organisational ownership and inconsistent definitions create a practical gap between national ambition and local delivery intelligence.

Conclusion for KRQ 3: the research identifies the main discrepancies and gaps between CEJP evidence and Midlands regional/local evidence. These mainly relate to definition, scope, geography, metric, sector classification, occupation detail and project evidence. The evidence is strong enough to explain the discrepancies, but not to reconcile every source into a single clean energy jobs number. A layered approach is therefore required: CEJP defines the national framework, LCEGS localises the workforce evidence, and labour market, skills, project and stakeholder evidence provide supporting context.

5.5 KRQ 4: What are the causes of these discrepancies?

Answer status: Answered
Confidence rating: High

The evidence provides a clear explanation of why discrepancies exist between CEJP evidence and Midlands regional/local evidence. The discrepancies are mainly methodological rather than errors in the data. They arise because CEJP, LCEGS and other local datasets are designed for different purposes, use different definitions, operate at different geographies and measure different things.

The main cause is that CEJP is a national clean energy jobs framework, while LCEGS is a broader local economic evidence base for low-carbon, renewable energy and environmental goods and services activity. CEJP supports understanding of clean energy workforce requirements linked to national policy and 2030 delivery. LCEGS helps identify where clean energy-related workforce and supply-chain capacity exists across Midlands LAs and sub-regions.

The main causes of discrepancy are summarised below.

Table 5.4: Causes of discrepancies and implications for Midlands analysis

Cause	Explanation	Impact on the Midlands analysis
Definition differences	CEJP defines clean energy around specific OCEJ subsectors; LCEGS covers a wider low-carbon and environmental economy.	LCEGS totals may include activity wider than CEJP clean energy jobs.
Scope differences	CEJP focuses on clean energy deployment, operation and supply-chain jobs; LCEGS includes core, enabling, supply-chain and wider environmental activity.	LCEGS can produce broader workforce figures than CEJP.
Metric differences	CEJP uses jobs and workforce estimates; LCEGS uses FTE, sales, GVA, companies and forecasts.	Jobs, FTE, GVA and sales should not be treated as equivalent.

Cause	Explanation	Impact on the Midlands analysis
Sector taxonomy differences	CEJP uses clean energy subsectors; LCEGS uses Level 1, Level 2 and Level 3 categories.	Mapping requires judgement, especially for broad sectors such as Alternative Fuels, Biomass and Geothermal.
SIC and SOC limitations	Standard industry and occupation codes do not show whether activity is clean energy-specific.	Labour market datasets show relevant capacity, not exact clean energy employment.
Project pipeline uncertainty	Project datasets show future demand signals but rarely provide consistent job numbers, occupations or supply-chain locations.	Project data cannot be treated as a precise workforce forecast.
Local data maturity	Authorities vary in familiarity, capability and use of workforce evidence.	Even where data exists, it may not be used consistently in local planning.

The key distinction is between clean energy jobs and clean energy-related economic activity. Some LCEGS sectors align strongly with CEJP, such as PV and Nuclear Power. Others only partially align and require Level 3 review, including Building Technologies, Energy Management, Alternative Fuels, Biomass and Geothermal. Alternative Fuel Vehicle activity is relevant to net zero and the Midlands automotive transition, but is treated as clean energy-adjacent rather than direct CEJP clean energy by default. Waste, water and recycling sectors are usually wider environmental economy activity unless a direct clean energy link is shown. SIC and SOC limitations also contribute to discrepancies because clean energy activity cuts across traditional industry and occupation classifications. A manufacturing firm may produce components for wind, solar, nuclear or heat networks, but its SIC code may not identify it as clean energy. Similarly, an electrician, engineer, project manager or construction worker may support clean energy activity, but their SOC code does not show whether their work is clean energy-specific.

Project pipeline evidence creates another discrepancy because it is not a workforce dataset. REPD, HNPD, DESNZ's Clean Energy Projects Map and local project evidence show what may come through the planning and delivery system, but do not consistently provide job numbers, occupational requirements, construction-versus-operational splits, skill levels, supply-chain locations or delivery certainty.

Local evidence maturity also matters. Stakeholder engagement showed that clean energy workforce evidence is not yet consistently embedded across LAs. Familiarity with workforce data is limited, practical use is low, analytical capability is constrained and organisational ownership is often unclear. This creates a gap between data availability and data use.

Conclusion for KRQ 4: the discrepancies are caused mainly by differences in definition, scope, geography, metric, methodology, sector classification, occupation coding, project pipeline uncertainty and local evidence maturity. The most important cause is that CEJP and LCEGS measure different things. CEJP is a national clean energy jobs framework; LCEGS is a broader local evidence base for low-carbon, renewable energy and environmental goods and services activity. The analysis therefore uses CEJP for national clean energy definition and 2030 benchmarking, LCEGS for local and sub-regional workforce capacity, labour market datasets for occupation and industry context, project pipeline evidence for future demand signals, and stakeholder evidence for local use and capability.

5.6 KRQ 5: What are the key clean energy sectors and projects driving job creation in each region?

Answer status: Partially answered
Confidence rating: Medium

Where available, project-level figures have been included to illustrate potential workforce implications; however, such data is not consistently available across all projects and should be interpreted as indicative rather than comprehensive.

The evidence identifies the clean energy sectors most likely to drive job creation across the Midlands and highlights several major project and programme drivers. It doe s not provide a precise local authority-level forecast of jobs by project, occupation, timescale or supply-chain location.

The strongest evidence relates to sector drivers because LCEGS shows where the Midlands already has workforce scale and economic strength. Evidence is weaker for project-specific job creation because project pipeline datasets usually identify projects, technologies, locations and status, but do not consistently provide job numbers, occupational demand, construction/operation splits or supply-chain job locations.

The main clean energy sectors and drivers likely to support job creation are:

Table 5.5: Key sectors and projects driving job creation in the Midlands

Sector / driver	Why it matters for the Midlands
Wind	Largest clean energy-related sector by FTE, sales and GVA; likely reflects supply-chain, engineering, component, systems and technical activity.
Building Technologies	Major workforce and economic strength linked to retrofit, insulation, windows, doors, monitoring systems and building fabric.
PV / Solar PV	Strong FTE, sales and GVA base linked to solar systems, equipment, installation, R&D and supply chains.
Nuclear Power / Fusion	Strategic long-term driver through West Burton STEP and wider nuclear/fusion supply-chain activity.
Energy Management and Smart Systems	Important enabling sector linked to monitoring, controls, smart buildings, flexibility and demand management.
Heat Networks and Clean Heat	Local authority-relevant driver linked to public estates, urban heat zones, anchor loads and clean heat infrastructure.
Retrofit and Energy Efficiency	Distributed job creation driver because every local authority has domestic, commercial and public building decarbonisation needs.
Alternative Fuels, Batteries, Hydrogen and Biomethane	Relevant to industrial decarbonisation, low-carbon transport, storage, rural energy and fuel switching, but requires careful Level 3 interpretation.

The evidence suggests that future job creation will come from both direct project delivery and supply-chain activity. The Midlands opportunity is not only about where clean energy assets are built. It also reflects where products, components, technical services, manufacturing, engineering, maintenance, digital systems and professional services are located.

Review of the evidence indicates that important project and programme drivers are likely to include West Burton STEP, the Trent Clean Energy Supercluster, Cottam Solar Project, High Marnham, heat network projects, public sector decarbonisation, domestic and non-domestic retrofit, solar PV and battery storage, and confirmed alternative fuels, hydrogen or biomethane projects.

These projects and sectors translate into the following workforce implications:

Table 5.6: Sector and project drivers and likely occupations/skills

Sector / project driver	Likely occupations and skills
Wind supply chains	Mechanical engineers, electrical engineers, technicians, manufacturing operatives, component specialists, logistics, maintenance and project managers.
Solar PV and battery storage	Electricians, PV installers, roofers, civil engineers, grid connection specialists, planners, designers and maintenance technicians.
Building Technologies and retrofit	Retrofit assessors, retrofit coordinators, insulation installers, glazing specialists, heating and ventilation engineers and building services engineers.
Heat Networks and Clean Heat	Mechanical engineers, pipework specialists, heating engineers, surveyors, heat network designers, project managers and maintenance technicians.
Public Sector Decarbonisation	Energy managers, procurement specialists, project managers, building services engineers, installers and monitoring/control specialists.
Nuclear / Fusion / STEP	Engineers, scientists, researchers, technicians, construction workers, safety specialists, quality assurance, commissioning engineers and advanced manufacturing roles.
Alternative Fuels, Hydrogen and Biomethane	Process engineers, plant operatives, safety specialists, mechanical and electrical technicians, logistics and maintenance roles.
Energy Management and Smart Systems	Energy managers, controls engineers, data analysts, software specialists, building management system technicians and smart systems specialists.

The job creation drivers will not affect all Midlands places in the same way. Large urban and industrial areas such as Birmingham, Coventry, Leicester, Derby, Nottingham, Stoke-on-Trent, Dudley, Sandwell, Solihull and Wolverhampton are likely to benefit from scale, business density, construction activity, professional services, manufacturing and technical supply chains. Areas such as Bassetlaw, Newark and Sherwood, West Lindsey and wider Nottinghamshire/Lincolnshire locations are particularly relevant to West Burton STEP, Cottam, High Marnham and the Trent Clean Energy Supercluster. Rural and mixed geographies such as Shropshire, Herefordshire, Worcestershire, Greater Lincolnshire and The Marches may see opportunities linked to retrofit, solar, biomass, biomethane, rural energy systems, public estate decarbonisation and SME supply-chain activity.

The main limitation is that project pipeline data is not a jobs dataset. It does not consistently provide job counts, occupation requirements, skill levels, supply-chain locations or construction-versus-operational splits. Project status can change over time, and supply-chain jobs may be created outside the local authority where a project is physically located.

Conclusion for KRQ 5: the evidence identifies the main clean energy sectors and projects likely to drive job creation across the Midlands. The strongest sector drivers are Wind, Building Technologies, PV, Nuclear Power, Energy Management, heat networks, retrofit, solar PV, storage, clean heat, public estate decarbonisation and alternative fuels. Significant strategic project drivers include West Burton STEP, the Trent Clean Energy Supercluster, Cottam Solar Project, High Marnham, heat network development, public sector decarbonisation and local retrofit programmes. The evidence is strongest for identifying likely sector and project drivers, but weaker for quantifying exact jobs by project, occupation or local authority. Project pipeline evidence should therefore be treated as a future demand signal, while LCEGS should be used as evidence of current clean energy-related workforce capacity.

5.7 Cross-cutting findings across the five KRQs

Across the five Key Research Questions, the evidence suggests that the Midlands has a meaningful clean energy-related workforce base, but that the evidence landscape remains fragmented. CEJP provides national consistency, LCEGS provides local and sectoral detail, project evidence identifies demand signals, and stakeholder engagement explains how data is used in practice. The main implication is that workforce planning is strongest when these sources are triangulated rather than treated as directly interchangeable.

5.8 KRQ answers and confidence matrix

The table below summarises the extent to which each Key Research Question can be answered using the available evidence.

Table 5.7: KRQ answer status and confidence

KRQ	Research question	Answer status	Confidence	Main conclusion	Main remaining gap
KRQ 1	What clean energy workforce data do Mayoral Strategic Authorities (MSAs) hold and use?	Partially answered	High	Relevant datasets exist, including CEJP, LCEGS, labour market, skills, project pipeline and local strategy evidence. However, stakeholder engagement shows local use is inconsistent, familiarity is limited and analytical capability varies.	Does not provide a complete inventory of all datasets held and maintained by every authority, but evidence from all three MSAs provides a consistent and reliable picture of current practice across the Midlands.
KRQ 2	What priority occupations in clean energy sectors are expected to be in demand for baseline (present), 2030 and 2050 at regional and local authority level?	Partially answered	Medium for baseline and 2030; low for 2050	The evidence identifies broad priority occupation groups, including construction trades, electricians, heating engineers, engineers, technicians, manufacturing roles, project managers, planners, and digital/control systems roles.	No robust local authority-level occupation forecast to 2030 or 2050; SOC data does not show whether workers are specifically working in clean energy.

KRQ	Research question	Answer status	Confidence	Main conclusion	Main remaining gap
KRQ 3	What discrepancies and/or gaps exist between DESNZ's national data and regional data on clean energy workforce forecasts?	Partially answered	Medium to high	The research identifies discrepancies in definition, scope, geography, metric, sector taxonomy, occupation detail and forecast horizon. CEJP is a national benchmark; LCEGS is a broader local workforce-capacity dataset.	The differences cannot all be reconciled into one number because the datasets measure different things.
KRQ 4	What are the causes of these discrepancies?	Answered	High	The causes are clear: CEJP and LCEGS use different definitions, scopes, geographies, metrics and methodologies. Other causes include SIC/SOC limitations, project uncertainty and uneven local analytical capability.	Some causes, such as supply-chain leakage and replacement demand, remain difficult to quantify precisely.
KRQ 5	What are the key clean energy sectors and projects driving job creation in each region?	Partially answered	Medium	Likely drivers include Wind, Building Technologies, PV, Nuclear Power, Energy Management, retrofit, clean heat, solar PV, storage, heat networks, public sector decarbonisation, fusion and advanced nuclear.	Project pipeline data does not consistently provide job numbers, occupation requirements, skill levels or supply-chain locations.

Overall, the evidence is strongest for current workforce capacity, sector strengths, local authority distribution, recent growth trends and explaining why CEJP and Midlands evidence differ. It is weaker for precise local authority-level occupation forecasts, project-specific job creation, replacement demand and supply-chain location.

6. Conclusions and evidence improvement priorities

6.1 Overall conclusions against the Key Research Questions

Chapter 5 provides the full response to each Key Research Question (KRQ). This chapter draws out the principal conclusions and the evidence implications for future workforce planning across the Midlands.

Review of the evidence indicates that the Midlands has a sizeable and growing clean energy-related workforce base, with clear sector strengths and significant place-based variation. The evidence is strongest for baseline workforce capacity, recent growth, sector strengths and local distribution. It is weaker where precise local authority-level forecasts, project-specific job estimates or long-term 2050 projections are required.

The conclusions against the five KRQs are summarised below.

Table 6.1: Overall conclusions against the KRQs

KRQ	Overall conclusion
KRQ 1: What clean energy workforce data do Mayoral Strategic Authorities (MSAs) hold and use?	MSAs use mixed evidence ecosystems, including CEJP, LCEGS, LCREE, BRES, APS, Census SOC, apprenticeship data, LSIPs, project pipeline evidence, local strategies, commercial data and stakeholder intelligence. The evidence suggests that these sources are useful but fragmented, requiring triangulation and local interpretation.
KRQ 2: What priority occupations in clean energy sectors are expected to be in demand for baseline (present), 2030 and 2050 at regional and local authority level?	The evidence identifies broad priority occupation groups, including construction trades, electricians, heating engineers, engineers, technicians, manufacturing roles, project managers, planners and digital specialists. It does not support precise local authority-level occupation forecasts for 2030 or 2050 without further modelling and validation.
KRQ 3: What discrepancies and/or gaps exist between DESNZ's national data and regional data on clean energy workforce forecasts?	The main discrepancies relate to definition, scope, geography, metric, sector classification, occupation detail and forecast horizon. National data provides policy alignment, while regional data provides local workforce capacity evidence.
KRQ 4: What are the causes of these discrepancies?	The causes include different dataset purposes, CEJP and LCEGS scope differences, SIC/SOC limitations, local data granularity constraints, varying update cycles and limited linkage between workforce, skills, project and supply-chain evidence.
KRQ 5: What are the key clean energy sectors and projects driving job creation in each region?	The evidence points to Wind, Building Technologies, photovoltaic (PV), Nuclear Power, Energy Management, retrofit, clean heat, heat networks, solar PV, storage, strategic infrastructure and local delivery projects as important demand signals. Project evidence indicates likely workforce demand but should not be treated as a precise jobs forecast.

6.2 What the evidence can and cannot currently answer

The evidence reviewed is sufficient to provide a strategic assessment of the Midlands clean energy-related workforce. It identifies workforce scale, recent trends, recurring sector strengths, major geographies, broad occupation groups and project demand signals.

However, the evidence is not yet sufficient to provide a fully quantified local authority-level forecast by sector, occupation, project and time horizon. This reflects definitional differences between datasets, uneven local granularity, limited project workforce data and uncertainty over long-term technology, policy and market pathways.

Taken together, the evidence should be used as a strategic workforce intelligence base rather than as a precise forecasting model.

Table 6.2: What the evidence can and cannot currently answer

Evidence area	What the evidence can answer	What it cannot yet answer
Current workforce scale	The mapped LCEGS analysis can show the scale and recent growth of clean energy-related FTE across the Midlands.	It cannot provide a direct CEJP-equivalent clean energy job count for every local authority.
Sector strengths	The evidence identifies major Midlands strengths in Wind, Building Technologies, PV, Nuclear Power and Energy Management.	It cannot always determine whether every sub-sector activity is directly CEJP-aligned without detailed Level 3 review.
Local authority distribution	The evidence can show where clean energy-related FTE is concentrated and which places have the largest workforce bases.	It cannot fully explain where all supply-chain jobs are located or how much local labour is captured by each project.
Priority occupations	The evidence can identify broad occupation groups likely to be in demand, including construction trades, electricians, heating engineers, engineers, technicians, digital and project roles.	It cannot provide precise occupation numbers by local authority for baseline, 2030 or 2050.
2030 demand	CEJP and Midlands sector evidence can support a directional view of likely 2030 workforce demand.	It cannot produce a robust local authority-level 2030 forecast without additional modelling and validation.
2050 demand	The evidence can identify broad long-term occupational and sector themes.	It cannot provide reliable 2050 forecasts because technology pathways, project delivery, policy, funding and skills-system responses remain uncertain.
Project pipeline	Project evidence can identify likely future demand signals, including STEP, Trent Valley activity, Cottam, High Marnham, heat networks, retrofit, solar PV and public sector decarbonisation.	It cannot consistently quantify job numbers, occupation requirements, skill levels, construction/operation splits or supply-chain locations.
Skills supply	Apprenticeship, LSIP and wider skills evidence can indicate relevant training pathways and broad skills pressures.	It cannot fully assess whether training provision is sufficient by place, occupation, provider or time horizon.

6.3 Evidence-led priorities from the evidence and stakeholder engagement

The priorities below synthesise the evidence reviewed in the report, including the CEJP/LCEGS comparison, LCEGS workforce analysis, stakeholder engagement, Combined Authority insights, local authority survey findings and project evidence. They are framed as evidence-improvement priorities rather than prescriptive recommendations.

Stakeholder engagement with MSAs also highlighted the need for clearer national definitions and greater standardisation of clean energy workforce data. A recurring view from interviewees was that the absence of a standardised definition (such as definitions provided for advanced manufacturing) limits comparability across regions and makes it difficult to apply workforce data consistently in planning. Stakeholders also indicated a preference for a nationally defined framework, led at government level, to support more aligned approaches across MSAs and improve the consistency and usability of workforce evidence.

Table 6.3: Evidence-led priorities from the evidence and stakeholder engagement

Evidence-led priority	Evidence basis	Practical implication
1. Shared clean energy workforce evidence framework	No single dataset is sufficient; CEJP, LCEGS, labour market data, skills data, project evidence and stakeholder intelligence each answer different questions.	A shared framework led by DESNZ, working with Combined Authorities and Net Zero Hubs, would clarify which data sources should be used for different workforce questions.
2. Standardised definitions and CEJP-to-local mapping	Review of the evidence indicates that inconsistent definitions are a major source of variation between national and regional or local estimates.	Development of standardised definitions led by DESNZ, with input from regional partners and participation from stakeholders such as universities and colleges, would improve consistency and comparability.
3. Local authority-level evidence products	Local authority engagement highlighted low familiarity with workforce datasets, limited capacity and uneven use of evidence.	Net Zero Hubs and Combined Authorities could develop accessible outputs such as dashboards, profiles and guidance to support local partners.
4. Project-to-workforce mapping	Project evidence shows skills, supply-chain and community benefits, but datasets do not consistently capture job numbers, occupations, delivery phases or local supply-chain locations.	Net Zero Hubs and Local Authorities could develop a consistent project-to-workforce template to capture occupations, skills and supply-chain opportunities.
5. Data quality, transparency and validation	MSA engagement highlighted concerns about data quality, methodological transparency and validation across public and private sources.	DESNZ could lead on improving data transparency, validation and consistency across public and private datasets.
6. Education-employment-sector data linkage	Stakeholders identified gaps in education-to-employment pathways, graduate outcomes, occupational demand and alignment with training provision.	DESNZ, working with DfE and regional partners, could improve links between workforce demand and education and skills data.

Evidence-led priority	Evidence basis	Practical implication
7. Repeatable annual evidence refresh	The evidence base is fast-moving and update cycles vary across sources. One-off studies can become outdated as projects, policy and labour markets change.	Net Zero Hubs could coordinate a repeatable annual evidence refresh to keep datasets, mapping and project evidence up to date.
8. Clearer regional governance and evidence-convening role	Stakeholder engagement highlighted fragmented ownership of workforce evidence and limited local analytical capacity.	A stronger regional evidence-convening role for Net Zero Hubs and Combined Authorities would improve coordination and consistency.

6.4 Final conclusion

This report concludes that the Midlands has a substantial clean energy-related workforce opportunity. The evidence suggests that the region already has a sizeable workforce base, clear sector strengths and important future demand signals associated with retrofit, building technologies, PV, wind, nuclear, energy management, heat networks, public sector decarbonisation and strategic projects.

At the same time, the evidence system remains fragmented. CEJP provides the national benchmark and LCEGS provides the strongest practical source for local and sub-regional workforce capacity, but neither source alone can answer all workf orce questions. The strongest current evidence relates to baseline workforce capacity, sector strengths, local distribution and recent growth. The weakest areas relate to precise local authority-level occupation forecasts, project-specific job estimates, replacement demand, supply-chain location and training provision sufficiency.

Taken together, the findings indicate that the Midlands does not need to wait for a perfect dataset before improving workforce planning. The evidence is already strong enough to support more consistent interpretation, clearer local authority engagement, better project-to-workforce mapping and stronger links between workforce demand and skills provision, while future evidence development should focus on the areas where uncertainty remains.

Annex

Annex A: Chapter 3 Additional Evidence

annex-a_2.docx

Annex B: Evidence Catalogue Summary

annex-b_2.xlsx

Annex C: MSA Insights Table

annex-c_2.docx

Annex D: LA Engagement Evidence

annex-d_3.docx