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Midlands Low Carbon and Environmental Goods and Services (LCEGS) Sector Study

Milestone 6: Recommendations Report

For: Midlands Energy Hub

MIDLANDS ENERGY HUB

KiMatrix

22 March 2021
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About Sustainability West Midlands
We are the sustainability adviser for the leaders of the West Midlands. We are also the regional sustainability champion body for the West Midlands, as designated by government. We are a not-for-profit company that works with our members in the private, public and third sectors. Our Board is private sector led and has cross-sector representation; they are supported by our team of staff and associates.

Our vision is that the West Midlands is leading in contributing to the national target of net zero greenhouse gas emissions by 2050 whilst addressing health inequality and driving inclusive growth. We play our part by acting as a catalyst for change through our advice to leaders, developing practical solutions with our members, and sharing success through our communications.

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Contents

1. Introduction

Sustainability West Midlands (SWM) and kMatrix Data Services have been commissioned by the Midlands Energy Hub to provide an evidence-based study to understand the current state of the Low Carbon Environmental Goods & Services (LCEGS) Sector in the Midlands, where support is needed to help grow this sector, and the role the sector can play in driving a low-carbon recovery from Covid-19. The study was delivered between November 2020 and March 2021 and is based on evidenced data provided by the kMatrix Big Data Analytical Tool, alongside an extensive literature review, and comprehensive cross-sector stakeholder engagement. The study has resulted in three deliverables:

1. This Recommendations Report outlining recommendations for policy intervention and business support. The report is intended to help set the direction for the future focus of the Midlands Energy Hub and (at regional and LEP level) define projects and activities that meet multiple objectives.
2. Detailed sector evidence base including sector data down to the local authority level covering two financial years of 2017/18 and 2019/20 – this includes the kMatrix data and associated analysis of the sector, the impact that Covid-19 has had, and where opportunities lie for growth. This includes the literature review and associated database of information sources, as well as a report containing the results of the stakeholder engagement focus groups.
3. Growth forecast report which draws from the evidence base, desk research and stakeholder engagement to detail what growth is needed in the sector in order to support two scenarios: Net Zero 2030 and 2050 ambitions.

The Midlands Energy Hub covers the nine Local Enterprise Partnerships (LEPs) within the Midlands Engine geography as shown in Figure 1.

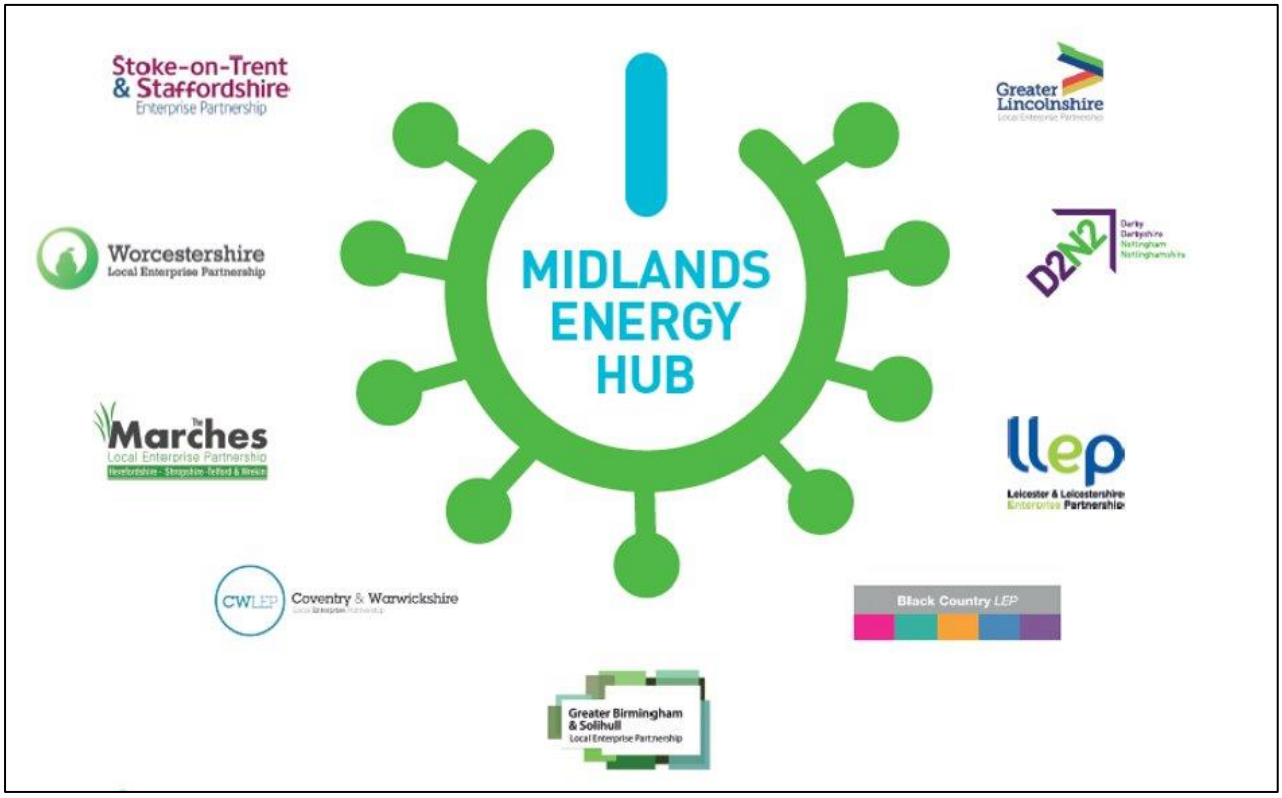


Figure 1: Midlands Energy Hub

The Midlands Energy Hub is supported by the Department for Business, Energy and Industrial Strategy (BEIS) and has the objectives of:

1. Supporting LEPs and local authorities with delivery of their energy strategies and projects
2. Managing the Rural Community Energy Fund for the region and supporting applicants
3. Managing the Green Homes Grant Local Authority Deliver Scheme and Skills Training programme for the region
4. Acting as the central communication point to ensure effective regional collaboration, sharing of good practice and standardisation of approach

The intention is for the final study to be made available to the Midlands Engine, Midlands LEPs and local authorities, any other contributing stakeholders and for it to be used collaboratively to lobby policy makers or to engage the market and other stakeholders.

2. Definition and Quantification of the LCEGS Sector

High level data analysis for the Midlands Engine geography is presented here. Equivalent data is available for all nine LEPs and 64 local authorities across the Midlands. Please contact your local Midlands Energy Hub Regional Senior Projects Officer[1] if you would like this information.

The LCEGS sector comprises products and services from across the economy, which actively enable a shift towards a green economy. It is considered an 'umbrella' or horizontal sector, crossing many other traditional sectors, counting products and services which can reduce carbon emissions and improve the environment.

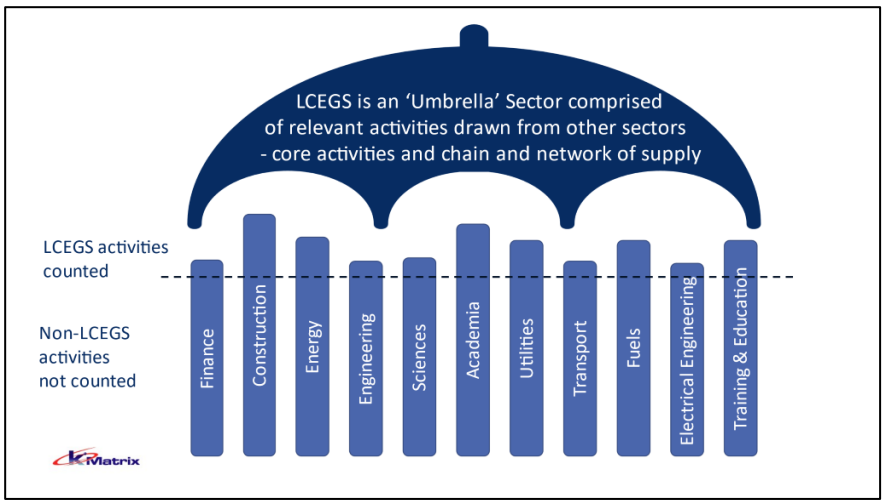


Figure 2: Overview of the LCEGS Sector

The sector is comprised of both core elements and those in the chain and network of supply, without whom the sector could not function. As shown in Figure 2, LCEGS activities from other sectors are counted, non-LCEGS activities are not.

The LCEGS sector in the Midlands Energy Hub area was worth £26.6bn in 2019/20 indicated by the value of sales, with 10,581 businesses and over 195,000 people employed, holding 12.1% of the UK market.

Growth of the LCEGS sector during the reporting period was 11.3% for sales, 10.8% for number of companies and 11% for employees.

The most significant sub-sectors across the Midland Energy Hub area are shown in Table 1 below.

[1] Listed in Appendix 1

Table 1: Significant sub-sectors in Midlands Energy Hub area by sales, companies and employment

Sub-sector	2019-20		
	Sales (£m)	Companies	Employment
Wind	£4,373	1,745	32,364
Building Technologies	£3,996	1,584	29,520
Alternative Fuels	£3,761	1,558	27,783
Photovoltaic	£2,773	1,075	32,364
Water & Waste Water Treatment	£2,015	775	14,859
Biomass	£1,943	774	14,392
Waste Management	£1,770	682	13,059
Recovery & Recycling	£1,453	584	10,726
Geothermal	£1,163	460	8,596

The sector is predominantly comprised of micro and SME businesses. Of the 10,581 businesses in the LCEGS sector, 50% are classed as SMEs (businesses with 10-249 employees) with 30% being micro-enterprises (businesses with 2-9 employees). The Midlands Energy Hub area is very strong in mid-chain activities within the chain and network of supply.

Figure 3 shows the Level 2 sub-sectors in terms of size of market and growth compared with the UK[2]. The graph is split into four quadrants, with the cross sitting on 1 on each axis, representing the UK average. The proportion of UK sales generated by each sub-sector is represented on the x-axis with the growth of the sub-sectors compared with the UK average represented on the y-axis. The size of the bubbles represents the sales. For both axes, 1 = the UK average, >1 is higher than the UK average and <1 is lower than the UK average.

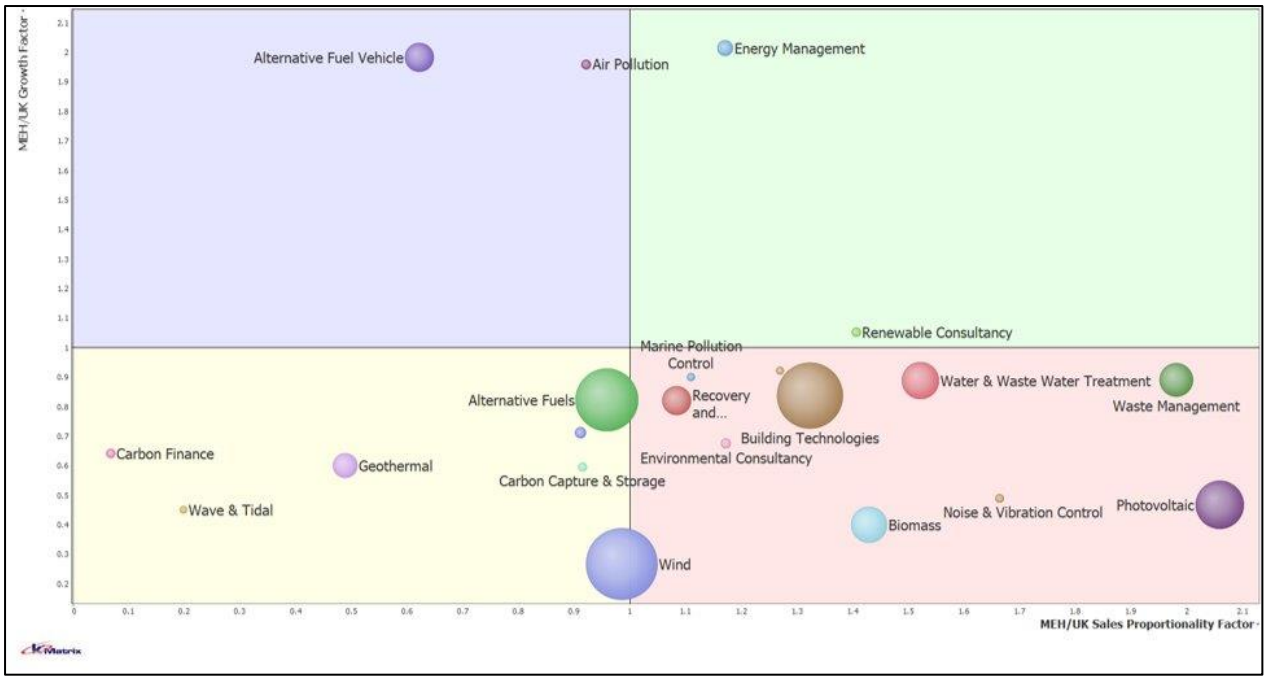


Figure 3: Size of market and growth in Midlands Engine v's UK

The top right corner is the most desirable position, where the Energy Management sector sits. The sub-sectors in the bottom right corner are all growing slower than the UK average, but they hold a higher share of the market than might be expected. Large bubbles in the bottom right quadrant should

[2] Nuclear, Contaminated Land and Hydroelectric have been removed because their growth rates are so high compared with the UK. This allows comparisons for the other Level 2 sub-sectors to be made more easily.

also be considered strengths, as should the Alternative Fuel Vehicle sector in the top left, with a smaller market than would be expected, but 11.4% growth compared with a UK average of 5.7%.

Figure 4 shows the GVA of the sub-sectors on the x-axis against the scalability of the sub-sectors on the y-axis, with the bubbles sized to represent GVA.

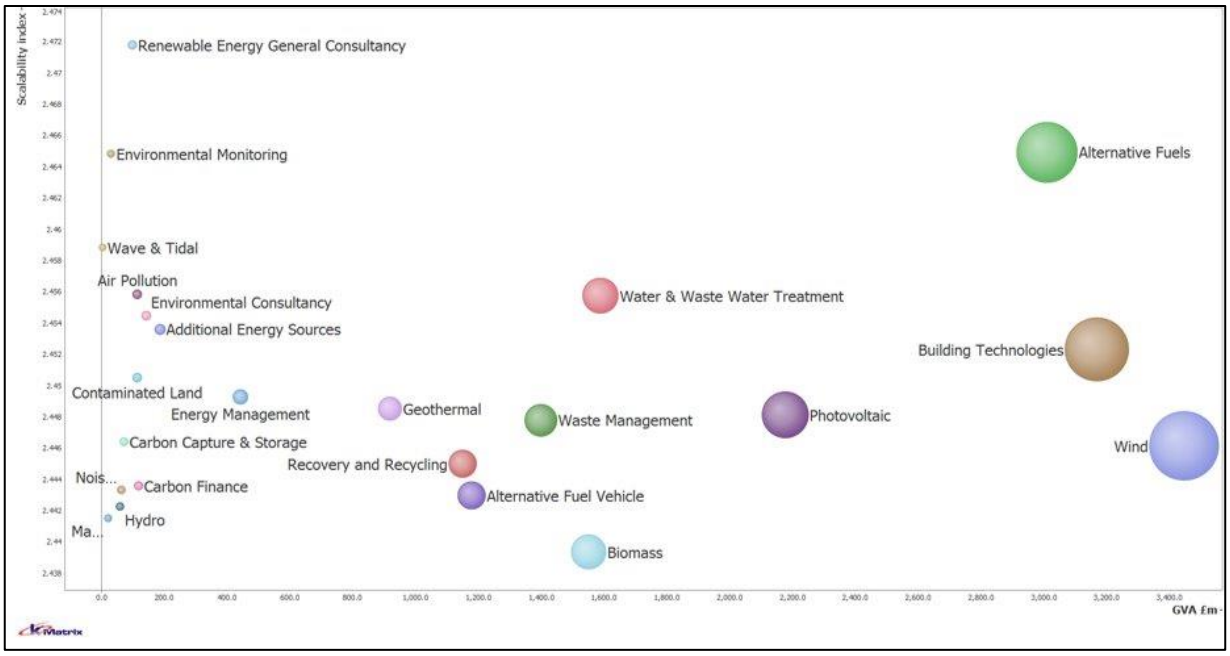


Figure 4: Scalability & GVA of sub-sectors

Scalability refers to a number of combined factors including:

- Existence of appropriate available market
- Scalability of technology within a company, area or market
- Affordability of technology
- Availability of appropriate skill sets in the locality
- Historic growth
- Accessibility of networks and chains of supply

The graph indicates that Alternative Fuels holds the most desirable position of large size and highly scalable. Renewable Energy Consultancy Support also shows promise as being very scalable despite currently having relatively small GVA. Other sectors in the bottom left of the graph could become more scalable with the right interventions and support.

The contribution of each LEP to the overall LCEGS sector across the Midlands Engine area is shown in Figure 5. It can be seen that the greatest contribution is made by Greater Birmingham & Solihull (GBS) LEP followed by D2N2 (Derby, Derbyshire, Nottingham and Nottinghamshire) LEP.

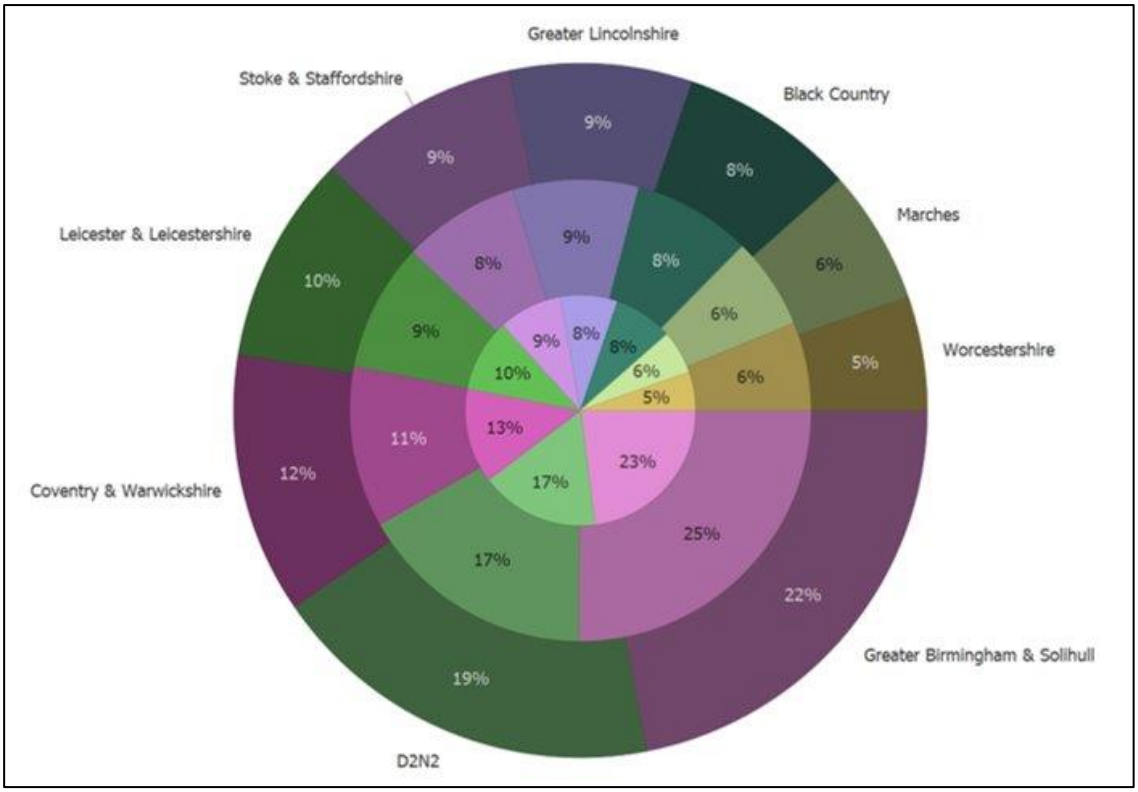


Figure 5: LEP contribution to the LCEGS Sector

Figure 6 shows current employment and skills shortages along with an estimate of skills required to reach net zero in 2030 and 2050. Where a shortage of employees is shown, this means that employees have to be 'imported' from outside the area and so represents a skills gap. Figure 6 indicates that currently significant skills gaps exist in the Midlands in relation to scientists, educators, production engineers, power distribution engineers, civil engineers, designers/developers and technicians (darkest green cells)

	Current Employment				Net Zero by 2030				Net Zero by 2050			
					Worst Case Scenario		Best Case Scenario		Worst Case Scenario		Best Case Scenario	
SOC	# Employees 2019/20	Shortage of Employees 2019/20	Shortage as a % of Total Employees	# Employees if Skills Gap Filled	Estimated # Employees Needed to Reach Net Zero by 2030	Growth in Employees Required (assumes no skills gap)	Estimated # Employees Needed to Reach Net Zero by 2030	Growth in Employees Required (assumes no skills gap)	Estimated # Employees Needed to Reach Net Zero by 2050	Growth in Employees Required (assumes no skills gap)	Estimated # Employees Needed to Reach Net Zero by 2050	Growth in Employees Required (assumes no skills gap)
Technicians	4,707	1,045	22.2%	5,753	6,149	6.9%	8,070	40.3%	9,526	65.6%	22,613	293.1%
Snr Management SME	11,148	1,124	10.1%	12,272	14,583	18.8%	19,115	55.8%	22,548	83.7%	53,480	335.8%
Supervisory	11,640	1,199	10.3%	12,839	15,190	18.3%	19,999	55.8%	23,544	83.4%	56,022	336.3%
Middle / Junior Management	11,260	1,157	10.3%	12,416	14,713	18.5%	19,309	55.5%	22,706	82.9%	54,155	336.2%
Designer / Developer	1,620	426	26.3%	2,046	2,116	3.4%	2,779	35.8%	3,268	59.7%	7,787	280.6%
Clerical	5,875	12	0.2%	5,887	7,696	30.7%	10,083	71.3%	11,882	101.8%	28,180	378.7%
Self Employed	1,578	204	12.9%	1,782	2,062	15.8%	2,707	51.9%	3,182	78.6%	7,582	325.5%
Advisor or Agent	1,084	180	16.6%	1,264	1,420	12.4%	1,862	47.4%	2,188	73.2%	5,210	312.4%
Educator	37	12	31.2%	49	49	0.1%	64	31.3%	75	54.1%	180	266.9%
Specialist or Consultant	6,279	207	3.3%	6,485	8,223	26.8%	10,760	65.9%	12,693	95.7%	30,162	365.1%
Editor	184	7	3.8%	191	240	26.0%	315	65.4%	371	94.8%	881	362.2%
Industrial Researchers	1,800	140	7.8%	1,940	2,348	21.0%	3,089	59.3%	3,644	87.8%	8,658	346.3%
Scientist	818	274	33.5%	1,091	1,067	-2.3%	1,403	28.5%	1,649	51.1%	3,927	259.8%
Maintenance Engineer	12,916	815	6.3%	13,731	16,877	22.9%	22,182	61.6%	26,150	90.4%	62,049	351.9%
Civil Engineer	898	240	26.8%	1,138	1,173	3.1%	1,539	35.2%	1,817	59.6%	4,317	279.3%
Production Engineer	2,330	831	35.7%	3,161	3,041	-3.8%	4,006	26.7%	4,703	48.8%	11,210	254.6%
Power distribution Engineer	5,906	1,758	29.8%	7,664	7,728	0.8%	10,129	32.2%	11,955	56.0%	28,393	270.5%
Construction Engineer	1,347	229	17.0%	1,577	1,764	11.9%	2,313	46.7%	2,723	72.7%	6,481	311.0%
Sales Exec	6,013	687	11.4%	6,700	7,865	17.4%	10,310	53.9%	12,154	81.4%	28,920	331.6%
Marketing Personnel	6,028	673	11.2%	6,702	7,882	17.6%	10,362	54.6%	12,165	81.5%	28,997	332.7%
General Semi Skilled Worker	12,514	262	2.1%	12,776	16,346	27.9%	21,504	68.3%	25,301	98.0%	60,171	371.0%
General Labour	15,123	0	0.0%	15,123	19,790	30.9%	25,965	71.7%	30,545	102.0%	72,748	381.0%
Other Employees	15,218	770	5.1%	15,988	19,889	24.4%	26,063	63.0%	30,768	92.4%	73,234	358.1%
Administrative workers	6,621	142	2.1%	6,763	8,657	28.0%	11,353	67.9%	13,347	97.4%	31,849	370.9%
Total	**142,943**	**12,394**	**8.7%**	**155,338**	**186,868**	**20.3%**	**245,284**	**57.9%**	**288,903**	**86.0%**	**687,204**	**342.4%**

Figure 6: Skills shortages and estimated growth in employees required to reach net zero in 2030 and 2050

3. Midlands Recommendations

The recommendations in this report are intended to help set the direction for the future focus of the Midlands Energy Hub and (at regional and LEP level) define projects and activities that meet multiple objectives of the Hub. The recommendations are grouped under the topics used as the basis for discussions at nine LEP level focus groups held in January 2021, and the final engagement conference held in February 2021.

A comprehensive and detailed report for each LEP and their LCEGS sector has been produced covering the period 2017 – 2020. These are available from the Regional Senior Energy Projects Officer listed in Appendix 1 for each LEP. The recommendations below should be considered in light of the detailed LEP reports.

3.a Policy & Governance

Background: 'Green' policy is fast changing with new Government plans and associated funding emerging frequently, especially in the context of 'building back better' and a green recovery from the implications of the Covid-19 pandemic. Throughout the period of this project we have seen the announcement of the '10 Point Plan for a Green Industrial Revolution' and associated policy such as the energy white paper, 'Powering our Net Zero Future'. The Green Jobs Taskforce has been established and is chaired by Energy Minister Anne-Marie Trevelyan and Skills Minister Gillian Keegan with membership from business, education sector, trade unions and NGOs. The taskforce will assess how the UK jobs and skills sector will adapt to support net zero and create an action plan to inform on what support is needed for people in transitioning industries. It will focus on the immediate and longer-term challenges of delivering skilled workers for the UK's transition to net zero, including:

- Ensuring we have the immediate skills needed for building back greener, such as in offshore wind and home retrofitting
- Developing a long-term plan that charts out the skills needed to help deliver a net zero economy
- Ensuring good quality green jobs and a diverse workforce
- Supporting workers in high carbon transitioning sectors, like oil and gas, to retrain in new green technologies

After an evidence gathering phase the Taskforce has recently reconvened to discuss the evidence of the challenge, potential solutions and next steps.

At regional level, the Midlands Engine are working on a '10 Point Green Growth Action Plan' and using a partnership approach to develop the regional green growth agenda and highlight to how the Midlands can support the Government's priorities on levelling up, net zero, and post-COVID economic growth. The Action Plan will identify and prioritise regional opportunities and is expected to be launched in May 2021.

Sub-regionally, all LEPs have energy strategies and other policies setting out plans to support and grow the LCEGS sector, and are working with partners including local authorities in their delivery.

Our recommendations in relation to Policy & Governance are set out below.

3.a.i Support levelling up across the Midlands at sub-regional level

Stakeholder feedback: Across the Midlands Engine area, not all sub-regions feel that they are fairly represented or supported. Whilst the West Midlands Combined Authority (WMCA) creates a single voice for the West Midlands, this is primarily focused on the areas of the Black Country, Coventry & Warwickshire (C&W), and Greater Birmingham and Solihull (GBS). The surrounding areas of Stoke & Staffordshire (S&S), The Marches and Worcestershire are not represented in such a high-profile way. Additionally, the differences between the East and West Midlands, as well as at LEP level are felt not to be well understood or presented.

Recommendation: The Midlands Energy Hub should use the findings of the study to work with partners to influence policy and decision making across the Midlands Engine and nationally with Government to ensure that the sub-regional strengths of our region are given sufficient priority and funding. For example, the construction sector across the Midlands Engine, particularly evident in areas like Staffordshire, could rapidly decarbonise with the right regulation and incentives. Pushing for stronger devolution in relation to key areas such as infrastructure and energy will bring power to the region and allow for decisions to be made which optimise the local benefits to the economy, environment and society. Evidence should be presented to the Green Jobs Taskforce in order to influence future support for the region to ensure that it is more appropriate and targeted to our key sub-sectors.

Recommendation: LEPs could be encouraged to undertake further analysis into the challenges faced by particular sub-sectors in their area. By further understanding the barriers to scalability and growth, these can be mitigated against and growth stimulated.

Recommendation: The Midlands Energy Hub should support the creation of accessible and engaging summaries of the data resulting from this study for use with a range of audiences (policy makers, local authorities, businesses) and for a range of LCEGS sub-sectors. Language should be tailored to the audience. Workshops could be delivered for different audiences or sub-sectors to disseminate the findings of the study further. This could be supported through trade organisations, Growth Hubs and Chambers.

3.a.ii Support changes to procurement to grow the LCEGS sector

Stakeholder feedback: There are huge opportunities for local authorities, LEPs and businesses to use procurement to drive growth and innovation in the LCEGS sector. This potential is rarely captured.

Recommendation: Local authorities and their cabinets, and the private sector, should be supported to seize procurement opportunities and challenges, especially for market-ready and proven low carbon technologies such as EVs. Building in requirements for low carbon inclusion in responses, and allowing for this in procurement budgets, is a simple means of encouraging growth of the low carbon sector and allowing for more innovative solutions to be presented. This should be reflected in related policies and can be informed by the work of the Innovation Alliance for the West Midlands who are researching the role of procurement in driving innovation with numerous partners.

3.a.iii Support better partnership working between key organisations

Stakeholder feedback: Effective partnership working across the Midlands Engine and also at sub-region is essential if the full potential of the LCEGS sector is to be realised. This means bringing together organisations including the WMCA, LEPs, local authorities, social housing providers, universities and colleges, and businesses of all sizes. A comprehensive plan for the region is required and buy in of all relevant stakeholders is critical to its success.

Recommendation: The Midlands Energy Hub should create a website to act as a central portal of information, working with and signposting to other key organisations. This would be a simple and effective means of supporting their objective of 'acting as the central communication point to ensure effective regional collaboration, sharing of good practice and standardisation of approach'. It would allow many of the recommendations suggested in this report to be supported.

Recommendation: The stakeholder engagement associated with this study has brought together over 200 cross-sector individuals representing all of these sectors and this network could be maintained and used as a means of ensuring ongoing regional collaboration to grow the LCEGS sector. For example, it could be used to engage with the draft Midlands Engine '10 Point Green Growth Action Plan' to ensure buy-in from stakeholders from the outset, and ownership of actions by the relevant partners.

Recommendation: The Regional Senior Energy Projects Officer within each LEP could be responsible for the coordination of a sub-regional cross-sector partnership, ensuring that all key local stakeholders are a part of the partnership, and that regular sessions are held both as a means of engaging on local decisions and activities, but also as a means of feeding back up to the Midlands Engine and to Government. This could include representation from the public sector, businesses, NGOs and universities and would be a means of ensuring a coordinated approach to supporting the LCEGS sector through support and funding.

Recommendation: The Midlands Energy Hub should help make the case for a Low Carbon Champion at LEP Board level, and Low Carbon Officer where these roles do not currently exist.

3.b Investment

Background: Investors can play a crucial part in contributing financially to support the transition to a lower carbon economy. Many investors are already taking action to manage the risks and capture the opportunities that climate change presents through:

- Reducing exposure to high-carbon assets
- Engaging with companies and policy makers
- Integrating climate change into investment strategies
- Undertaking scenario analysis
- Improving disclosure and transparency
- Allocating capital to new, low-carbon, climate-resilient opportunities

However, it is recognised that there is a need for this type of activity to be more widely integrated into mainstream investment processes to ensure that investment portfolios are resilient to the financial implications of climate change – now, and in the future.

The March 2021 budget set out plans for sovereign green bonds to be issued in the summer of 2021 giving investors the opportunity to buy into projects dedicated to accelerating the net-zero economy. The green gilt framework, to be published in June, will detail the types of projects that will be financed.

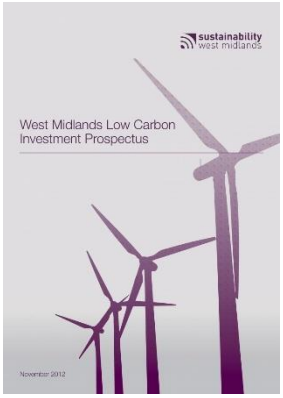
The PRI (an investor initiative in partnership with UNEP Finance Initiative and UN Global Compact) have launched the Impact Investing Market Map to provide a practical link between the ambitions of the UN Sustainable Development Goals (SDGs) and real-world impact investment opportunities. The Market Map contains information about 10 environmental and social thematic areas of impact investments and businesses that intend to contribute to sustainability and the SDGs. It provides clear direction for

investors to direct their capital where it can help companies that are providing solutions to the challenges articulated in the SDGs, while giving them the comfort of investing in traditional asset classes and at a scale that is appropriate to institutional investors.

Our recommendations in relation to Investment are set out below.

3.b.i Highlight the opportunities for investment across the Midlands and our LEPs

Recommendation: A regional or sub-regional 'Investment Prospectus' could be produced to highlight the collective strengths in the low carbon economy across the nine Midlands and the scale of low carbon investment opportunities. This could build upon the West Midlands Low Carbon Investment Prospectus produced by SWM in 2012, the first such joint LEP document produced on low carbon investment opportunities in the UK. The prospectus could highlight our national and international strengths in the numerous sub-sectors identified by kMatrix, quantifying the market opportunities, leading low carbon businesses, research capabilities, skilled workforce, and training capabilities to the fore. A portfolio of investable propositions for each LEP could be presented.



3.b.ii Support businesses and investors to come together

Stakeholder feedback: There is a suggested disconnect between investors and those with investable solutions. Businesses find it difficult to articulate their solutions in a way that is appealing to investors, whilst investors may not be sufficiently carbon literate to understand the value and potential returns associated with the proposition being considered.

Recommendation: The Midlands Energy Hub could work with stakeholders to provide regular showcases bringing together organisations developing and deploying low carbon solutions and technologies, with investors and financiers. Partners could include the Growth Hubs and Chambers as well as other business facing organisations. Organisations could be given support to articulate their offer to best attract investment. This could be achieved by inviting banks and other investors to attend meetings of the various green business support networks across the region.

3.c Technology & Infrastructure

Background: The Sixth Carbon Budget published in December 2020 recommends that the UK requires a reduction in UK greenhouse gas emissions of 78% by 2035 relative to 1990, which is a 63% reduction from 2019. The Budget would help to encourage private investment at low cost at a time when it is needed to support economic recovery from the COVID-19 pandemic. It could also help the UK secure competitive positions in growing global markets for low-carbon goods and services. Future emissions reductions must come from transport, industry, buildings and agriculture, as well as phasing out of gas-fired power. The Budget is summarised in Figure 7. Meeting the Budget requires action in four key areas:

1. **Reducing demand for carbon-intensive activities**.
    a. Improved efficiency especially through better insulation of buildings, improving vehicle efficiency and improving efficiency in industry.

2. **Take-up of low-carbon solutions.**

   a. By the early 2030s all new cars and vans and all boiler replacements in homes and other buildings must be low carbon, largely electric.
   b. By 2040 all new heavy goods vehicles should be low carbon. Industry must either adopt technologies that use electricity or hydrogen instead of fossil fuels or install carbon capture and storage (CCS).

3. **Expansion of low-carbon energy supplies**
   a. The largest contribution is from offshore wind.
   b. Low carbon hydrogen is scaled up, produced using electricity or from natural gas or biomass with carbon capture and storage. It is used in areas less suited to electrification, particularly shipping and parts of industry, and provides flexibility to deal with intermittency in the power system. It may also have a role in buildings and other transport, such as heavy goods vehicles.

4. **Land (and removals)**
   a. By 2035 planting of 440,000 hectares of mixed woodland to remove CO_2 with a further 260,000 hectares of agricultural land shifting to bioenergy production (including short rotation forestry).
   b. Peatlands must be restored widely and managed sustainably.
   c. Low-carbon farming practices must be adopted widely, while raising farm productivity.
   d. Alongside the nature-based removals, by 2035 the UK should be using bioenergy (largely grown in the UK) with CCS to deliver engineered removals of CO_2 at scale.

Place and skills will be key dimensions to consider, so it is vital that UK Government policy joins up well with local, regional and devolved policy on the just transition. The transition will affect the whole of the UK, with impacts differing across regions, sectors and workers. The risk of negative localised impacts must be a particular focus for policy. A strategy for the just transition is required to ensure no group is left behind.

Figure 7: Summary of the Sixth Carbon Budget

Heating currently accounts for around a third of the UK's annual greenhouse gas emissions and its decarbonisation will take may years. The UK will not be able to achieve its net zero target without urgently speeding up on low carbon heating. The Government's forthcoming Heat and Buildings Strategy has a fundamental role to play in outlining the long-term trajectory for heat decarbonisation.

Whilst policy trajectory has to be set by central government, the Policy Connect paper '[Pipeline to 2050; Building the Foundations for a Harmonised Heat Strategy]' sets out the need for local and regional authorities to be engaged in heat decarbonisation given that the most effective solutions are likely to differ regionally due to geography, industrial activity, building types, political economy and demographics.

With the most granular knowledge of local conditions and priorities, local and regional leadership can ensure that local strategic objectives are met and can combine locally appropriate solutions for heating, transport, power generation and storage, considering synergies and efficiencies between them to drive decarbonisation in a cost effective manner. This must be done in a way that ensures all areas related to heat decarbonisation (low carbon heat, energy efficiency, fuel poverty, climate and environmental

objectives, job creation and economic imperatives) are joined up, while simultaneously contributing to national targets.

In addition, adopting a place-based approach is crucial to the targeted deployment of certain low carbon technologies, such as heat networks, where zoning (the process in which local authorities strategically define the locality of e.g. heat network developments) helps maximise the potential of low carbon systems.

Living Labs are safe and affordable, real-world test environments for trialing new products, services and business models, with the aim of de-risking and scaling innovations for market. Energy Systems Catapult Living Lab is made up of almost 200 existing homes spread across the West Midlands, Newcastle, Manchester, South Wales, and Gloucestershire that have been upgraded/retrofitted to become digitally connected smart-homes. Innovative businesses can rapidly design, market-test and launch smart energy innovations that can be integrated with mainstream smart heating controls, smart meters, IoT devices, and electric vehicle chargers. The Smart Wireless Innovation Facility (SWIFt), designed by Digital Catapult, will enable users to test and develop 5G-enabled solutions. The facility at Nottingham Trent University will become a Living Lab for researchers, local businesses and policymakers, providing an opportunity to showcase and demonstrate how these technologies can be translated into everyday life and examine 5G and other smart technology applications in industry. Businesses from across the East Midlands will have the opportunity to take advantage of this facility. Other Living Labs and demonstrators include:

- University Campus Living Labs and Demonstrators such as Keele University and HyDeploy and SEND projects
- Community Living Labs and Demonstrators such as Trent Basin in Nottingham
- Energy Parks, such as Tyseley Energy Park and Ratcliffe-on-Soar Power Station
- City Network Living Labs, such as West Midlands Regional Energy Systems Operator (RESO)

Our recommendations in relation to Technology & Infrastructure are set out below.

3.c.i Coordinate approach to exploration of opportunities associated with hydrogen

Stakeholder feedback: There is significant interest in the opportunities associated with hydrogen with this interest being shown at all nine focus groups for LEP across the Midlands. Worcestershire LEP have established a taskforce to explore the potential for hydrogen use and as part of this are mapping large energy users across the area. D2N2 are taking a similar approach and S&S LEP are home to the HyDeploy pilot project (see below).

Recommendation: A coordinated, regional approach to exploration of opportunities associated with hydrogen should be undertaken to ensure maximum learning and optimal efficiency.

3.c.ii Educate across sectors on new and innovative low carbon technology

Stakeholder feedback: There is nervousness amongst businesses, installers and the public sector over new and innovative technology that is critical to meeting net zero challenges. This includes fuel cell technology, heat pumps, and housing retrofit. Increasing confidence in these technologies is critical if mass uptake is to be achieved.

Recommendation: Consideration should be given to the potential for supporting existing Living Labs and establishing new ones across the region to demonstrate the viability of solutions for the LCEGS sector.

Opportunities associated with existing Living Labs should be promoted and learning shared with the LCEGS sector and other key stakeholders.

Recommendation: Installers can be averse to moving away from tried and trusted technologies (e.g. boilers) and therefore not embrace new technologies. Could they be encouraged through incentives to trial new technology within their own home which would inspire confidence and the knowledge to recommend low carbon solutions to customers?

3.c.iii Support business to highlight the potential of their technology

Stakeholder feedback: It can be difficult for businesses to 'sell' and raise awareness of the potential benefits of their low carbon technology. An online platform allowing the supply and demand side for low carbon solutions to come together would be beneficial.

Recommendation: Online platforms to showcase low carbon solutions are in development. In the West Midlands this includes The Grid, an innovation and opportunities exchange designed for founders who want to meet like-minded entrepreneurs and are ready to scale their start-up. The Grid is a project between the Innovation Alliance for the West Midlands, West Midlands Combined Authority, Aston University, and Goldfish Ventures. A platform is also being considered as part of the Low Carbon Sector Growth Plan in the West Midlands where the intention is to develop a Commercial Project Platform that will enable exemplary regional projects to be demonstrated and showcased to a range of investors, customers and stakeholders. Learning from these projects should be taken and used to expand the resources into the East Midlands, or to develop an equivalent platform across the whole of the Midlands.

Recommendation: A comprehensive, online directory of businesses in the LCEGS sector across the Midlands could be developed. Businesses could be grouped according to their sub-sector (e.g. lighting, insulation, water management). This must be supported by key organisations such as the Growth Hubs, Chambers, local business networks etc. At a local level, C&W LEP have established a directory of green businesses resulting from their ERDF Green Business Support Programme which could be a good model to replicate and build upon.

3.c.iv Support business to engage with their full supply chain

Stakeholder feedback: There are opportunities for large anchor institutions including businesses and the public sector to drive low carbon innovation through their supply chains. This can also apply to large infrastructure projects like HS2 and the Commonwealth Games. Mapping of the skills requirements of large infrastructure projects can support the local supply chain and employment.

Recommendation: Established in 2016, the Infrastructure Industry Innovation Partnership (i3P) is a community of client and supply chain organisations that have made a commitment to delivering collaborative innovation through projects supported by a large network of experts and innovators and industry knowledge that will drive transformation of the infrastructure and construction industry. KTN facilitates the secretariat and management of i3P, tapping into its network of industries and knowledge management and facilitating the dedicated SME programme that supports Strategic Priority Themes. There is a fee for companies to use the platform but it is a popular platform that has had good take up with suppliers. Awareness of the opportunities associated with i3P should be raised by the Midlands Energy Hub and other stakeholders.

Recommendation: Companies within a locality should be supported to work together, forming groups of compatible companies to help with chains and networks of supply. This could be supported by existing business networks across the region as well as the Chambers and other business facing organisations.

3.c.v Share resources from the wider Energy Hub Network

Stakeholder feedback: Regional collaboration to drive the uptake of low carbon solutions could be improved. Infrastructure for EV must be scaled up and delivered across LEP boundaries to create an effective and efficient network. The potential for shared infrastructure should be investigated. Learning from well-established and high-growth sectors such as wind should be captured to create roadmaps for emerging sectors.

Recommendation: There are five Energy Hubs across England including the Midlands, North West, North East Lincolnshire and Humber, South West, and Greater South East. Whilst having a similar remit, each Hub has used their consultancy budget to address different local priorities. For example:

- The Midlands Energy Hub has focused on:
  - The Low Carbon Sector Study
  - The publication of a Parish Council Carbon Calculator
  - An analysis of the potential for Regional Low Carbon Transport Hubs
- The South West Energy Hub have produced:
  - A Local Energy Guide
- The Greater South East Energy Hub have produced:
  - Guides on Decarbonisation of Heat
  - Guides on Distributed Generation
  - Guides on EV Transition and Charing Networks

Whilst there may be an element of regional place-based focus in the activities, much of the learning and insight could be relevant across all of the Hub areas. All Hubs should work together to share information with partners across England through a structured programme of engagement.

3.d Business Support, Funding & Skills

Background: The UK's net zero target presents opportunities for businesses, from developing innovative, low carbon technologies and solutions, new jobs in areas such as retrofit, decarbonisation of heat and electric vehicles, and reskilling and upskilling employees.

The UK Business Group Alliance for Net Zero is an informal network of leading business groups working to increase political and business ambition with the aim of achieving net zero by 2050 in the UK. Working alongside the Alliance, The Confederation of British Industry (CBI), the Federation of Small Businesses (FSB), Make UK, the Institute of Directors (IoD) and the British Chambers of Commerce (BCC) have produced a joint report on a Just Transition to Net Zero, which sets out five core principles needed to achieve this goal:

1. Ambition
2. Accountability
3. Delivery: Government should support, empower and incentivise businesses to find their own ways to net zero, acknowledging that a one-size-fits-all approach to policy delivery may not work in all cases and that a diverse set of business-led solutions and incentives will be needed

4. Opportunity: Government must provide a level playing field, ensuring businesses of all sizes, in all sectors, across every region and nation, can contribute to a net-zero economy, through their innovations, investments, and markets
5. Cost: Government must ensure that the costs of transition to net-zero are distributed equitably among businesses, workers, and consumers, based on their environmental impact, ability to pay, ability to adapt and potential for gain

At LEP level, business support and guidance are provided by local Growth Hubs. Growth Hubs are local public/private sector partnerships led by the LEP to join up national and local business support so that businesses can find the help they need. This applies to support with the transition to low carbon as well as broader support on business innovation, growth, management, marketing and training. The Growth Hubs should provide an overview of all support and finding available both locally and nationally to support the businesses objectives.

Many support programmes available to SMEs in the Midlands are part of the European Regional Development Fund (ERDF) and fit under the priorities 1 (Promoting Research and Innovation), 4 (Supporting the Shift Towards a Low Carbon Economy in All Sectors) or 6 (Preserving and Protecting the Environment and Promoting Resource Efficiency). The Government announced that it would replace EU Structural Funds (including ERDF) with the UK Shared Prosperity Fund.

From January 2021, Innovate UK EDGE has been established to bring a range of services to help ambitious, innovative SMEs scale and grow through:

- Exploiting innovation: By protecting and harnessing IP, improving innovation management and connecting to the innovation ecosystem globally. In addition to Sector Innovation Leads at Innovate UK, they have strong relationships with ecosystem players including Catapults, Laboratories, KTN (Knowledge Transfer Network), the investor community and universities
- Entering new markets
- Sourcing funding and finance

The Government funded Peer Networks support programme has been established to support businesses through peer-to-peer learning by working with other local business leaders facing similar challenges supported by an expert facilitator. Mentoring, coaching and advice may also be provided. In the majority of LEPs specific support is available to businesses in the LCEGS sector.

Our recommendations in relation to Business Support, Funding & Skills are set out below.

3.d.i Provide certainty to businesses through long-term support and funding

Stakeholder feedback: There is uncertainty over the UK Shared Prosperity Fund, the preceding UK Community Renewal Fund, and how this could provide continuity from current ERDF business support programmes. To lose the momentum of such projects and the businesses engaged with their programmes would be devastating. There is also uncertainty over the Green Homes Grant with the March budget confirming that underspend will not be moved from this financial year to next.

Recommendation: The Midlands Energy Hub, along with the other Energy Hubs and their regional stakeholders, should lobby Government for greater clarity on future business support programmes to ensure that they provide longevity and best reflect local business needs. The Rural Community Energy Fund provides a great opportunity for eligible organisations. A dedicated website, or webpage, should be created for the Midlands to include case studies illustrating the type of projects that have been funded, and their achievements.

Recommendation: The Midlands Energy Hub should support discussions at LEP level to identify successful ERDF programmes and explore the potential for continuity with support from other organisations such as the Growth Hubs. Opportunities associated with the Community Renewal Fund should be explored including the potential for pilot approaches in priority local authority areas.

Stakeholder feedback: Businesses need help in articulating their challenges and working through various stages to identify what is possible and the best solution. This is beyond the level of advice that is usually provided by the Growth Hubs. Businesses trust information that is provided by 'honest brokers' such as Growth Hubs, Chambers, business networks, universities and local authorities.

Recommendation: All business support organisations should direct businesses to the support available from Innovate UK EDGE. In the West Midlands, business support organisations should refer to the support available through the Virtual Innovation Team which comprises business facing innovation experts hosted by a range of regional cluster/sector bodies. Between them they support businesses in all the sectors and major market opportunities of the WM Local Industrial Strategy to recover and grow through innovation including low carbon (SWM are the lead organisation), future mobility, creative, high-value manufacturing and transport, construction and health.

Recommendation: Businesses across the Midlands should be asked about the type of support and funding that they need. This must be comprehensive and cover a wide range of geographies, business sizes, and business sectors. It should be supported by all business facing organisations across the region.

Recommendation: Learning from LCEGS companies engaged through the Peer Networks programme should be captured and used to shape future business support and funding programmes.

3.d.ii Support improvement of the transfer of knowledge from academia to industry

Stakeholder feedback: Innovation in low carbon solutions at universities is not translated to industry and must be improved through knowledge transfer. Other countries including China are far better at translational activity.

Recommendation: LCEGS businesses could be encouraged to take on student placements including under and postgraduates from a range of disciplines. Not only does this provide huge benefits to young people seeking employment in the LCEGS sector, but it also provides additional capacity to businesses which can be especially beneficial for SMEs and microbusinesses which make up the majority of the LCEGS sector in the Midlands. Business networks can be used to encourage uptake.

Recommendation: The Civic Universities Network aims to support universities to re-shape their role and responsibility to their communities to realise their potential as drivers of a new civic agenda. This will be achieved by working with government and strategic partners to ensure that a university's geographic role and responsibility is used more effectively as an agent to drive positive societal change. The Midlands Energy Hub could engage with this network as a means of ensuring greater local collaboration between universities, colleges, local employers and young people. Universities signed up to the network include Aston, Coventry, De Montford, Harper Adams University, Keele, Nottingham Trent, Staffordshire, University of Birmingham, University of Derby, University of Leicester, University of Lincoln, University of Nottingham, University of Warwick, University of Wolverhampton and University of Worcester.

3.d.iii Support business-to-business learning

Stakeholder feedback: It is important to recognise that businesses often learn from other businesses and so this method of knowledge sharing should be supported.

Recommendation: The Midlands is home to many well-established networks intended to support businesses on their transition to low carbon and to facilitate peer-to-peer learning. This includes local networks focused specifically on low carbon activities such as Sustainable East Midlands, Staffordshire Businesses Environment Network, Meres and Mosses Business Environment Network and Solihull Sustainability Visioning Group. SWM coordinate the West Midlands Green Business Network to support all 'green' business clubs in the West Midlands and are a regional membership organisation. The Innovative Low Carbon Working Group is a cross-sector network whose membership consists of practitioners from universities, local authorities, businesses and voluntary organisations from across the West Midlands. The group meets quarterly and provides each member with an opportunity to propose and develop collaborative project ideas and to share good practice in relation to the low carbon and innovation agenda. All partners across the region should signpost to these networks to ensure that businesses can learn from others in the low carbon sector. If areas do not have a local low carbon business network, they should be established. This is often achieved through public sector support for an independent, business-led body.

3.d.iv Carbon literacy should be improved across all sectors

Stakeholder feedback: There is a need for improved carbon literacy across all sectors if we are to meet our climate change targets both by the use of technology but also though behaviour change.

Recommendation: A regional programme of climate literacy should be implemented. This could be centrally managed to ensure consistency and optimise efficiency, and should be tailored to different sectors to take account of their specific challenges. Resources are available (often freely) to support this including those from The Carbon Literacy Project which includes free toolkits for use by local authorities and universities and colleges.

3.d.v Highlight opportunities in the LCEGS sector

Stakeholder feedback: There are huge opportunities for businesses to diversify into the low carbon sector, and for individuals to re-skill and find employment in the sector. This could be especially important as we recover from the Covid-19 pandemic. Significant support is available to support this transition including business advice, revenue and capital grants, and training. These opportunities must be highlighted to businesses.

Recommendation: The LEP level Growth Hubs should be the first port of call for all businesses seeking support in relation to business transformation and low carbon opportunities. All partners should work with the Growth Hubs to ensure that they are fully aware of the breadth of support available across their LEP, and to signpost businesses to this support.

Recommendation: The Midlands Energy Hub could facilitate the production of case studies to highlight businesses that have successfully transitioned into the LCEGS sector along with individuals that have retrained and moved into the sector. This could be supported by partners including the Midlands Engine, Growth Hubs, Chambers, and business networks. A central repository of these case studies could be maintained and promoted across the region.

3.d.vi Education at all stages should include focus on low carbon opportunities

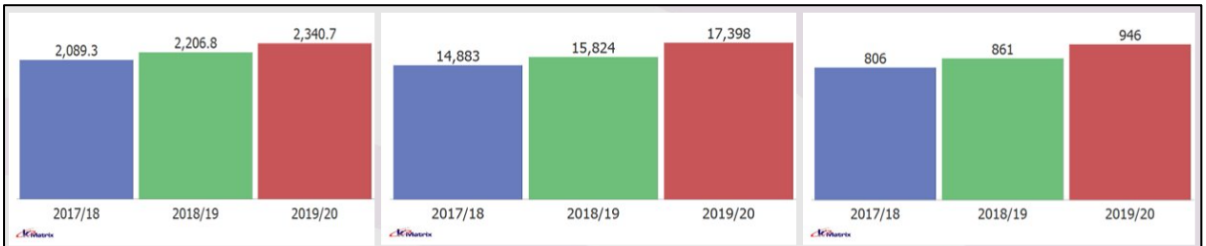
Stakeholder feedback: Education at school, college and university should include focus on low carbon within the curriculum including opportunities to explore careers within the sector. This should be supported by Careers Hubs which exist in the majority of Midlands LEPs but not The Marches and Greater Lincolnshire.

Recommendation: Education providers should be included in discussions with the Midlands Energy Hub and other LEP-level stakeholders to ensure that potential careers opportunities in the LCEGS sector are understood and represented in careers advice and the curriculum. Information exchange between LCEGS businesses and education providers is critical and industry placements will provide mutual benefits to both students and the businesses themselves.

4. Sub-regional Recommendations

4.a Black Country LEP

Background: Black Country LEP's LCEGS sector was worth £2.3bn to the LEP's economy in 2019/20, as indicated by the value of sales in the sector. These sales were generated by over 900 businesses that employed 17,000 people in the sector.



	Sales (£m)		Employment		Companies	
	2017/18 – 18/19	2018/19 – 19/20	2017/18 – 18/19	2018/19 – 19/20	2017/18 – 18/19	2018/19 – 19/20
BC	+5.6%	+6.1%	+6.3%	+10.0%	+6.8%	+9.9%
MEH	+5.2%	+5.0%	+5.7%	+5.0%	+3.6%	+6.9%

Figure 8: Growth of Sales, Employees and Companies in the Black Country LEP

The five largest sub-sectors in the LCEGS sector by sales account for 64% of the Black Country LEP's total sales and are made up of:

- Wind (£378m)
- Building Technologies (£353m)
- Alternative Fuels (£338m)
- Photovoltaic (£231m)
- Water & Waste Water Treatment (£187m)

Sub-sectors which saw stronger growth than the UK average include:

- Marine Pollution Control with 13.6% (MEH 11.4%, UK 12.7%)
- Environmental Monitoring with 13.3% (MEH 11.4%, UK 12.7%)
- Hydro with 12.5% (MEH 11.0%, UK 1.8%)

- Contaminated Land Reclamation and Remediation with 12.4% (MEH 11.4%, UK 1.0%)
- Energy Management with 12.2% (MEH 11.4%, UK 5.7%)
- Air Pollution with 12.2% (MEH 11.4%, UK 5.8%)
- Alternative Fuel Vehicle with 12.1% (MEH 11.4%, UK 5.7%)
- Renewable Energy General Consultancy with 11.8% (MEH11.3%, UK 10.8%)

The LEP Board have considered proposals related to the Government's 10 Point Plan for a Green Industrial Revolution potential impact on the Black Country in December 2020.

Analysis by kMatrix suggests that clusters of businesses in the Black Country include:

- Building technologies businesses in Blakenhall, Stourbridge, Willenhall, West Bromwich and Walsall
- Waste management, recovery and recycling businesses in Bilston

Recommendations specific to Black Country LEP are detailed below.

4.a.i Support delivery of the Ultra Low Emission Vehicle Strategy

The Black Country local authorities (Dudley, Sandwell, Walsall and Wolverhampton) have collaborated to develop the Ultra Low Emission Vehicle (ULEV) Strategy which aims to accelerate the uptake of ULEVs across the area from 0.2% of registered vehicles to at least 4% by 2025. To support this transition, 596 public charge points are required across the Black Country by 2025, plus additional provision across council assets, requiring significant investment in charging infrastructure as well as supportive gird reinforcements. The Strategy sets out that the economic benefits from installation and operation of EV charging infrastructure should be felt regionally and locally in regeneration, planning, business growth, skills/employment, tourism/trade and inward investment. With a local labour market rich in electrical and civil engineering skills, the growth of the EV infrastructure network can serve to create long-term skilled employment.

Recommendation: The Midlands Energy Hub should support Black Country authorities to engage with local training providers to ensure that the local labour market is ready to install and maintain charge points.

4.a.ii Support sub-regional strengths in construction and brownfield development

The LEP area is home to the Brownfield Research Innovation Centre (BRIC) at the University of Wolverhampton and will house the forthcoming National Brownfield Institute (NBI) with construction work starting later in March 2021. This demonstrates Wolverhampton's position at the forefront of the construction and brownfield development sector both nationally and internationally.

Recommendation: The Midlands Energy Hub should work closely with the LEP to optimise the benefits of these centres in relation to the sub-sector strengths in the region, the potential for local skills development, and the opportunities to connect academia with industry.

4.a.iii Optimise learning from the Black Country Garden City Initiative

The LEP, local authorities and the Homes and Communities Agency are working together to create the Black Country Garden City which is based on 10 principles including:

- Land Use: To revive and enhance the Black Country's under-used land assets, particularly brownfield sites

- Garden: To integrate open green spaces, planting and home food-growing into homes and neighbourhoods.
- Connectivity: To ensure connectivity via all modes of transport, particularly public transport, walkability and cycling.
- Smart: To harness technical innovation on a small and large scale within developments.
- Enterprising: To support and encourage growth in current and new business.

Recommendation: Learning from this initiative should be captured and shared across LEPs to encourage others to implement best practice through a similar model.

4.a.iv Optimise opportunities and learning from the Repowering the Black Country Initiative

Repowering the Black Country is one of seven industrial cluster decarbonisation projects funded by BEIS and UKRI. It is a programme of initiatives supporting Black Country businesses to take advantage of global clean growth opportunities and to make the transition to net zero. The project will initially develop four zero carbon industrial hubs in the Black Country and aims to reduce industrial carbon emissions by around 1.3M tCO_2 over the next 10 years. The Black Country Industrial Cluster consists of more than 3000 energy-intensive manufacturing businesses. The project is about providing cost-efficient energy infrastructure across the Black Country; helping companies benefit from new supply chain opportunities in the circular economy; and supporting resource efficiency initiatives in manufacturing operations.

Recommendation: The findings from this study may be useful in defining the locations for the four proposed zero carbon industrial hubs. Learning from this initiative should be captured and shared across LEPs to encourage others to implement best practice through a similar model.

4.a.v Support business-to-business learning

Stakeholder feedback: It is important to recognise that businesses often learn from other businesses and so this method of knowledge sharing should be supported.

Recommendation: There is currently no local business network focused on opportunities associated with low carbon in the Black Country. Until 2013, the BISNES (Business in Sandwell Network of Environmental Support) was operational. This was a single point of contact for businesses and organisations on environmental issues. There may be benefit in establishing a Black Country wide network aimed at supporting businesses to optimise the opportunities in the LCEGS sector through peer-to-peer learning. This could build on any positive outcomes of the current Peer Networks programme.

4.a.vi Support businesses to benefit from innovation funding and support

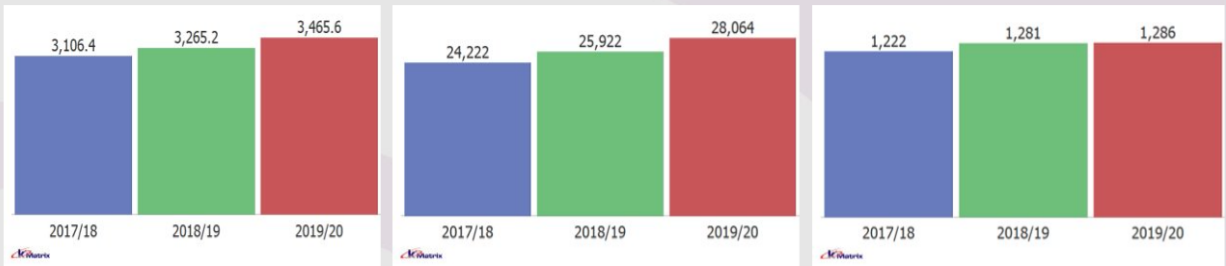
The Black Country Innovative Manufacturing Organisation states that the LEP is the second lowest recipient of Government innovation funding in the UK and that the cultural mindset of many businesses is not sufficiently open to embrace innovation.

Recommendation: A coordinated approach to engaging businesses on the opportunities for innovation should be taken involving all relevant supporting organisations and signposting to local support available through the Black Country Innovative Manufacturing Organisation which has been created to boost innovation in manufacturing to increase business growth, jobs creation and industrial sustainability and to oversee the build, launch and operation of a new Very Light Rail (VLR) National Innovation Centre, currently being constructed in Dudley. Support available from the Innovation Alliance for the West Midlands and their Virtual Innovation Team, and nationally through Innovate UK EDGE should also be

highlighted. Signposting to the Sustainable Business Support Hub and specific SME support programmes operating across the Black Country should be improved including the ERDF funded EnTRESS, BECCI, EBRI, Low Carbon SMEs and Smarter Choices.

4.b Coventry & Warwickshire LEP

Background: C&W LEP's LCEGS sector was worth £3.5bn to the LEP's economy in 2019/20, as indicated by the value of sales in the sector. These sales were generated by over 1,200 businesses that employed 28,000 people.



	Sales (£m)		Employment		Companies	
	2017/18 – 18/19	2018/19 – 19/20	2017/18 – 18/19	2018/19 – 19/20	2017/18 – 18/19	2018/19 – 19/20
C&W	+5.1%	+6.1%	+7.0%	+8.3%	+4.9%	+0.4%
MEH	+5.2%	+5.0%	+5.7%	+5.0%	+3.6%	+6.9%

Figure 9: Growth of Sales, Employees and Companies in C&W LEP

The five largest sub-sectors in the LCEGS sector by sales account for 64% of the C&W LEP's total sales and are made up of:

- Wind (£564m)
- Building Technologies (£528m)
- Alternative Fuels (£483m)
- Photovoltaic (£368m)
- Water & Waste Water Treatment (£274m)

Sub-sectors which saw stronger growth than the UK average between 2017/18 and 2019/20 include:

- Energy Management with 11.7% (MEH 11.4%, UK 5.7%)
- Air Pollution with 11.7% (MEH 11.4%, UK 5.8%)
- Alternative Fuel Vehicle with 11.7% (MEH 11.4%, UK 5.7%)
- Contaminated Land Reclamation and Remediation with 11.5% (MEH 11.4%, UK 1.0%)
- Hydro with 11.0% (MEH 11.0%, UK 1.8%)

Analysis by kMatrix suggests that clusters of businesses in C&W include:

- Building technologies businesses in Eastern Green, Foleshill, Hill Top, Keresley, Rugby and Willenhall

Recommendations specific to C&W LEP are detailed below.

4.b.i Optimise opportunities for the LCEGS sector through the Strategic Reset Framework

The C&W LEP Strategic Reset Framework is aimed at resetting the economy for a successful, inclusive, sustainable, and resilient future. Delivery will be to the wider climate change and sustainability agenda, encouraging a green recovery across all the local economy, and embracing new and innovative low carbon technologies. It will lead the drive for digitisation, automation, robotics and AI, electrification, active, intelligent and autonomous mobility.

Recommendation: The Midlands Energy Hub should ensure that the findings of his study are fed into the Strategic Reset Framework to help shape the focus and actions on the most promising LCEGS sub-sectors making up the economy. This also applies to the LEPs annual delivery plans.

4.b.ii Optimise opportunities and learning from the RESO project

The West Midlands Regional Energy Systems Operator (RESO) project is a £2.63 million two year design project which started in January 2020. The project is part-funded by Innovate UK through their Prospering from the Energy Revolution Programme and will develop a detailed design for a new local energy system for the city of Coventry and beyond. The project supports greater local input into energy decisions which takes into account heat, power and transport. The aim is to provide cleaner power, a reduction in bills, support for inward investment and provide economic growth opportunities.

This city level Living Lab with a whole systems approach is unique in its ambition to deliver a cross energy vector infrastructure, with real-time demand optimisation. This will complement Coventry's existing assets in the decarbonisation area including the district heating scheme, the Very Light Railway and all-electric bus plans.

The RESO project brings together local government, commercial and technical industries, infrastructure providers, industry leads, and leading universities in the area.

Recommendation: The Midlands Energy Hub should support the facilitation of knowledge sharing from the RESO projects across its network including regional stakeholders but also other Energy Hubs to optimise the benefits.

4.b.iii Support better collaboration across business support programmes

Stakeholder feedback: Whilst multiple business support programmes operate across the LEP area providing support on innovation, low carbon opportunities and training, connectivity between these programmes is not effective meaning that businesses miss out on the full suite of support that could be available.

Recommendation: The Midlands Energy Hub could facilitate better connectivity between the support programmes and engagement with key stakeholders to achieve this.

4.b.iv Build upon the existing green business directory

Recommendation: The existing green business directory is an excellent resource. Could this be built upon to produce a more interactive and appealing platform which allow the businesses to add their logo, images of their products, case studies, testimonials etc. This would incur costs but commercial sponsors could be secured to cover this expense. The existence of the green business directory should be promoted both locally, regionally and nationally to optimise the benefits for local businesses.

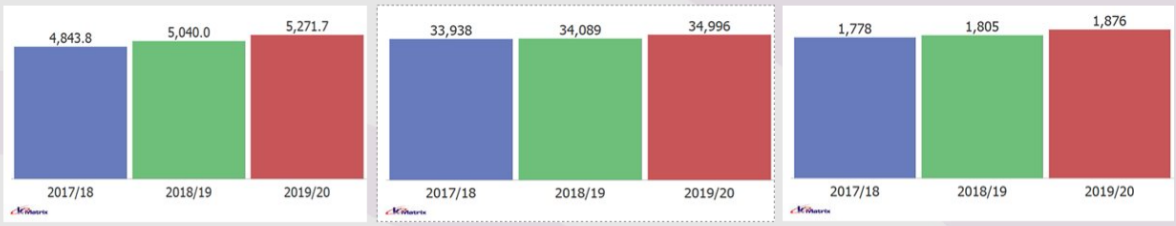
4.b.v Build upon the existing Business Sustain Programme

Stakeholder feedback: Business Sustain is an environmental consultancy team within Coventry City Council. The team advise national companies on environmental management including ISO 14001, environmental legislation and environmental legal compliance and registers of environmental and Health & Safety legislation.

Recommendation: Through their work with organisations in other areas of the country, the Business Sustain Team should signpost to local support that is available to businesses including that through the Midlands Energy Hub. The Midlands Energy Hub can also raise the profile of the support available from the Business Sustain Team across the wider region and should consider areas where working in partnership may bring additional benefits.

4.c D2N2 LEP

Background: D2N2 LEP's LCEGS sector was worth £5.3bn to the D2N2 LEP's economy in 2019/20, as indicated by the value of sales in the sector. These sales were generated by over 1,800 businesses that employed 35,000 people.



	Sales (£m)		Employment		Companies	
	2017/18 – 18/19	2018/19 – 19/20	2017/18 – 18/19	2018/19 – 19/20	2017/18 – 18/19	2018/19 – 19/20
D2N2	+4.1%	+4.6%	+0.4%	+2.7%	+1.6%	+3.9%
MEH	+5.2%	+5.0%	+5.7%	+5.0%	+3.6%	+6.9%

Figure 10: Growth of Sales, Employees and Companies in D2N2 LEP

The five largest sub-sectors in the LCEGS sector by sales account for 64% of the D2N2 LEP's total sales and are made up of:

- Wind (£874m)
- Building Technologies (£776m)
- Alternative Fuels (£770m)
- Photovoltaic (£551m)
- Water & Waste Water Treatment (£411m)

Sub-sectors which saw stronger growth than the UK average between 2017/18 and 2019/20 include:

- Alternative Fuel Vehicle with 8.9% (MEH 11.4%, UK 5.7%)
- Hydro with 8.9% (MEH 11.0%, UK 1.8%)
- Energy Management with 11.4% (MEH 11.4%, UK 5.7%)
- Contaminated Land Reclamation and Remediation with 8.8% (MEH 11.4%, UK 1.0%)
- Air Pollution with 8.7% (MEH 11.4%, UK 5.8%)

The draft Local Industrial Strategy highlights that the LEP holds more manufacturing jobs than any other LEP and the second highest manufacturing GVA (£8.1bn). It sets out the ambition to lead a skills revolution linked to automation, innovation and digitalisation, building on manufacturing strengths and innovation excellence based on the largest cluster of transport manufacturing and R&D in the country.

The LEP's Energy Strategy includes a target of 100 new businesses and and 1000 new jobs in the LCEGS sector by 2030.

Analysis by kMatrix suggests that clusters of businesses in D2N2 include:

- Solar PV businesses in central Nottingham, Corringham, Greasley
- Air source heat pump businesses in central Nottingham
- Waste management, recovery and recycling businesses in Central Derby, Doncaster and Ilkeston

Recommendations specific to D2N2 LEP are detailed below.

4.c.i Optimise opportunities for the LCEGS sector through the Local Industrial Strategy

The Local Industrial Strategy sets out plans to drive opportunities from HS2 at Toton and Chesterfield, redevelopment of Ratcliffe-on-Soar Power Station to include a low carbon futures HE Institute, strengthen advanced manufacturing clusters at Infinity Park and Pride Park in Derby, the thriving digital, creative and bioscience industries in Nottingham. It commits to use the expertise of most productive sectors (i.e. advanced manufacturing and engineering) to create a skills sharing programme that can address productivity issues in other sectors and to embed knowledge of climate change in education and skills programmes for all age groups. However, it details associated challenges including the fact that 54,000 jobs are at high risk of automation with a further 413,000 likely to experience various forms of automation and the high proportion of low skilled and low earning jobs, and long-term unemployment challenges.

Recommendation: The findings of this study will allow the LEP to further develop plans and ideas included in the Local Industrial Strategy through the granular evidence base provided, and also through the extensive range of stakeholders engaged in the process. Of all the LEPs, D2N2 had the greatest number of attendees at the focus groups and final conference, and the greatest cross-sector representation including the public and private sector. Both elements should be used to create an action plan for delivery against objectives in the Local Industrial Strategy and the Energy Strategy.

4.c.ii Support emerging strengths in modern methods of construction

The LEP area has emerging strengths in modern methods of construction (MMC), such as off-site manufacture and low carbon construction, including expertise in Nottingham Trent University and Laing O'Rourke's Explore Manufacturing facility near Worksop. The Strategic Economic Plan (SEP) identifies local challenges in ensuring a pipeline of skilled workers for the construction industry, exploiting advantages in the knowledge base, supporting the industry to adapt to digitisation and exploit the opportunities arising from MMC and low carbon technologies. Centre for Cities estimates that Mansfield and Ashfield have the highest share of jobs in occupations likely to shrink by 2030 through automation and digitisation with 29.4% of roles affected, compared to 21% in Nottingham and Derby and 20.2% across the UK.

Recommendation: The findings of this study will allow the LEP to further address the challenges specified in the SEP through the granular evidence base provided and also the consideration of local skills gaps and scaleable local sub-sectors. The Midlands Energy Hub should work closely with the LEP to ensure that all data is shared and used to shape action and delivery plans.

4.c.iii Support opportunities for redevelopment of the Ratcliffe on Soar Power Station

Ratcliffe-on-Soar power station has been supplying coal-fired electricity for over 50 years but will cease operation by 2025. Future plans focus on developing a centre for the development of zero carbon technology with support from local universities and the potential to create up to 20,000 jobs. Current plans for the site include consideration of a prototype nuclear fusion plant or 'Spherical Tokamak for Energy Production' (STEP) power station. Uniper, the owners of the site, have also submitted plans for an energy recovery facility known as the East Midlands Energy Re-Generation (EMERGE) Centre. The facility would generate energy from non-hazardous domestic and commercial waste left over from the recycling process.

Recommendation: The Midlands Energy Hub should feed into early stage discussions to ensure that the findings of this study are recognised and used to shape discussions around the potential for job and growth of sub-sectors in the region.

4.c.iv Build upon existing Sustainable East Midlands Forum & Low Carbon Business Network

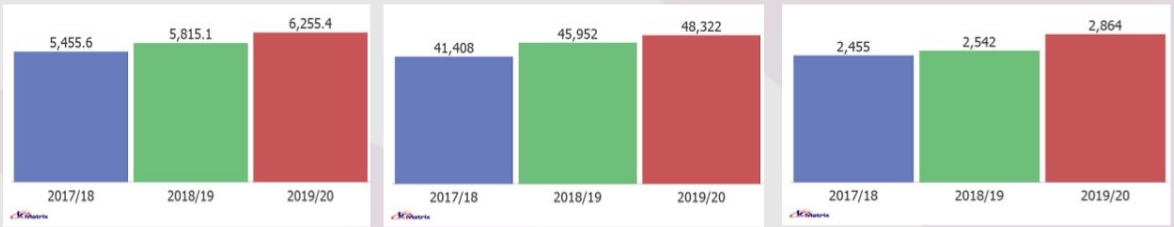
The Chamber's Sustainable East Midlands campaign highlights the opportunities available to businesses, provides examples of organisations already successfully engaged in the low-carbon agenda and showcases the support available to those that want to learn more.

The Low Carbon Business Network brings together businesses of all sizes and sectors to learn more about embracing the shift towards a low carbon economy. It includes organisations that provide a service or product that helps reduce greenhouse gas emissions, or who would like to extend their business into this area in the future. The Network also welcomes procurers of LCEGS from larger corporate and public sector organisations as well other supporting stakeholders. Most companies are from Derbyshire (66%) and Nottinghamshire (29%) and the network is managed by the University of Derby.

Recommendation: The Midlands Energy Hub should work closely with the Forum and Network to optimise the benefits for business. Findings from this study should be communicated to Forum and Network members and used to light the potential opportunities for the sector.

4.d Greater Birmingham & Solihull LEP

Background: GBSLEP's LCEGS sector was worth £6.3bn to the LEP's economy in 2019/20, as indicated by the value of sales in the sector. These sales were generated by over 2,800 businesses that employed 48,000 people.



	Sales (£m)		Employment		Companies	
	2017/18 – 18/19	2018/19 – 19/20	2017/18 – 18/19	2018/19 – 19/20	2017/18 – 18/19	2018/19 – 19/20
GBS	+6.6%	+7.6%	+11%	+5.2%	+3.6%	+12.7%
MEH	+5.2%	+5.0%	+5.7%	+5.0%	+3.6%	+6.9%

Figure 11: Growth of Sales, Employees and Companies in GBSLEP

The six largest sub-sectors in the LCEGS sector by sales account for 70% of GBSLEP's total sales and are made up of:

- Wind (£1.0bn)
- Building Technologies (£947m)
- Alternative Fuels (£856m)
- Photovoltaic (£655m)
- Water & Waste Water Treatment (£455m)
- Biomass (£452m)

Sub-sectors which saw stronger growth than the UK average between 2017/18 and 2019/20 include:

- Energy Management with 14.8% (MEH 11.4%, UK 5.7%)
- Building Technologies with 14.7% (MEH 11.5%, UK 13.7%)
- Waste Management with 14.7% (MEH 11.2%, UK 12.6%)
- Air Pollution with 14.7% (MEH 11.4%, UK 5.8%)
- Water and Waste Water Treatment with 14.7% (MEH 11.3%, UK 12.7%)
- Contaminated Land Reclamation and Remediation with 14.7% (MEH 11.4%, UK 1.0%)
- Alternative Fuels with 14.6% (MEH 11.4%, UK 13.8%)
- Recovery and Recycling with 14.5% (MEH 11.3%, UK 13.7%)
- Alternative Fuel Vehicle with 14.5% (MEH 11.4%, UK 5.7%)
- Environmental Monitoring with 14.5% (MEH11.3%, UK 12.2%)
- Renewable Energy General Consultancy with 14.4% (MEH 11.3%, UK 10.8%)
- Hydro with 14.2% (MEH 11.0%, UK 1.8%)
- Marine Pollution Control with 13.8% (MEH 11.4%, UK12.7%)

On behalf of the WMCA GBSLEP has led on the development and delivery against the Low Carbon and Environmental Technologies Action Plan which has been expanded to focus on a green recovery from Covid-19.

Analysis by kMatrix suggests that clusters of businesses in GBSLEP include:

- Building technologies businesses in central Birmingham, Tyseley, Balsall Heath, Highgate, Deritend, Edgbaston, Aston, Shirley, Redditch, and Halesowen
- Energy management businesses in Perry Barr
- Solar PV businesses in Shirley, Solihull and Hampton in Arden
- Waste management businesses in Alvechurch

Recommendations specific to GBSLEP are detailed below.

4.d.i Strengthen the Low Carbon and Environmental Technologies Action Plan

GBSLEP has developed the region's first Low Carbon and Environmental Technologies Action Plan that aims to ensure the low-carbon businesses in the region are well-placed to grow during the transition to net zero. Implementation of the Action Plan is overseen by the Low Carbon Steering Group, set-up and managed by the GBSLEP. The Steering Group meets quarterly and contains members from a range of small, medium and large organisations, all based in the West Midlands and working in the LCEGS Sector. The following actions are directly linked to the scope of this study:

- Quantitative analysis of regional LCEGS labour market and skills gaps
- Development of digital web platform to showcase regional projects/businesses
- Coordination with regional stakeholders to define how local LCEGS businesses can participate in regional opportunities

Recommendation: The Midlands Energy Hub should work closely with the Low Carbon Steering Group to optimise the sharing of data and findings from this study to benefit the Sector Action Plan and avoid duplication.

Recommendation: Now that further information is available on the composition of the LCEGS sector across the three-LEP geography of the WMCA (GBS, C&W and the Black Country), membership of the Low Carbon Steering Group should be reviewed to ensure that it best represents these sub-sectors.

Recommendation: The priorities of the Low Carbon and Environmental Technologies Action Plan are aligned to the West Midlands Innovation Programme and both workstreams should be aligned to optimise opportunities.

4.d.ii Strengthen the Skills and Apprenticeship Hub

In November 2020 GBSLEP launched the Skills and Apprenticeship Hub. This will allow a business focused skill offer to be provided to employers across the GBSLEP area. Apprenticeship Advisers and Skills Brokers will work with employers to design and develop a demand-led approach to training. Employers can have their training needs analysed and a bespoke skills plan developed that will identify appropriate programmes and provision in a focused package of support. The Hub will deliver employer focused Government initiatives such as Plan for Jobs, Kickstart, apprenticeship grants and traineeships. Working with partners, the Hub will implement solutions bringing job creation initiatives together with current business needs to support recovery.

Recommendation: It is recognised that the Skills and Apprenticeship Hub has only been in operation for three months. However, there is huge potential for the Hub to support the transition of businesses in the area to the LCEGS sector. The Midlands Energy Hub should establish links with those working at the Skills and Apprenticeship Hub to ensure that data on skills and jobs from this study is shared, and so that the support offer can be tailored accordingly. The data on scalability of sub-sectors in the GBSLEP area could be particularly useful in shaping the support available to specific businesses.

4.d.iii Utilise and share learning from pilot support and funding for the LCEGS sector

GBSLEP has shown innovation by piloting several programmes of support and funding aimed at benefiting the LCGES sector. This includes:

- The Innovation Pilot which used challenge events, company-centric innovation support and small innovation grants to test and demonstrate effective approaches to increasing business innovation in key growth industries including advanced manufacturing & engineering, health and life sciences and low carbon environmental technologies & services sectors. Consortium members included Sustainability West Midlands, the Innovation Alliance for the West Midlands, Midlands Aerospace Alliance, Innovation Birmingham, and Innovation Xchange. Successful businesses benefited from tailored support and a £5,000 grant.
- The Pilot Low Carbon Grant Fund was targeted at SMEs, and designed to support the development of high-growth, low-carbon technology projects in the region, by funding market research and feasibility studies up to a value of £35,000.
- The Pivot and Prosper Grant Fund was launched as part of the first phase of the Step Forward campaign – a series of schemes to help support businesses in key strategic sectors including Advanced Manufacturing & Engineering and Energy & Low Carbon. Businesses have each been awarded up to £40,000 match funding. £1.9 million has been awarded to 52 to help adapt their business models in response to the economic impact of Covid-19. 149 jobs have been created and a further 499 jobs have been safeguarded.

Recommendation: Learning from these programme must be captured and used to shape future funding and support, both within the GBSLEP area and more widely. Case studies of businesses in the LCEGS sector that have benefited from the support could be created to illustrate the success of these programmes.

4.d.iv Optimise opportunities associated with the Tyseley Energy Park

Tyseley Energy Park (TEP) aims to drive industrial growth alongside the green technologies sector. The energy park sits on one of the UK's oldest manufacturing sites, Webster and Horsfall. TEP is focused on:

- Generating low and zero carbon energy and fuels from waste
- Producing low and zero carbon transport fuels including hydrogen, electric charging, biogas and biodiesel
- Innovation in clean technology business through direct access to research, testing and laboratory facilities at the University of Birmingham's Energy Innovation Centre
- Low carbon heating via the National Centre for the Decarbonisation of Heat and skills academy
- Incubating companies/technologies through the Energy Incubation Hub including:
    - Fuel cell and hydrogen production
    - Smart grids
    - Decarbonisation of heating and cooling
    - Recycling critical materials, e.g. rare earth metals
- Influencing and shaping regional policy to support clean growth and driving change

Recommendation: The development of Tyseley Energy Park is an inspirational example of how a traditional business has diversified successfully into the LCEGS through partnership working and innovation. It should be used by all stakeholders as a good practice example and should be used to shape activities in other LEPs such as the redevelopment of Ratcliffe on Soar Power Station in D2N2.

4.d.v Build upon the existing Solihull Sustainability Visioning Group

Stakeholder feedback: Solihull Sustainability Visioning Group is a well established network of businesses in Solihull managed by the Borough Council. The Group aims to help Solihull to be at the forefront of sustainable business development and a showcase for environmental business standards, supporting Solihull's transition to a low carbon economy. It is chaired by a representative from JLR and led by senior

business representatives and stakeholders. There is no equivalent network for businesses in the Birmingham area.

Recommendation: Consideration should be given to the best means of providing a network for businesses in, or keen to join, the LCEGS sector in Birmingham. This could be a separate entity to the Solihull Sustainability Visioning Group or the remit of the Solihull group could be broadened to include the broader geography of the GBSLEP, with support from Birmingham City Council and the LEP.

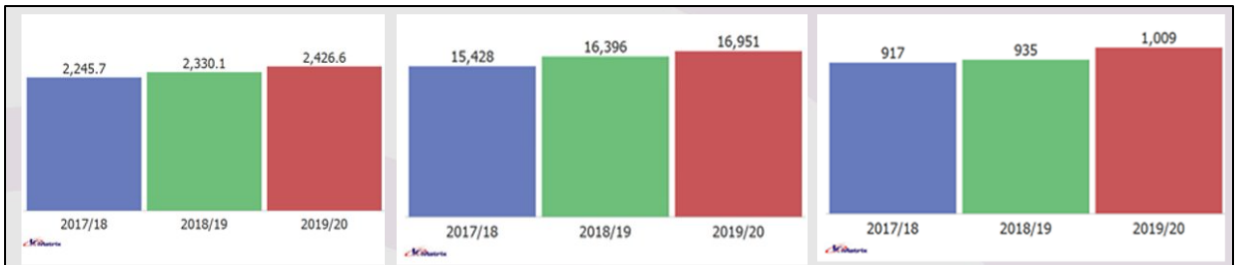
4.d.vi Improve cross-sector partnership working

Stakeholder feedback: There is a huge amount of activity focused on growing the LCEGS sector across the GBSLEP geography being led by a wide range of different stakeholders including the LEP, the Midlands Energy Hub, local authorities including Birmingham and their Route to Zero Taskforce, universities and NGOs. Many have complimentary objectives and yet partnership working is not as effective as it could be, leading to duplication.

Recommendation: Improved partnership working across all partners focused on the growth of the LCEGS sector must be facilitated and can be supported by the Midlands Energy Hub and the LEP.

4.e Greater Lincolnshire LEP

Background: Greater Lincolnshire LEP's LCEGS sector was worth £2.4bn to the LEP's economy in 2019/20, as indicated by the value of sales in the sector. These sales were generated by over 1,000 businesses that employed almost 17,000 people.



	Sales (£m)		Employment		Companies	
	2017/18 – 18/19	2018/19 – 19/20	2017/18 – 18/19	2018/19 – 19/20	2017/18 – 18/19	2018/19 – 19/20
GL	+3.8%	+4.1%	+6.3%	+3.4%	+2.0%	+7.9%
MEH	+5.2%	+5.0%	+5.7%	+5.0%	+3.6%	+6.9%

Figure 12: Growth of Sales, Employees and Companies in Gt. Lincs LEP

The four largest sub-sectors in the LCEGS sector by sales account for 56% of the LEP's total sales and are made up of:

- Wind (£399m)
- Building Technologies (£366m)
- Alternative Fuels (£348m)
- Photovoltaic (£249m)

Sub-sectors which saw stronger growth than the UK average between 2017/18 and 2019/20 include:

- Hydro with 8.5% (MEH 11.0%, UK 1.8%)
- Contaminated Land Reclamation and Remediation with 8.2% (MEH 11.4%, UK 1.0%)
- Energy Management with 8.2% (MEH 11.4%, UK 5.7%)
- Alternative Fuel Vehicle with 8.1% (MEH 11.4%, UK 5.7%)
- Air Pollution with 7.3% (MEH 11.4%, UK 5.8%)

Grimsby is already the largest offshore and maintenance supply base in the UK and its offshore renewables cluster is supported by specialist training providers, including:

- Humber Offshore Training Association (HOTA)
- Grimsby Institute: FE and HE courses in electrical, mechanical and operations engineering and logistics
- CATCH: accredited training for the offshore renewables and industrial sectors.
- Maersk Training Humber

Alongside a strong energy sector the LEP is home to specialist expertise in packaging, food waste management and sustainable energy with a large manufacturing base and agri-food sector.
The Humber Bank's sizeable industrial cluster and power generation assets provide the critical mass required for large-scale deployment of carbon capture technology with transportation infrastructure. The area's close proximity to large available storage sites means there is capacity to deliver substantial reductions of carbon emissions in a relatively short period of time. With the Humber Estuary emitting more CO_2 than any other industrial cluster, introducing CCS in the region would make a significant contribution to reducing UK emissions.

Analysis by kMatrix suggests that clusters of businesses in Greater Lincolnshire include:

- Waste management businesses in Baumber
- Air source heat pump businesses in Peterborough
- Solar PV businesses in Peterborough

Recommendations specific to Greater Lincolnshire LEP are detailed below.

4.e.i Support delivery of the Business and Economy Recovery Plan

The Business and Economy Recovery Plan published in June 2020 focuses on short and medium term so that the Greater Lincolnshire and Rutland economies provide prosperity to their residents, businesses, and communities as well as making a substantial economic contribution to the national economy. The plan sets out an ambition to deliver targeted Energy Events for businesses across the whole county, including technology road show events, highlighting energy technologies that are available to business, and a SME Energy Efficiency Event looking at the future business benefits to be gained. It also identifies a priority to create a grant scheme for SMEs to access energy solutions (similar to those in Worcestershire and The Marches).

Recommendation: The Midlands Energy Hub should work with the LEP to support the delivery of the planned events and the SME grant scheme to ensure that they are based on the evidence gathered as part of this study.

4.e.ii Support development and delivery of the Draft Local Industrial Strategy

The Draft Local Industrial Strategy sets out the ambition for Greater Lincolnshire to become a rural innovation test bed for energy and water technologies in generation, storage and distribution, and

maximise benefits from the energy cluster by adopting new 'whole of system' thinking to managing energy. Other aims include:

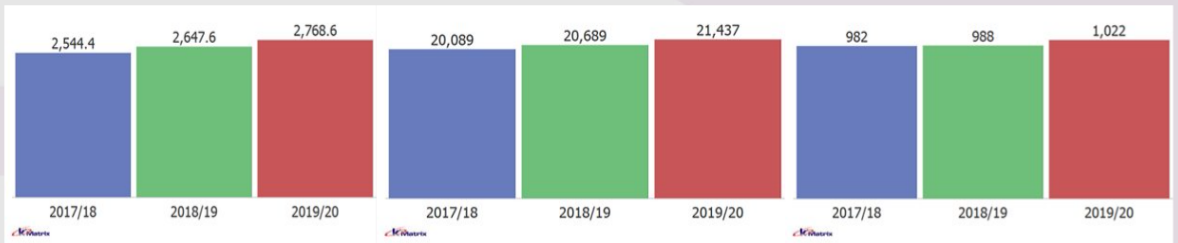
- Develop and implement sector skills plan to upskill the agri-food sector
- Target digital and engineering skills for water and energy sector
- Deliver a Carbon Neutral Business Zone
- Support SMEs to engage with the circular economy through better information and guidance
- Create strong offer to promote high potential opportunities to foreign investors around agri-food and clean growth

Recommendation: The Midlands Energy Hub should work with the LEP to support the development and delivery of the draft Local Industrial Strategy and to share learning from other areas where it will be beneficial. For instance, the RESO project in C&W LEP may provide valuable insight into the objective of adopting new whole system thinking to managing energy.

Recommendation: The West Midlands Combined Authority have established a Circular Economy Taskforce and are developing a Circular Economy Routemap. Whilst this will be focused on the WMCA area, some of the recommendations may be transferable and helpful in meeting the ambition of supporting SMEs to engage with the circular economy through better information and guidance.

4.f Leicester & Leicestershire LEP

Background: Leicester & Leicestershire LEP (LLEP) LCEGS sector was worth £2.8bn to the LEP's economy in 2019/20, as indicated by the value of sales in the sector. These sales were generated by over 1,000 businesses that employed over 21,000 people.



	Sales (£m)		Employment		Companies	
	2017/18 – 18/19	2018/19 – 19/20	2017/18 – 18/19	2018/19 – 19/20	2017/18 – 18/19	2018/19 – 19/20
L&L	+4.1%	+4.6%	+3.0%	+3.6%	+0.5%	+3.5%
MEH	+5.2%	+5.0%	+5.7%	+5.0%	+3.6%	+6.9%

Figure 13: Growth of Sales, Employees and Companies in LLEP

The four largest sub-sectors in the LCEGS sector by sales account for 56% of LEP's total sales and are made up of:

- Wind (£474m)
- Building Technologies (£394m)
- Alternative Fuels (£384m)
- Photovoltaic (£296m)

Sub-sectors which saw stronger growth than the UK average between 2017/18 and 2019/20 include:

- Hydro with 9.5% (MEH 11.0%, UK 1.8%)
- Contaminated Land Reclamation and Remediation with 9.0% (MEH 11.4%, UK 1.0%)
- Energy Management with 8.9% (MEH 11.4%, UK 5.7%)
- Air Pollution with 8.9% (MEH 11.4%, UK 5.8%)
- Alternative Fuel Vehicle with 8.9% (MEH 11.4%, UK 5.7%)

The LEP has prioritised the Low Carbon sector in economic recovery plans and, rather than having separate strategy for the sector, it is a cross-cutting theme throughout the whole recovery plan.

The Skills Evidence Base Summary presented to the LEP Skills Advisory Panel in January 2020 highlights the impact of climate change on the manufacturing, agriculture, transport and construction sectors.

The LEP sits on the eastern side of the logistics 'Golden Triangle' formed by the M1, M42, and M6, motorways, a logistics hot spot where road, rail, sea and air links meet. The area is home to national distribution centres such as Magna Park and the SEGRO Logistics Park East Midlands Gateway. Loughborough University Science and Enterprise Park is home to public and private sector organisations co-located with internationally significant research activity in renewables and energy storage, aeronautical and automotive.

The Local Industrial Strategy Economic Review undertaken by Oxford Economics in June 2019 states that *'Regards clean growth there are a range of examples of businesses and academic research, but that there does not overall appear to be a greater specialism than average. Many Universities across the country have clean growth or low carbon research agendas, and many local economies have built clean growth and related activity into their local strategies. Therefore, we are not convinced this should be the focus of the LLEP.'*

Analysis by kMatrix suggests that clusters of businesses in LLEP include:

- Energy management businesses in Clawson Hose & Harby
- Waste management, recovery and recycling businesses in Melton Mowbray and central Leicester

Recommendations specific to LLEP are detailed below.

4.f.i Optimise opportunities for the LCEGS sector through the Local Industrial Strategy

The Local Industrial Strategy Prospectus sets out an ambition to develop a low carbon pilot to support the advanced logistics sector to develop and adopt new technologies to deliver clean growth, as well as various opportunities to support advanced manufacturing and engineering.

Recommendation: The findings of this study will allow the LEP to further develop plans and ideas included in the Local Industrial Strategy through the granular evidence base provided, and also through the extensive range of stakeholders engaged in the process.

4.f.ii Optimise opportunities for the LCEGS sector through the LEP Board

Stakeholder feedback: Influence from banks and the finance community will be important in driving change amongst businesses. Some banks including NatWest are actively pushing the low carbon agenda.

Recommendation: The LEP Board of Directors includes representation from Natwest. Could this be used to highlight the potential role of banks and the finance community in driving change?

4.f.iii Raise the profile of support available in the area

Stakeholder feedback: There is a range of support available in the area for businesses looking to address their emissions and to move into the low carbon sector. This includes the Green BELLE ERDF project which can support SMEs to increase energy efficiency, reduce energy costs and lower carbon emissions. Grants of £1,000 to £7,000 are available to support the installation of low carbon and energy efficient technologies. The Energy for Business scheme administered by the University of Nottingham is also available to SMEs in LLEP. However, awareness of this type of support could be improved.

Recommendation: The Midlands Energy Hub should work with other business support organisations to help raise awareness amongst businesses of the support and funding available.

4.f.iv Support delivery of net-zero business events

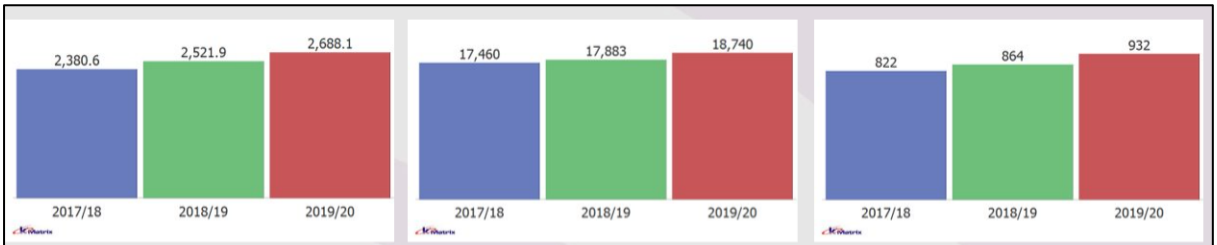
The LLEP plans to deliver a series of events aimed at engaging over 60 businesses from the area in setting out the benefits of addressing greenhouse gas emissions and the opportunities associated with the LCEGS sector. These will be delivered between April and June 2021.

Recommendation: The Midlands Energy Hub should work with the LEP to support the delivery of the planned events to ensure that they are based on the evidence gathered as part of this study.

4.g Stoke & Staffordshire LEP

Stoke-on-Trent & Staffordshire Enterprise Partnership

Background: S&S LEP's LCEGS sector was worth £2.7bn to the LEP's economy in 2019/20, as indicated by the value of sales in the sector. These sales were generated by over 900 businesses that employed over 18,500 people.



	Sales (£m)		Employment		Companies	
	2017/18 – 18/19	2018/19 – 19/20	2017/18 – 18/19	2018/19 – 19/20	2017/18 – 18/19	2018/19 – 19/20
S&S	+5.9%	+6.0%	+2.4%	+4.8%	+5.2%	+7.8%
MEH	+5.2%	+5.0%	+5.7%	+5.0%	+3.6%	+6.9%

Figure 14: Growth of Sales, Employees and Companies in Stoke & Staffordshire LEP

The four largest sub-sectors in the LCEGS sector by sales account for 57% of LEP's total sales and are made up of:

- Wind (£441m)
- Building Technologies (£417m)

- Alternative Fuels (£381m)
- Photovoltaic (£284m)

Sub-sectors which saw stronger growth than the UK average between 2017/18 and 2019/20 include:

- Marine Pollution Control with 16.7% (MEH 11.4%, UK 12.7%)
- Environmental Monitoring with 14.3% (MEH 11.3%, UK 12.2%)
- Air Pollution with 13.3% (MEH 11.4%, UK 5.8%)
- Renewable Energy General Consultancy with 13.3% (MEH 11.3%, UK 10.8%)
- Water and Waste Water Treatment with 13.2% (MEH 11.3%, UK 12.7%)
- Contaminated Land Reclamation and Remediation with 12.9% (MEH 11.4%, UK 1.0%)
- Energy Management with 12.8% (MEH 11.4%, UK 5.7%)
- Alternative Fuel Vehicle with 12.8% (MEH 11.4%, UK 5.7%)
- Hydro with 11.7% (MEH 11.0%, UK 1.8%)

Recent policy documents from the LEP recognise the contribution of the LCEGS sector to the economy and the wider benefits that low carbon activities bring. The Delivery Plan for 2020-21 sets out key infrastructure actions including:

- Partners including the Midlands Engine and Energy Hub to provide additional technical resource to local authority partners to identify renewable energy opportunities and support post-pandemic 'green recovery'
- Local authority partners to produce a climate change study as evidence feeding into local spatial plans
- Local Industrial Strategy Implementation Plan to reflect energy theme and green recovery

The Staffordshire Council five year strategy to respond to the Covid-19 crisis includes a Vision 'that the Staffordshire economy recovers, renews and transforms post Covid-19 into a place where clean, productive businesses are created and thrive whilst existing business are supported to fully participate in the new, stronger, more competitive economy; ensuring that everyone in Staffordshire has access to more good jobs and shares the benefits of economic growth'.
It recognises the need for a shift in business models and to embrace the digital and climate change opportunities. Climate change should be at the heart of thinking and delivery planning.

Currently there is no Regional Senior Energy Projects Officer allocated to the S&S LEP but recruitment into this post is anticipated.

Analysis by kMatrix suggests that clusters of businesses in S&S include:

- Air source heat pump businesses in Newcastle-under-Lyme and Stoke-on-Trent

Recommendations specific to S&SEP are detailed below.

4.g.i Build upon the existing Staffordshire Business Environment Network (sben)

Stakeholder feedback: Staffordshire Business & Environment Network (sben) was launched in 1992 and is the most long-running and extensive green business network across the Midlands. It is a membership organisation, entitling members to subsidised and free initiatives from within the sben portfolio. The Network helps raise business awareness through seminars and enhance skills and knowledge through environmental training and counselling. It also provides practical advice on developing and implementing environmental policies as well as promoting examples of good environmental practice.

Recommendation: The expertise of the team at sben should be utilised to support the implementation of low carbon business networks in areas of the Midlands where they do not currently exist including Birmingham and the Black Country. The LCEGS sector businesses represented by sben are an excellent means of engagement when designing future policy, funding and support to ensure that it best meets the needs of local organisations.

4.g.ii Address future skills needs via specialist training courses

Stakeholder feedback: The Heat Skills Training Academy and forthcoming Digital Construction Skills focus at Stoke College aims to support future skills needs. There is concern that the Heat Skills Training Academy is not meeting its core ambitions despite being established by high ambition at the LEP. Small businesses in particular are not being advised of the opportunities available through the college.

Recommendation: Business facing organisations including sben, the Chamber and the Growth Hub should be equipped to advise businesses on the training opportunities available at the College and through other providers across the LEP that can support the transition to a low carbon economy.

4.g.iii Optimise the benefit of the HyDeploy project

Stakeholder feedback: The HyDeploy project is exploring the potential of hydrogen to reduce CO_2 emissions from heating UK homes and businesses. It will establish the potential for blending hydrogen with a 16 month live demonstration taking place on part of the Keele University gas network ending in March 2021. HyDeploy will help to determine the level of hydrogen which can be used by customers safely and with no changes to their existing domestic appliances. A further pilot is taking place in the North East.

Recommendation: The results of the Keele HyDeploy demonstrator will be of interest to cross-sector stakeholders across the region and beyond and should be shared widely.

4.g.iv Provide bespoke support to decarbonise the ceramics sector

Stakeholder feedback: There is a perception that not enough is being done to support opportunities for decarbonisation of the ceramics sector and to explore opportunities for associated supply chain opportunities such as advanced manufacturing, water filtration and semiconductors.

Recommendation: Information on activities aimed at supporting the ceramics sector to decarbonize should be shared with all partners. Opportunities to improve this support should be explored with representatives from the sector.

4.h The Marches LEP

Background: The Marches LEP's LCEGS sector was worth £1.8bn to the LEP's economy in 2019/20, as indicated by the value of sales in the sector. These sales were generated by over 700 businesses that employed over 12,500 people.

	Sales (£m)		Employment		Companies	
	2017/18 – 18/19	2018/19 – 19/20	2017/18 – 18/19	2018/19 – 19/20	2017/18 – 18/19	2018/19 – 19/20
Marches	+6.2%	+6.4%	+3.2%	+3.7%	+7.1%	+4.6%
MEH	+5.2%	+5.0%	+5.7%	+5.0%	+3.6%	+6.9%

Figure 15: Growth of Sales, Employees and Companies in The Marches LEP

The four largest sub-sectors in the LCEGS sector by sales account for 57% of the LEP's total sales and are made up of:

- Building Technologies (£286m)
- Wind (£286m)
- Alternative Fuels (£260m)
- Photovoltaic (£191m)

Sub-sectors which saw stronger growth than the UK average between 2017/18 and 2019/20 include:

- Hydro with 13.3% (MEH 11.0%, UK 1.8%)
- Alternative Fuel Vehicle with 13.1% (MEH 11.4%, UK 5.7%)
- Energy Management with 13.1% (MEH 11.4%, UK 5.7%)
- Renewable Energy General Consultancy with 13.1% (MEH 11.3%, UK 10.8%)
- Environmental Monitoring with 13.0% (MEH 11.3%, UK 12.2%)
- Marine Pollution Control with 13.0% (MEH 11.4%, UK 12.7%)
- Air Pollution with 13.0% (MEH 11.4%, UK 5.8%)
- Waste Management with 13.0% (MEH 11.2%, UK 12.6%)
- Water & waste Water Treatment with 10.3% (MEH 11.3%, UK 12.7%)
- Contaminated Land Reclamation and Remediation with 8.8% (MEH 11.4%, UK 1.0%)

The Marches Energy Strategy includes a target of 1,000 new jobs in the Low Carbon and Environmental Goods and Services sector by 2038 and for the LEP to become a national leader in deployment of anaerobic digestion.

Analysis by kMatrix suggests that clusters of businesses in the Marches include:

- Solar PV and other energy related businesses in Shrewsbury and Hadley in Telford
- Building technologies businesses in Telford
- Waste management, recovery and recycling businesses in Telford

Recommendations specific to The Marches LEP are detailed below.

4.h.i Develop an evidence-based plan for growth of the LCEGS sector

The LEP undertook a Sector Skills Deep Dive into Environmental Technologies in 2020 and the findings highlight many opportunities and challenges. In 2019 there were 6,270 agri-tech businesses which is 17.5% compared to the UK average of 4.9%. The total number of apprenticeships (across all sectors) is

6,360. Of these just 10 were unique apprenticeships associated with the environmental technologies sector. NMITE is a new higher education institution in Hereford which focuses on engineering subjects. In 2019 there were 2,029 environmental technologies job adverts. The highest demand was in Shropshire which accounted for 43.7% of all vacancies, followed by Herefordshire with 36.7%, and Telford and Wrekin with 19.6%. The top job employers were looking to hire was architectural technicians and the top requested skill was planning permission followed by AutoCAD and risk analysis. Environmental technologies has an acute skills gap at 48%.

Although still a relatively small sector, environmental technologies represents one of the fastest growing sectors in the Marches. This healthy outlook depends in part on addressing barriers to growth including a need for knowledge and innovation support and a range of skills from vocational Level 2 to postgraduate.

Recommendation: The Sector Skills Deep Dive should be used in conjunction with the findings from this study to produce a plan for growth of the LCEGS sector, focused primarily on skills and business support. This should include consideration of whether the target of 1,000 new businesses in the LCEGS sector is still valid or needs to be updated.

4.h.ii Develop evidence-based support programmes for businesses

The Local Industrial Strategy includes the objective of developing new programmes of support, targeting high growth potential firms, and supply chain firms, particularly focused on the move to low carbon/electric and autonomous transport and agriculture, including support for firms who could export but do not currently do so.

Recommendation: The finding of this study and the evidence base produced allow for the identification of high growth potential sectors and supply chain companies. This knowledge should be used to shape specific support offers in partnership with these organisations.

4.h.iii Optimise benefits from 'Unlocking opportunities for the Severn Regional Growth Zone' project

The River Severn Partnership brings together multiple organisations, resources and skills to drive resilient and sustainable economic growth along Britain's longest river network, creating the Severn Regional Growth Zone. The strategy will identify an accelerated programme of integrated water management infrastructure which will address constraints and target areas of mutual benefits across housing, energy, transport, agriculture and other sectors. It will provide a long-term programme of skills development in water management and be a catalyst for apprenticeships, degree apprenticeships and other learning.

Recommendation: Greater integration of this activity could bring benefit to the LEP through alignment of policy such as the Local Industrial Strategy and annual plans.

4.h.iv Build upon existing business networks

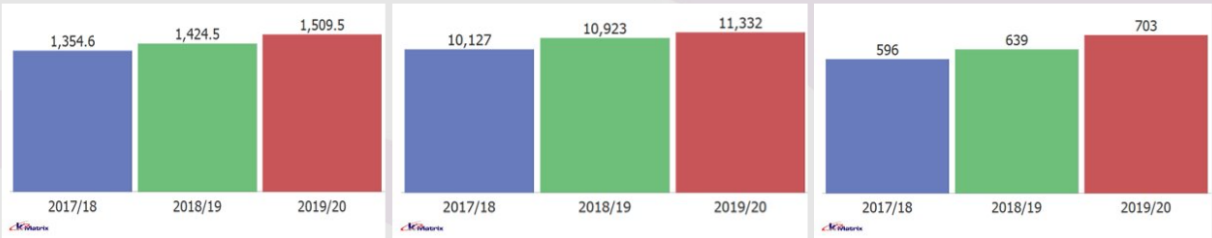
The Marches is home to several business networks focused on the LCEGS sector. This includes the well-established BESST (Business Environment Support Scheme for Telford) network as well as Meres and Mosses Business Environment Network (MMBEN) and the Shropshire Climate Action Partnership.

Recommendation: These networks should continue to be supported and their support highlighted to businesses. Consideration could be given to an 'umbrella' brand to bring them all together such as

'Marches Business Environment Networks' allowing for a more coordinated approach and simplicity for businesses.

4.i Worcestershire LEP

Background: Worcestershire LEP's Low Carbon and Environmental Goods and Services (LCEGS) sector was worth £1.5bn to the Worcestershire LEP's economy in 2019/20, as indicated by the value of sales in the sector. These sales were generated by over 700 businesses that employed over 11,000 people in the sector in 2019/20.



	Sales (£m)		Employment		Companies	
	2017/18 – 18/19	2018/19 – 19/20	2017/18 – 18/19	2018/19 – 19/20	2017/18 – 18/19	2018/19 – 19/20
Worc	+5.2%	+6.0%	+7.9%	+3.7%	+7.3%	+9.9%
MEH	+5.2%	+5.0%	+5.7%	+5.0%	+3.6%	+6.9%

Figure 16: Growth of Sales, Employees and Companies in Worcestershire LEP

The four largest sub-sectors in the Low Carbon and Environmental Goods and Services sector by sales account for 56% of the Worcestershire LEP's total sales and are made up of:

- Wind (£251m)
- Building Technologies (£225m)
- Alternative Fuels (£219m)
- Photovoltaic (£152m)

Sub-sectors which saw stronger growth than the UK average between 2017/18 and 2019/20 include:

- Marine Pollution Control with 14.3% (MEH 11.4%, UK 12.7%)
- Hydro with 12.5% (MEH 11.0%, UK 1.8%)
- Air Pollution with 12.5% (MEH 11.4%, UK 5.8%)
- Energy Management with 11.7% (MEH 11.4%, UK 5.7%)
- Alternative Fuel Vehicle with 11.4% (MEH 11.4%, UK 5.7%)
- Contaminated Land Reclamation and Remediation with 10.8% (MEH 11.4%, UK 1.0%)

Worcestershire's Energy Strategy sets out the Vision for the LEP area which includes by 2030, having a thriving low carbon economy which supports the creation of high-value jobs, and stimulates investment and clean growth across the county. A target for growth of the low carbon sector has been put in place. Worcestershire's low carbon sector aims to grow by greater than the national average every year. Growth in Worcestershire's low carbon sector of 5% annually will lead to a doubling in size from £334m to £662m by 2030. This target is also included in the Local Industrial Strategy.

Analysis by kMatrix suggests that clusters of businesses in Worcestershire include:

- Air source heat pump businesses in Malvern

- Building technologies businesses in central Worcester

Recommendations specific to Worcestershire LEP are detailed below.

4.i.i Review Energy Strategy and Local Industrial Strategy LCEGS Targets

Worcestershire has shown ambition by including a target to double growth of the LCEGS by 2030 in their Energy Strategy. However, the target was based upon historical data and this new analysis demonstrates that the sector is already worth greater than the £662m aimed for by 2030.

Recommendation: The LEP should use the evidence base provided by this study to define new targets for growth of the sector by 2030, thinking about the unique strengths of the area and scalability of certain sub-sectors.

4.i.ii Build upon Water Infrastructure Investment Framework

Worcestershire LEP have been working with various partners including the Environment Agency as part of the River Severn Partnership and their approach to 'Unlocking opportunities for the Severn Regional Growth Zone'. This has resulted in the inclusion of outline plans for a Water Infrastructure Investment Framework in their Local Industrial Strategy Prospectus which will result in growth of the LCEGS sector in sub-sectors including water and waste water treatment, hydro and agri-tech.

Recommendation: The full scope of the Water Infrastructure Investment Framework should be defined and informed by the evidence base produced for this study. Learning from the 'Unlocking opportunities for the Severn Regional Growth Zone' work should be shared with other LEP's that may benefit from such an approach including The Marches.

4.i.iii Support futureproofing of skills in the agri-tech, construction and other sectors

The Local Industrial Strategy Prospectus highlights the strength of the local agri-tech sector focused in Wyre Forest, Wychavon and Malvern Hills. The number of employees in this sub-sector outperforms GB and the WM. Pershore College's Agri-Tech Research Centre has elevated the Worcestershire AgriTech offer, improving the skills base and providing opportunities for greater collaboration between employers and improving sectoral engagement around research and development. However, it is recognized that the agri-tech sector will benefit from the promotion of complementarity/hybrid roles focused on STEM, digital and technical skills. The Construction and Automotive Skills Centre in Kidderminster and Heart of Worcestershire College Duckworth Centre of Engineering will support future skills needs.

Recommendation: The evidence base for this study highlights skills gaps for the LEP including modeling around future net zero scenario modeling for 2030 and 2050. This indicates a shortfall in various roles including technicians, scientists, and engineers. This analysis should be used to shape discussions with training providers across the LEP to shape their offer and course design.

Recommendation: The Literature Review associated with this study shows that a study into the potential for 'Agri-Tech West' was undertaken on behalf of Worcestershire LEP along with S&S, The Marches and Cheshire and Warrington. It is unclear whether the recommendations were ever implemented and this network and united approach ever implemented. If not, there is a case for reconsidering the benefits and for including Greater Lincolnshire in any future activity.

5. Summary of Recommendations

3	Midlands Recommendations
3.a	**Policy & Governance**
3.a.i	Support levelling up across the Midlands at sub-regional level
3.a.ii	Support changes to procurement to grow the LCEGS sector
3.a.iii	Support better partnership working between key organisations
3.b	**Investment**
3.b.i	Highlight the opportunities for investment across the Midlands and our LEPs
3.b.ii	Support businesses and investors to come together
3.c	**Technology & Infrastructure**
3.c.i	Coordinate approach to exploration of opportunities associated with hydrogen
3.c.ii	Educate across sectors on new and innovative low carbon technology
3.c.iii	Support business to highlight the potential of their technology
3.c.iv	Support business to engage with their full supply chain
3.c.v	Share resources from the wider Energy Hub Network
3.d	**Business Support, Funding & Skills**
3.d.i	Provide certainty to businesses through long-term support and funding
3.d.ii	Support improvement of the transfer of knowledge from academia to industry
3.d.iii	Support business-to-business learning
3.d.iv	Carbon literacy should be improved across all sectors
3.d.v	Highlight opportunities in the LCEGS sector
3.d.vi	Education at all stages should include focus on low carbon opportunities
4	**Sub-regional Recommendations**
4.a	**Black Country LEP**
4.a.i	Support delivery of the Ultra Low Emission Vehicle Strategy
4.a.ii	Support sub-regional strengths in construction and brownfield development
4.a.iii	Optimise learning from the Black Country Garden City Initiative
4.a.iv	Optimise opportunities and learning from the Repowering the Black Country Initiative
4.a.v	Support business-to-business learning
4.a.vi	Support businesses to benefit from innovation funding and support
4.b	**Coventry & Warwickshire LEP**
4.b.i	Optimise opportunities for the LCEGS sector through the Strategic Reset Framework
4.b.ii	Optimise opportunities and learning from the RESO project
4.b.iii	Support better collaboration across business support programmes
4.b.iv	Build upon the existing green business directory
4.b.vi	Build upon the existing Business Sustain Programme
4.c	**D2N2 LEP**
4.c.i	Optimise opportunities for the LCEGS sector through the Local Industrial Strategy
4.c.ii	Support emerging strengths in modern methods of construction
4.c.iii	Support opportunities for redevelopment of the Ratcliffe on Soar Power Station
4.c.iv	Build upon existing Sustainable East Midlands Forum & Low Carbon Business Network
4.d	**GBSLEP**
4.d.i	Strengthen the Low Carbon and Environmental Technologies Action Plan
4.d.ii	Strengthen the Skills and Apprenticeship Hub
4.d.iii	Utilise and share learning from pilot support and funding for the LCEGS sector
4.d.iv	Optimise opportunities associated with the Tyseley Energy Park

4.d.v	Build upon the existing Solihull Sustainability Visioning Group
4.d.vi	Improve cross-sector partnership working
4.e	**Greater Lincolnshire LEP**
4.e.i	Support delivery of the Business and Economy Recovery Plan
4.e.ii	Support development and delivery of the Draft Local Industrial Strategy
4.f	**Leicester & Leicestershire LEP**
4.f.i	Optimise opportunities for the LCEGS sector through the Local Industrial Strategy
4.f.ii	Optimise opportunities for the LCEGS sector through the LEP Board
4.f.iii	Raise the profile of support available in the area
4.f.iv	Support delivery of net-zero business events
4.g	**Stoke & Staffordshire LEP**
4.g.i	Build upon the existing Staffordshire Business Environment Network (sben)
4.g.ii	Address future skills needs via specialist training courses
4.g.iii	Optimise the benefit of the HyDeploy project
4.g.iv	Provide bespoke support to decarbonise the ceramics sector
4.h	**The Marches LEP**
4.h.i	Develop an evidence-based plan for growth of the LCEGS sector
4.h.ii	Develop evidence-based support programmes for businesses
4.h.iii	Optimise benefits from 'Unlocking opportunities for the Severn Regional Growth Zone' project
4.h.iv	Build upon existing business networks
4.i	**Worcestershire LEP**
4.i.i	Review Energy Strategy and Local Industrial Strategy LCEGS Targets
4.i.ii	Build upon Water Infrastructure Investment Framework

6. Appendix 1: Midlands Energy Hub Contacts

The Midlands Energy Hub covers all nine LEPs in the Midlands Engine geography. The Regional Senior Energy Projects Officer for each LEP is shown below along with contact details.

Area	Regional Senior Energy Projects Officer	Email
Black Country LEP	Pat Fleming	Patrick.Fleming@nottinghamcity.gov.uk
Coventry & Warwickshire LEP	Alex Pearson and Jack Hayhoe (covering maternity)	Alex.Pearson@nottinghamcity.gov.uk Jack.Hayhoe@nottinghamcity.gov.uk
D2N2 LEP	Michael Gallagher	Michael.Gallagher@nottinghamcity.gov.uk
Greater Birmingham & Solihull LEP	Serena Bacuzzi	Serena.Bacuzzi@nottinghamcity.gov.uk
Greater Lincolnshire LEP	Jack Hayhoe	Jack.Hayhoe@nottinghamcity.gov.uk
Leicester & Leicestershire LEP	Gavin Fletcher	Gavin.Fletcher@nottinghamcity.gov.uk
Stoke & Staffordshire LEP	Serena Bacuzzi (during recruitment)	Serena.Bacuzzi@nottinghamcity.gov.uk
The Marches LEP	Tim Yair	Tim.Yair@nottinghamcity.gov.uk
Worcestershire LEP	Alex Pearson	Alex.Pearson@nottinghamcity.gov.uk