



MIDLANDS ENGINE

Economic Observatory

MIDLANDS ENGINE

ECONOMIC IMPACT OF COVID-19 ON ENERGY AND LOW CARBON SECTOR

23RD October 2020

Executive Summary

- In October 2018, the Intergovernmental Panel on Climate Change (IPCC) released a headline report, stating the world may have as little as 12 years to act to reduce carbon emissions in order to achieve the UN Paris Agreement pledge to keep temperatures between 1.5C and 2C warming, noting it was highly likely we could get to [3C warming if things continued](#), leading to even wider-ranging and more destructive climate impacts.
- In response, the UK Government commissioned a review by the independent body Committee on Climate Change to outline how the UK can achieve this. Their 'Net Zero – Technical Report' released in May 2019, recommended that by 2050, the UK should have net zero emissions and provided detailed analysis for each sector of the economy to decarbonise.
- The energy and low carbon technologies sector is a vital part of the Midlands Engine economy, having grown its GVA by 26.6% since 2010, compared to a 5.6% growth for the UK and it accounts for 5.1% of the total Midlands Engine economy.
- The coronavirus pandemic has had an intense impact on the Midlands Engine energy and low carbon technologies sector, a sector which will be heavily relied on to provide the technologies and intelligence on how to decarbonise the region effectively. Businesses have been forced to furlough 20.8% of eligible staff, totalling 12,000 employees. Jobs postings saw a reduction of 30.9% for the sector as contracts seen as 'nice to have' were cancelled by clients in an effort to stay afloat.
- Businesses reported difficulties in accessing properties to carry out activities such as retrofitting and energy efficiency measures during lockdown. As restrictions lifted, and safe working guidance was introduced some activities have resumed as normal. Other sub-sectors working in this field, such as consultancies, found it easier to adapt and could work remotely from home.
- There is hope for the sector as we enter the recovery period. Targeted stimulus packages focussing on the low carbon sector will help it to recover time lost during the lockdown and enable a green recovery.
- Policymakers should prioritise green economic recovery and avoid temptation to favour short term economic benefit (for example by rolling back environmental regulations/taxes which are claimed by interest groups to be restricting growth).
- However, consumers and businesses may be unlikely to invest spare capital in energy saving measures in a tough economic environment that is short-term and favours liquidity over long-term benefits, and so some areas in the sector are still seeing a suppression of demand.
- Over the past year the Midlands Engine has reduced its carbon emissions by 0.8% in comparison to a 1.3% reduction across England. We are at the tipping point where we must change our behaviours, habits, and decisions to ensure a truly green recovery from the pandemic.
- Global carbon emissions are estimated to reduce by only 8% in 2020, showcasing that even as individual lives were hugely affected by staying at home more so than usual, not using cars or going overseas on holiday, much more needs to be done to reach the target of 30% yearly reductions in the Midlands Engine to hit net zero by 2050.

Policy Recommendations

Since the onset of the coronavirus pandemic, there have been calls for a ‘green recovery’ as we move on from the economic shock of the lockdown in March/April.

The ‘COP26 Universities Network’ has created a [briefing for policymakers](#) outlining a path to a net-zero emissions economic recovery from Covid-19 which identifies ten fiscal recovery policies that promise to bring both short-term high economic impact and long-term structural change to ensure the UK meets its 2050 climate goals.

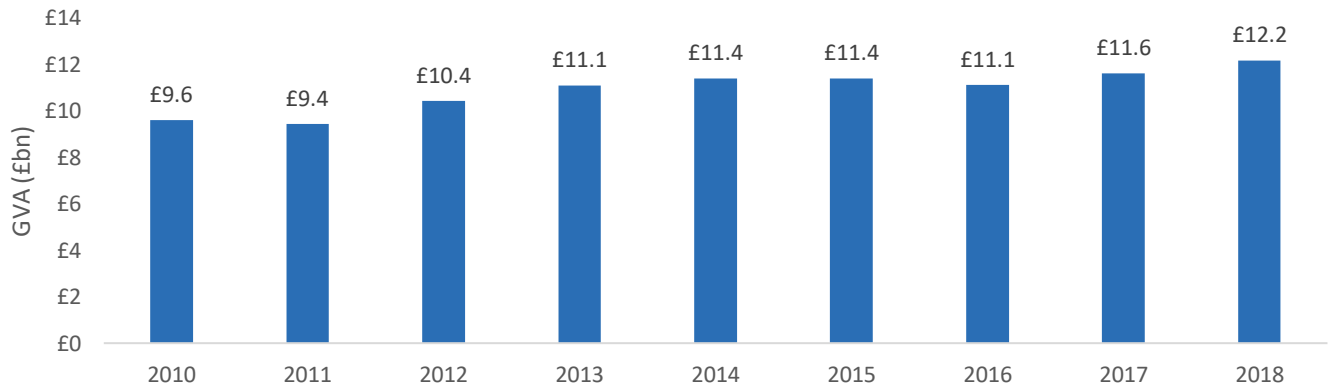
Policy Items	Description
Energy generation, storage, and distribution	Invest in zero carbon energy production, storage infrastructure, and interconnection; extend and modernise the grid to support higher renewable penetration and electrification of heat and transport
Reducing industrial emissions	Introduce financial incentives (e.g. wider carbon price floor) for industrial companies to reduce net carbon emissions and increase efficiency in production
Research and development	Invest in high impact sustainability technology research and development that includes start-ups, small and medium-sized enterprises, and large companies
Building climate-smart infrastructure	Invest in low and zero-carbon infrastructure projects, such as public transport infrastructure, that are also resilient to the impacts of climate change, such as flooding
Broadband connectivity investment	Invest in broadband infrastructure to increase full fibre coverage beyond the current set of <10% of UK homes
Nature-based solutions investment	Invest in ecosystem resilience and regeneration by enhancing green spaces, planting trees, and encouraging climate-friendly agriculture and restoring carbon rich habitats
Electric vehicle conversion	Incentivise uptake of electric cars through financial incentives and fast-charging infrastructure and improve bike lanes to encourage wider uptake of e-bikes
Home renovations and retrofits	Higher carbon standards for new-build homes; financial support for households installing insulation and other energy efficient improvements
Education and training	Fund skills and retraining initiatives, such as through digital further education, to address structural unemployment effects resulting from decarbonisation measures
Conditional bailouts	Bailouts for struggling firms, conditional on improvements against climate-positive criteria, especially for fossil fuel intensive companies such as airlines
Modified supporting structures	
Climate Change Emergency Committee (CCEC)	Rename the Cabinet Committee on Climate Change to the CCEC to ensure that Covid-19 economic recovery is achieved alongside net zero by 2050, through higher visibility and authoritative allocation of government resources
Net Zero Delivery Body (NZDB)	Establish a new NZDB to formulate and deliver a Net Zero Delivery Plan based on independent advice from the Committee on Climate Change
Green sovereign bonds	Issue national green recovery bonds to focus funding on sustainable investment
National Investment Bank	Establish a National Investment Bank to manage and reduce risk in infrastructure projects, and leverage private finance towards a green delivery pathway
Mobilised savers and investors	Direct capital towards green projects through ‘recovery plan’ ISAs; reducing regulatory frictions in insurance (Solvency II) and retail investment (MiFiD)
Financial instruments	Introduce new financial instruments to reduce risks involved in climate-friendly investments, such as contract-for-differences or a regulatory asset-based finance model
Global Leadership	
Sustainable Recovery Alliance	Establish an informal global alliance at COP 26 to promote global coherence among recovery packages, build resilience to shocks, and interface with existing initiatives such as Mission Innovation, the Carbon Pricing Leadership Coalition, and the NAP Global Network.

Pre Covid-19 Economy

GVA

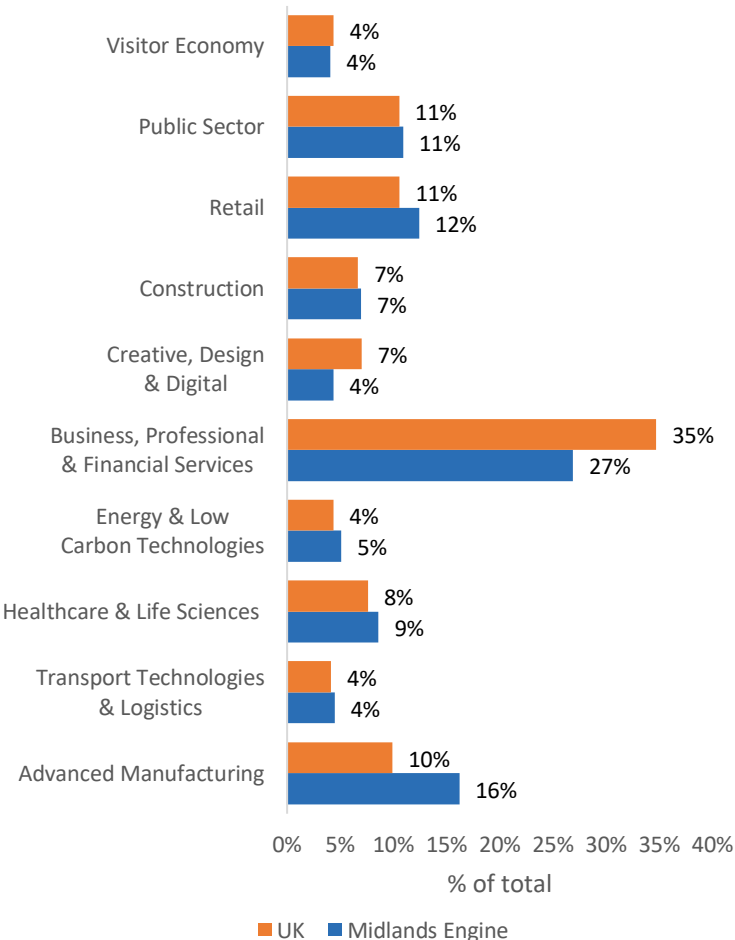
In 2018, GVA in the energy and low carbon technologies sector totalled nearly £12.2bn, a increase of 4.7% since the previous year (+£0.5bn), compared to a 9.9% increase in the UK. Since 2010, GVA in this sector has risen by 26.6% (+£2.6bn), compared to a 5.6% increase across the UK.

Energy and Low Carbon Technologies GVA, 2010-2018

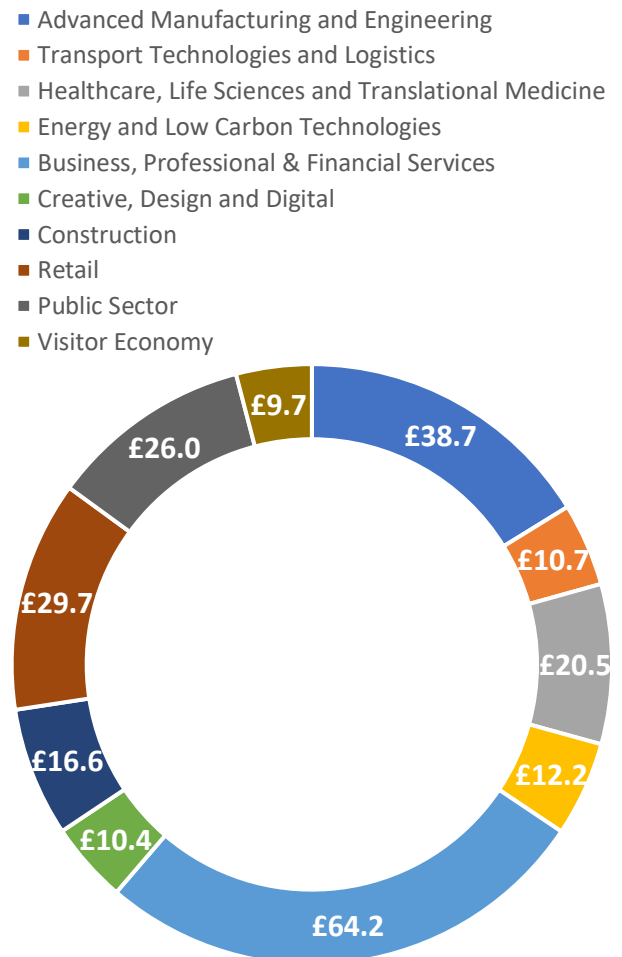


The energy and low carbon technologies sector accounts for 5.1% of the total GVA in the Midlands Engine, compared to 4.1% for the UK. In 2017, this sector accounted for 5.0% and 4.1% respectively.

Midlands Engine & UK: Percentage of GVA per Sector, 2018



Midlands Engine GVA by Sector (£bn), 2018

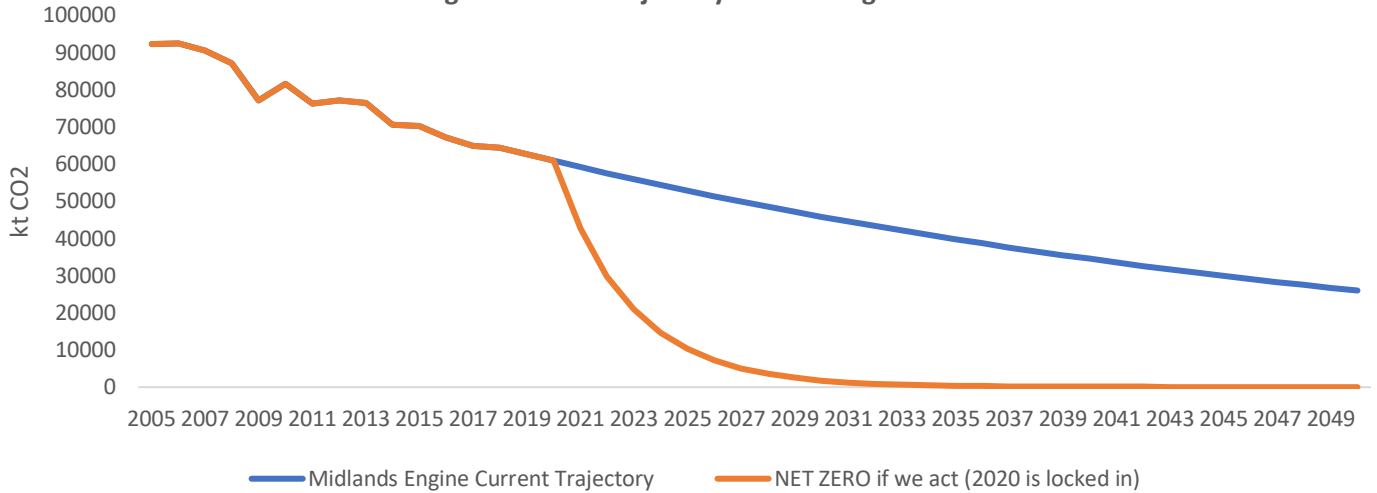


Carbon Emissions

Midlands Engine CO2 Emissions

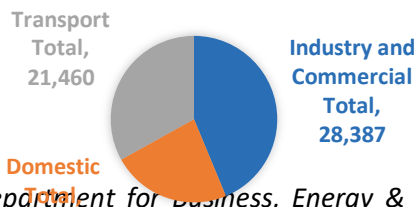
- In 2018 the Midlands Engine emitted 64,368 kt CO₂, this is a reduction of 0.8% since last year, but a much lower reduction compared to -1.6% across England.
- Per capita emissions (tonnes per person) are at 6.3 across the Midlands Engine, ranging from 3.1 in Oadby and Wigston to 43.3 in North Lincolnshire. The England average is 5.0.
- Since 2005, the Midlands Engine has reduced its total carbon emissions by 30.2% (-27,804 kt CO₂), whereas England has reduced its overall carbon emissions by 34.9%
- The Midlands Engine needs to reduce their emissions by 30% every year to reach the legally binding target of net zero by 2050. If the Midlands Engine continued to reduce its emissions based on the past 3-year average (-2.8%) it would be 2190 before we hit near zero emissions.

Midlands Engine Current Trajectory vs Reaching Net Zero in 2050

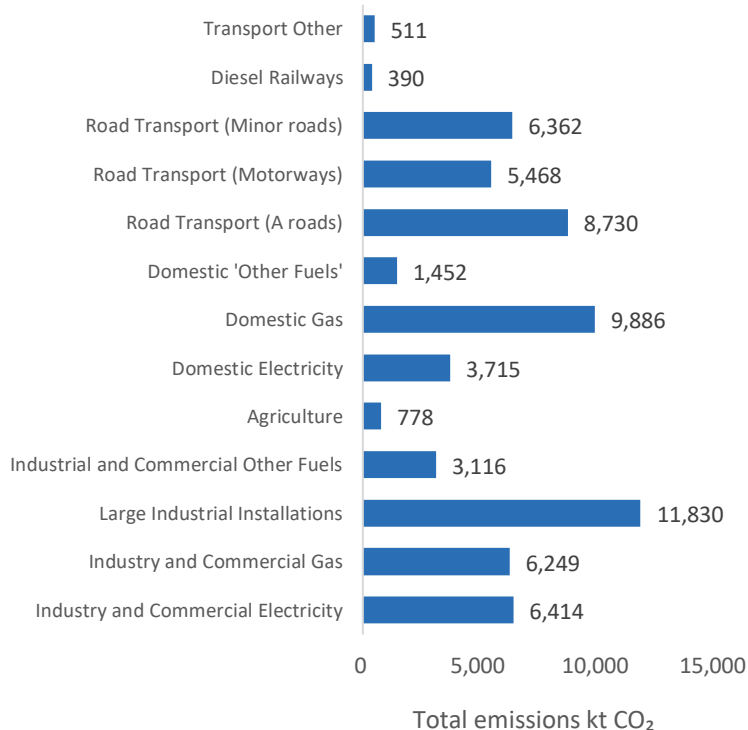


In terms of the components that contribute to the Emissions:

- 44.1% (28,387 kt CO₂) was from industry and commercial - higher than the national average of 36.0%.
- 23.4% (15,053 kt CO₂) was from domestic, compared to 28.3% in England.
- 33.3% - 21,460 kt CO₂ was from transport vs 37.6% in England.
- Industry and commercial has reduced the most at 37.5% (-17,012 kt CO₂), since 2005, England reduced by 47.5%
- Domestic has reduced by 36.2% (-8,524 kt CO₂) since 2005, England reduced by 37.2%.
- Transport has reduced by 7.0% (-1,610 kt CO₂), since 2005, England reduced by 8.2%



Breakdown of Emissions by Sector, 2018



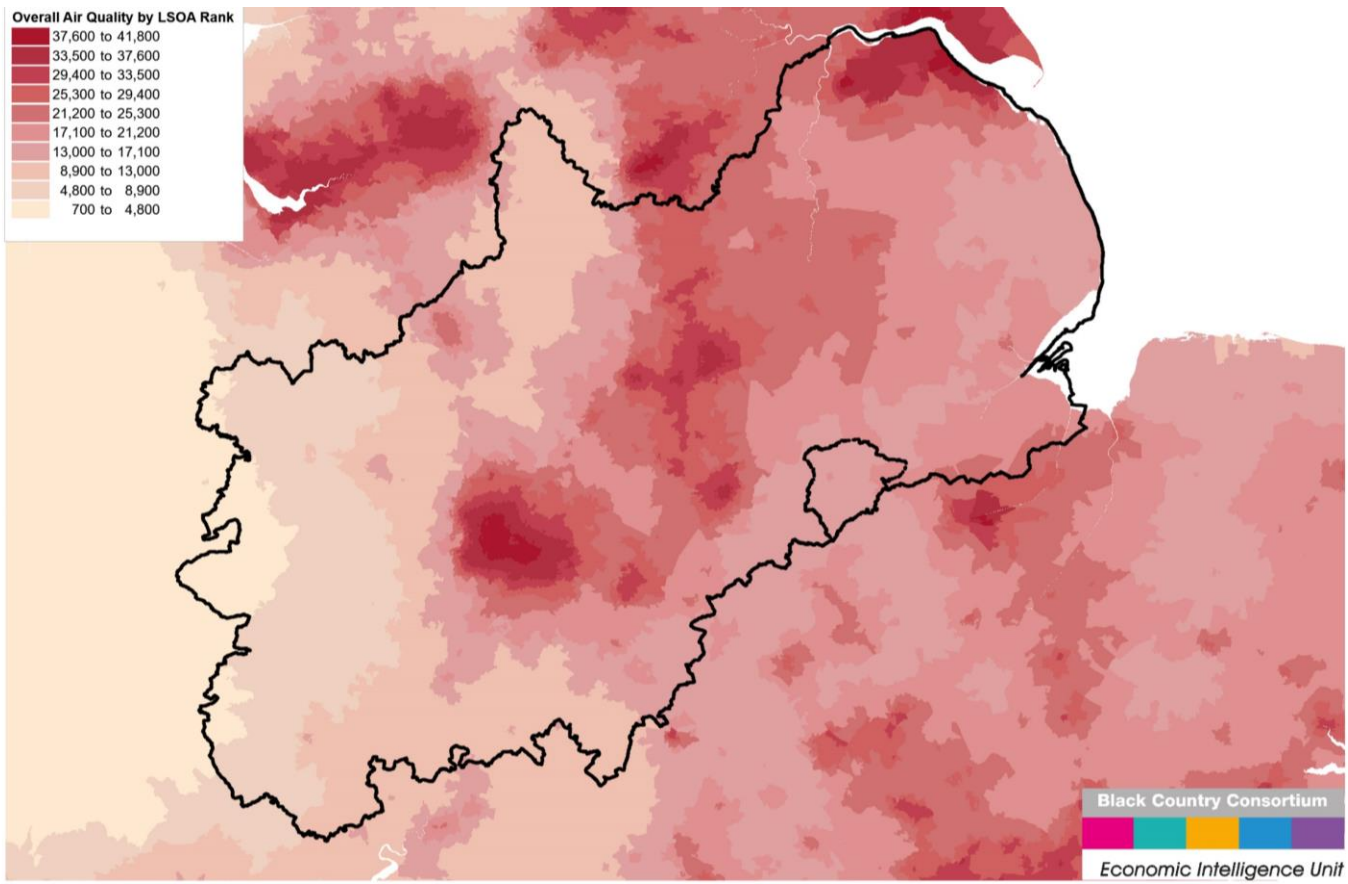
Source: Department for Business, Energy & Industrial Strategy, 2020

Air Quality

Alongside Carbon Dioxide (CO₂) there are other gases that have an impact on the Midlands Engine population.

- Particulate matter smaller than 10 micrometres (classified as PM₁₀) poses health risks because it can be breathed deeply into the lungs and may cross into the bloodstream. PM₁₀ comes from engines, tyre and brake wear down and from road dust.
- Sulphur Dioxide (SO₂) is known primarily as a cause of acid rain, but it also reflects light when released in the atmosphere, which keeps sunlight out and creates a cooling effect. It is produced as a by-product of the burning of fossil fuels.
- The major source of Nitrogen Dioxide (NO₂) is the burning of fossil fuels: coal, oil and gas. Most of the NO₂ in cities comes from motor vehicle exhausts (about 80%). Other sources are petrol and metal refining, electricity generation from coal-fired power stations, other manufacturing industries and food processing.

The following map shows the regional picture of air quality by LSOA which examines: Nitrogen Dioxide, Particulate Matter 10 and Sulphur Dioxide. The West Midlands is one of the worst hit areas outside the capital for illegal levels of nitrogen dioxide pollution.



In 2017, the overall air quality index for the Midlands Engine was on average at 24 which is below the England average value of 26.

The Midlands Engine average mean for NO₂ emissions was 12 in 2017, below the England average mean of 12.6 NO₂ emissions. The average mean for PM₁₀ in the Midlands Engine measured at 13.4 compared to the England average of 13.5, while the SO₂ emissions were 1.3 in the Midlands Engine, slightly above the England average of 1.2.

The worst ranked overall air quality areas are the urban areas particularly around Birmingham, Coventry and the Black Country in the West Midlands and Leicester, Nottingham, Mansfield, Derby, Grimsby and Scunthorpe in the East Midlands.

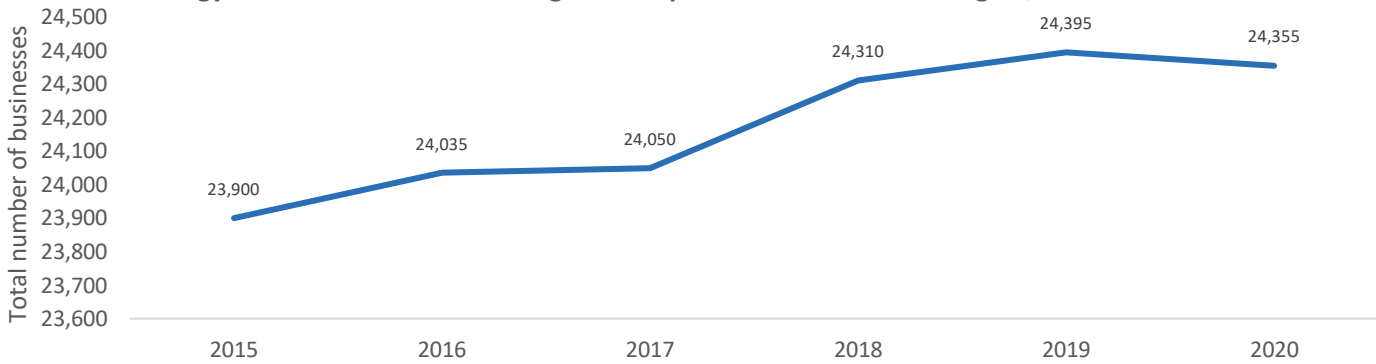
Source: June 2020 and Consumer Data Research Centre, Access to Healthy Assets and Hazards (AHAH), 2019.

Pre Covid-19 Business Base

Enterprises

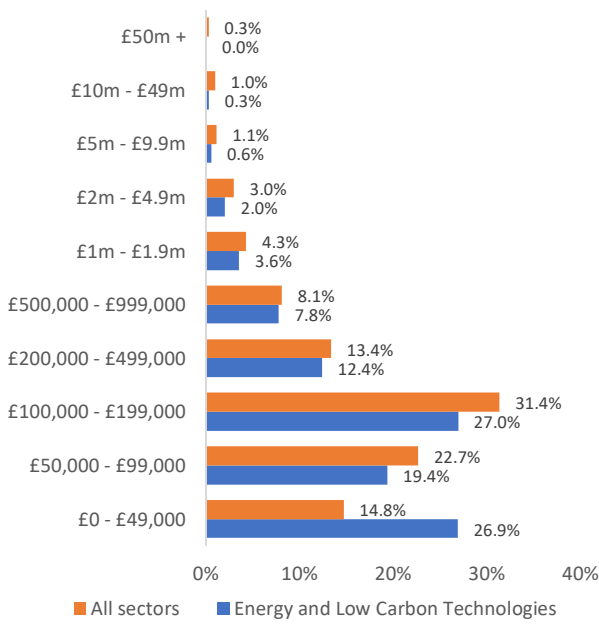
Snapshot data shows in March 2020 there were 24,355 enterprises in the energy and low carbon technologies sector. This is a decrease of 0.2% since 2019 (-40 enterprises), which matches the UK decrease rate. This is the first time the number of enterprises have fallen since 2015, as the Midlands Engine saw a growth of 1.9% since 2015 (+455), compared to the UK which increased by 3.1% during this same period.

Energy and Low Carbon Technologies Enterprises in the Midlands Engine, 2015-2020



In 2020, the energy and low carbon technologies sector accounted for 6.4% of total businesses, compared to 6.0% in the UK. This is less than the previous year, where this sector accounted for 6.6%, the UK remains unchanged.

Midlands Engine Turnover Size Breakdown, Energy & Low Carbon Technologies vs All Sectors



Business Demography

Businesses in this sector have been broken up to look at their characteristics; by the number of employees, and their turnover, and compare this to the overall Midlands Engine business demography.

In terms of turnover, energy and low carbon technologies enterprises tend to dominate the lower end of the spectrum in terms of profits more so than the wider business base at large, as businesses operating with a turnover of less than £50,000 account for 26.9% (6,285 enterprises) of all energy and low carbon technologies enterprises compared to 14.8% for all sectors. This is similar for the UK, with figures of 31.3% and 15.0% respectively.

There is a notable absence of high profit energy and low carbon technologies firms in the Midlands Engine, as businesses with turnovers of more than £50m account for 0.04% (10 enterprises) of all energy and low carbon technologies enterprises compared to 0.3% for the wider economy. The respective figures for the UK are 0.2% and 0.3%.

	Area	Micro (0 to 9)	Small (10 to 49)	Medium-sized (50 to 249)	Large (250+)
Energy & Low Carbon Tech. Sector	Midlands Engine	23,160	920	70	20
	Midlands Engine % of total	95.8%	3.8%	0.3%	0.1%
	United Kingdom % of total	95.5%	3.8%	0.6%	0.1%
Wider Economy	Midlands Engine % of total	89.1%	8.9%	1.6%	0.4%
	United Kingdom % of total	89.6%	8.5%	1.5%	0.4%

In terms of employee size bands in the energy and low carbon technologies sector, the Midlands Engine demography is very similar to that of the UK and there are not large discrepancies in the makeup. However, when comparing the energy and low carbon technologies sector with the wider economy large differences are more apparent, as there is a far higher percentage of micro businesses in the energy and low carbon technologies sector than in the wider economy in the Midlands Engine (95.8% vs 89.1%) and a much lower percentage of small, medium and large businesses.

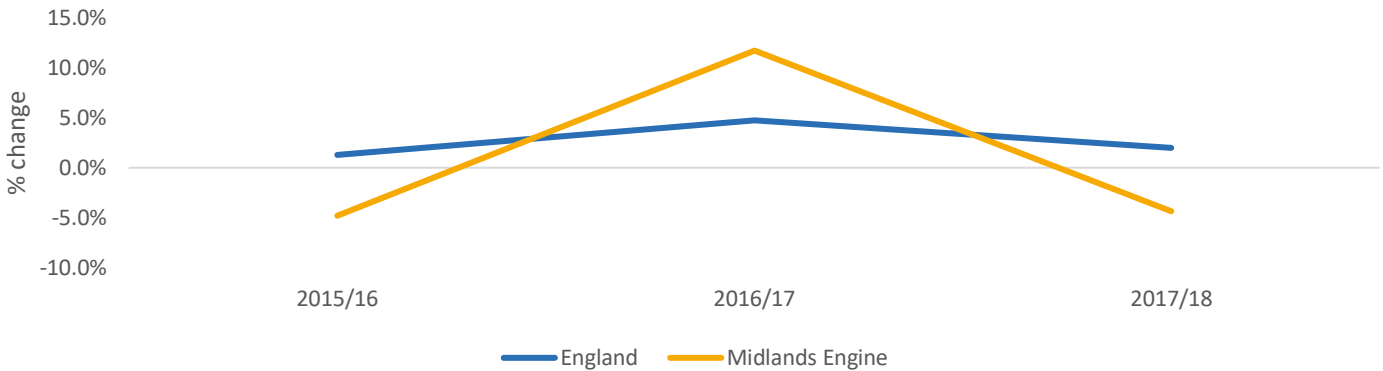
Source: ONS, UK business Count (snapshot), 2020 ONS, UK business: activity, size and location, 2020

Pre Covid-19 Employees

Employees

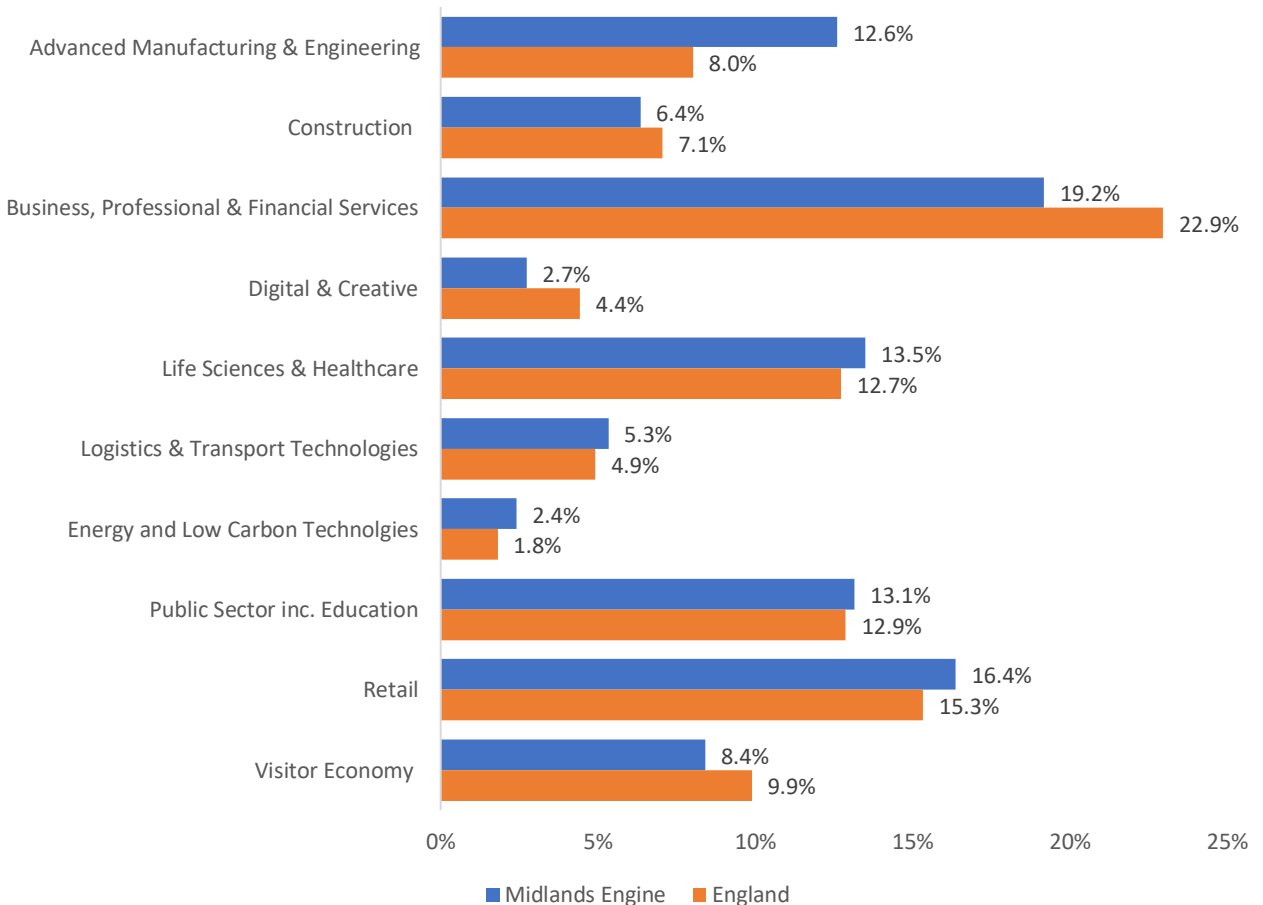
In 2018 there were 106,225 employees in the energy and low carbon technologies sector, a decrease of 4.4% since the previous year (-4,855) compared to a 2.0% increase across England. Since 2015 the number of employees in this sector has increased by 1.6% (+1,720) compared to an 8.1% increase across England.

Energy and Low Carbon Technologies Jobs in the Midlands Engine and England, Year on Year Change 2015/2018



In 2018, energy and low carbon technologies jobs accounted for 2.4% of total jobs in the Midlands Engine, compared to 1.8% across England. This is a 0.1 percentage point decrease for the Midlands Engine, while England remained the same when compared to 2017.

Midlands Engine & England: Percentage of Jobs per Sector, 2018



Employer Demand – Job Postings

Context

In the last year (August 2019 to August 2020) there were 53,060 total postings in the energy and low carbon technologies sector, of which 28,056 were unique job postings across the Midlands Engine. The numbers give a posting intensity of 5:1. This means that for every 5 postings there was 1 unique job posting. This is the same as the posting intensity for all other occupations across the Midlands Engine (5:1), indicating that demand in this sector is standard and recruiters are putting in average effort to fill positions.

Covid-19

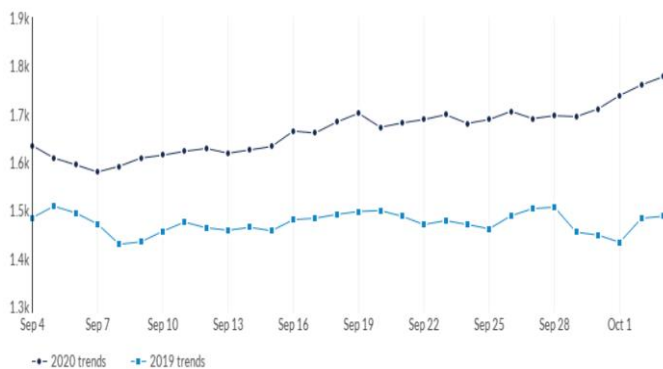
Before the coronavirus pandemic, the energy and low carbon technologies sector was seeing a growing, but fluctuating increase in jobs postings, having risen by 185.2% (+1,622 postings) between January 2016 and March 2020, reaching a high of 2,581 in February. Since lockdown in March 2020, job postings fell suddenly, by 30.9% (-521) to a low of 1,687 in May, before recovering to 2,208 by August. The map on the right shows the trend since 2016.

Between March and August 2020 these numbers give a posting intensity of 6:1, suggesting that demand in this sector has perhaps understandably increased over the current pandemic period.

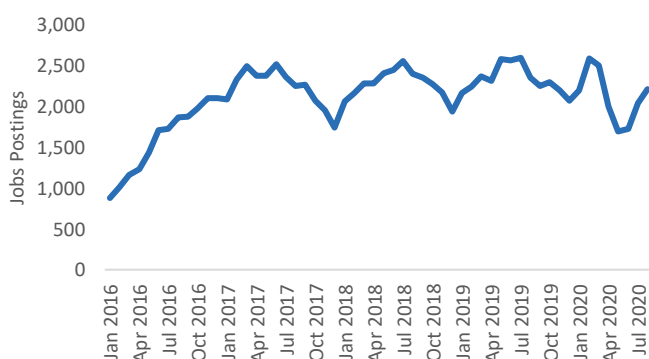
Locations

In terms of locality, Birmingham, Nottingham, Leicester and Derby (by volume) recorded the most job postings as seen in the table below. Birmingham alone accounted for 20.1% of all postings, suggesting that demand is quite concentrated in this sector. Alongside Birmingham, Worcester, Stratford-upon-Avon, Redditch, Tamworth and Cannock, recorded high posting intensity (6:1) implying increased demand and effort by recruiters to fill positions in these areas.

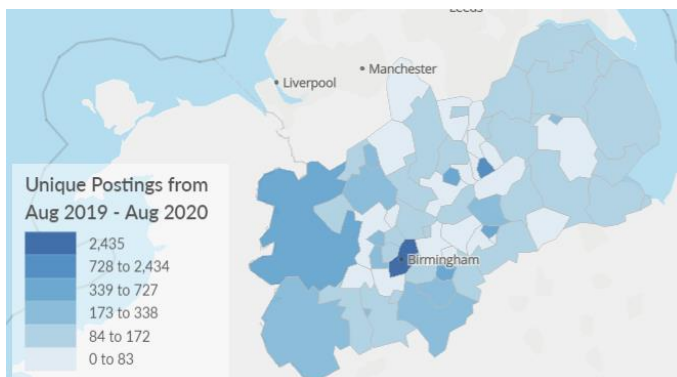
The first graph below shows the most recent 30 days of unique job postings, and compares it to the same period in 2019 and the second graph shows trends over time for the Midlands Engine:



Job Postings Trend, Jan 2016 - August 2020



The map below showcases the most in demand locations in terms of jobs postings in the Midlands Engine:



City	Total/Unique (Aug 2019 - Aug 2020)	Posting Intensity	Median Posting Duration
Birmingham	14,241 / 2,268	6 : 1	33 days
Nottingham	3,588 / 729	5 : 1	32 days
Leicester	2,284 / 496	5 : 1	29 days
Derby	1,722 / 345	5 : 1	31 days
Coventry	1,578 / 342	5 : 1	31 days
Worcester	1,557 / 242	6 : 1	34 days
Stoke-on-Trent	1,200 / 231	5 : 1	29 days
Lincoln	846 / 220	4 : 1	31 days
Shrewsbury	1,086 / 205	5 : 1	31 days
Wolverhampton	959 / 193	5 : 1	31 days

Source: EMSI Analytics, 2020

Employer Demand - Occupations

Top 20 in Demand Occupations

The most frequent job postings in the last year across the Midlands Engine geography were for environment professionals, refuse and salvage occupations and architectural and town planning technicians. Job postings for these occupations were higher than the next occupational class.

Environment professionals, town planning officers, conservation professionals (7:1) recorded the highest posting intensity. Volume of job postings and posting intensity was low (2:1) for fishing and other elementary agriculture occupations n.e.c.

Occupation (SOC)	Total/Unique (Aug 2019 - Aug 2020)	Posting Intensity	Median Posting Duration
Environment professionals	11,032 / 1,852	6 : 1	31 days
Refuse and salvage occupations	6,698 / 1,815	4 : 1	32 days
Architectural and town planning technicians	9,667 / 1,813	5 : 1	33 days
Gardeners and landscape gardeners	3,352 / 1,134	3 : 1	27 days
Town planning officers	5,785 / 952	6 : 1	31 days
Natural and social science professionals n.e.c.	3,256 / 777	4 : 1	31 days
Water and sewerage plant operatives	3,789 / 690	5 : 1	31 days
Farm workers	1,651 / 537	3 : 1	24 days
Conservation professionals	3,099 / 473	7 : 1	30 days
Animal care services occupations n.e.c.	1,469 / 349	4 : 1	23 days
Environmental health professionals	952 / 225	4 : 1	24 days
Pest control officers	507 / 115	4 : 1	30 days
Conservation and environmental associate professionals	221 / 74	3 : 1	23 days
Managers and proprietors in agriculture and horticulture	195 / 73	3 : 1	20 days
Groundsmen and greenkeepers	204 / 73	3 : 1	20 days
Agricultural and fishing trades n.e.c.	318 / 65	5 : 1	29 days
Energy plant operatives	274 / 63	4 : 1	30 days
Fishing and other elementary agriculture occupations n.e.c.	112 / 60	2 : 1	32 days
Production managers and directors in mining and energy	268 / 55	5 : 1	29 days
Forestry workers	138 / 39	4 : 1	28 days

Employer Demand – Job Titles

Job Titles

Over the full year period, the top 20 most sought-after job titles across the energy and low carbon technologies sector were:

Job Title	Total/Unique (Aug 2019 - Aug 2020)	Posting Intensity	Median Posting Duration
Architectural Technicians	2,545 / 462	6 : 1	42 days
Gardeners (Building and Grounds Cleaning and Maintenance)	1,214 / 409	3 : 1	28 days
Ecologists	2,433 / 367	7 : 1	32 days
Architectural Technologists	1,634 / 271	6 : 1	33 days
Water and Wastewater Managers	1,617 / 224	7 : 1	34 days
Farm Workers	679 / 212	3 : 1	16 days
Commercial Drivers	1,030 / 207	5 : 1	33 days
Environmental Engineers	1,470 / 191	8 : 1	33 days
Pet Sitters	425 / 175	2 : 1	25 days
Environmental Officers	655 / 174	4 : 1	22 days
General Supervisors (Installation, Maintenance, and Repair)	585 / 171	3 : 1	32 days
Planning Directors (Management)	864 / 160	5 : 1	30 days
Senior Planners	960 / 156	6 : 1	42 days
Architectural Assistants	708 / 142	5 : 1	34 days
Environmental Consultants (Life, Physical, and Social Science)	1,084 / 140	8 : 1	36 days
Loaders	452 / 132	3 : 1	33 days
Environmental Managers (Business and Financial Operations)	876 / 120	7 : 1	32 days
Senior Technologists	815 / 120	7 : 1	45 days
Water Treatment Operators	559 / 110	5 : 1	31 days
Environmental Consultants (Architecture and Engineering)	551 / 108	5 : 1	34 days

- Job postings for roles associated with architecture, planning and conservation all feature prominently for this sector.
- Reflecting the most in-demand occupations, architectural technicians recorded the most job postings.
- Posting intensity was highest for ecologists (7:1), water and wastewater managers (7:1), environmental engineers (8:1), environmental consultants (life, physical and social science) (8:1), environmental managers (7:1) and senior technologists (7:1)
- There was nominal difference in the closer Covid-19 period from the job titles highlighted above.

Employer Demand – Hard Skills

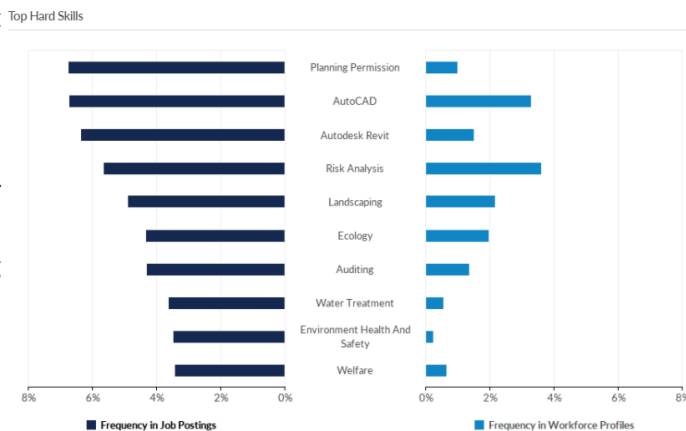
In Demand Skills (Hard Skills)

This section provides insight into the supply and demand of relevant skills by comparing the frequency of skills present in job postings over the last year against skills present in the energy and low carbon technologies workforce across the Midlands Engine geography.

The top 10 in-demand skills suggest that the biggest singular skills gaps for the energy and low carbon technologies sector are planning permission and AutoCAD reflecting some of the most sought-after occupations and job roles.

Given the prevalence of AutoCAD and Autodesk Revit in the top 10 most in-demand hard skills, this suggests digital skills are required in this sector.

The long list however suggests significant demand for skills around environmental resource management, sustainability, environmental issues, particularly water and development.



Furloughed Workers

Overall, for the East and West Midlands regions, 1,563,100 people have been furloughed which is approximately 33% of those eligible for the Coronavirus Job Retention Scheme.

The following table shows the proportion of workers furloughed for the East and West Midlands Region and England by sector:

	ME Number of Workers Furloughed	% of ME Furloughed	% of England Furloughed	Number of ME Eligible Workers	ME Furloughed Workers as % Eligible Per Sector
Advanced Manufacturing	278,100	17.8%	11.5%	604,800	46.0%
Transport Technologies and Logistics	72,500	4.6%	4.7%	247,000	29.4%
Life Sciences and Healthcare	64,500	4.1%	4.7%	647,500	10.0%
Energy and Low Carbon Technologies	12,000	0.8%	0.7%	57,600	20.8%
Business, Professional & Financial Services	314,200	20.1%	23.5%	1,002,400	31.3%
Digital & Creative	29,100	1.9%	2.6%	137,400	21.2%
Construction	110,500	7.1%	8.0%	192,300	57.5%
Retail	324,300	20.7%	21.0%	772,800	42.0%
Public Sector Inc. Education	54,700	3.5%	4.1%	712,400	7.7%
Visitor Economy	294,300	18.8%	18.5%	389,300	75.6%
Other	9,000	0.6%	0.6%	23,000	39.1%
Total	1,563,100	100%	100%	4,786,500	32.7%

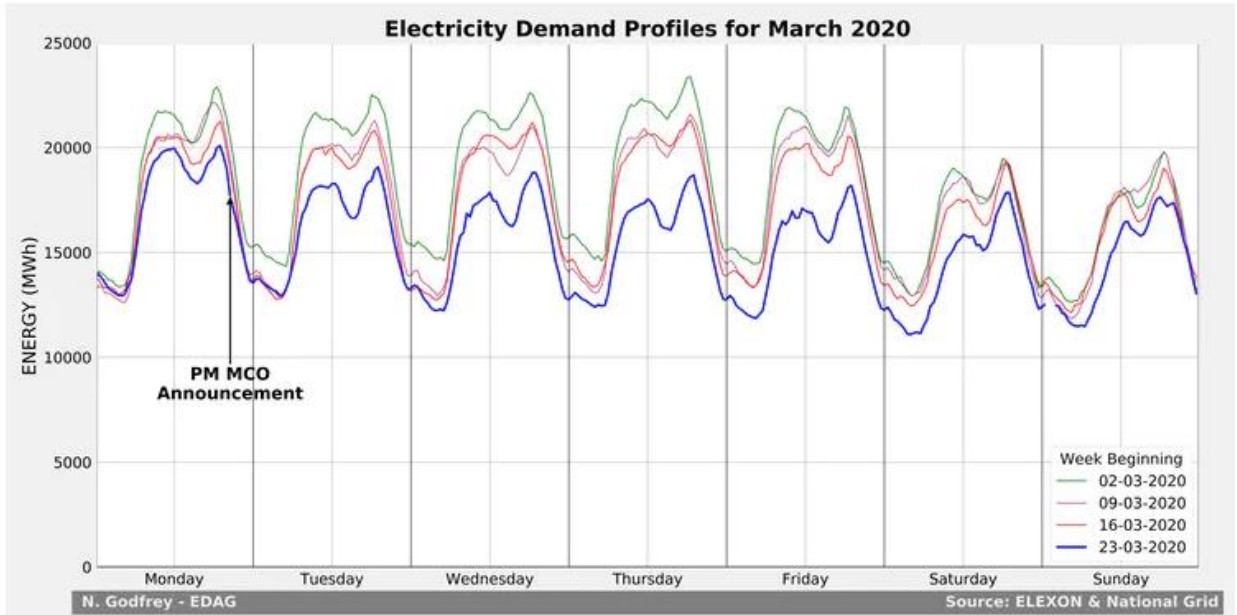
Source: EMSI Analytics, 2020

Source: HM Revenue & Customs, Coronavirus Job Retention Scheme Statistics: August 2020

Impact of Covid-19 on Energy and Oil

Weekdays look like weekends

Restrictions on what could open during lockdown mean that the electrical demand of a normal working day looked more similar to a weekend, with [10-20% less demand](#). It has also meant that morning peaks have flattened out, as people aren't governed by routines aligned with activities like commuting or the school run.

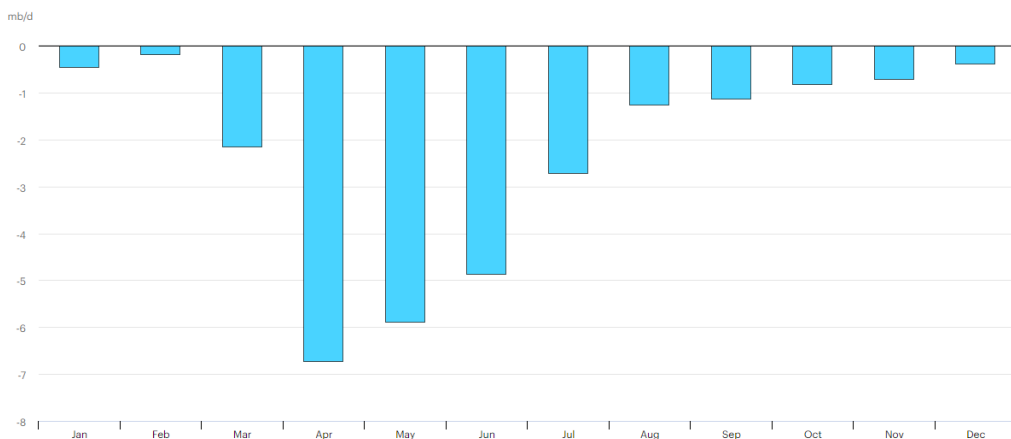


Demand for petrol, diesel and aviation fuel is plummeting, and so are carbon emissions.

There has been an incredible drop in short term demand for fuel as people stay at home and don't travel by air, rail, or car, which combined with a reduction in energy demand has led to a proportional decrease in emissions.

Lower energy demand means a higher proportion of our needs can be met by renewable energy sources, so some gas power plants can be turned down or switched off. Fossil fuel generation will be needed if weather conditions change.

Change in Oil Demand in Europe, 2020 relative to 2019



- Global oil demand is expected to be a record 9.3 millions of barrels per day (mb/d) lower in 2020 than in 2019.
- Demand in April is estimated to be 29 mb/d lower than a year ago, falling to a level last seen in 1995.
- The recovery in the second half of 2020 is projected to be gradual.
- Demand is not expected to reach pre-crisis levels before the end of the year

Source: N. Godfrey - EDAG; Data: Elexon & National Grid
IEA, Global Energy Review 2020

Impact of Covid-19 on the Sector

Effect of Covid-19 on the energy and low carbon technologies Sector

At the start of the crisis and throughout lockdown: March – June

- Energy and low carbon technologies products and services (for consumers and business) are typically not essential items and purchases could be postponed or cancelled altogether.
- Consumers and businesses are unlikely to invest spare capital in energy saving measures in an environment that is short-term and favours liquidity over long-term benefits.
- Energy and low carbon technologies projects are likely to be paused/cancelled. Particularly where they involve working on customer premises (domestic or business).
- Manufacturing and R&D activities in energy and low carbon technologies cannot easily be worked on from home.
- Direct impact on staffing expertise from quarantine/self-isolation and prolonged illness in operational areas, e.g. staff being relocated for long periods to cover priority functions, sectors and regions;
- Disruption to the management of construction contracts in the UK, but most notably overseas;
- Difficulties in supply of PPE, plus price increases - more than doubling in some cases, plus the short-term supply of raw materials, e.g. construction materials
- Short-term disruption from staff moving to online and home working
- Reduced use of buildings & offices whilst incurring same level of operating costs

Medium term: Post lockdown and start of recovery period

- There may be some opportunities for businesses that support resource efficiency, agile working and reduced travel – as a new normal pattern of working emerges. There are also some sub-sectors which are more protected, for example consultancies which can largely continue with remote working.
- A general opportunity to emerge may centre on the fact many climate/energy solutions depend on government intervention and community collaboration.
- **Shape of Economic Stimulus** - the shape of the stimulus measures adopted following the crisis will be critical to the future of energy and low carbon technologies sector. Policymakers should prioritise green economic recovery and avoid temptation to favour short term economic benefit (for example by rolling back environmental regulations/taxes which are claimed by interest groups to be restricting growth).
- **Ongoing suppression of demand** - Consumers and businesses may be unlikely to invest spare capital in energy saving measures in tough economic environment that is short-term and favours liquidity over long-term benefits.
- **Access to public funds:** Pre commercial propositions that depend on LEP and other public (esp. R&D) funding sources for development may struggle if funding opportunities dry up.

Opportunities (short & longer term):

- Rapid acceptance from customers, staff and investors for increased use of online services
- Operational time & travel cost savings in the short and longer term are likely to be maintained
- Public awareness and growth in environmental and low-carbon interest
- Increased focus on resilience of supply chain and interest in UK manufacturers and suppliers

A local supply chain on the edge of collapse:

- Local suppliers and installers are furloughing their staff as it has become increasingly impossible to access people's homes to undertake measures. Without the prospect of a new government-funded programme, these businesses will close, decimating an already forgotten industry, but one which is vital to support a clean recovery. The Coronavirus has already brought severe financial difficulties to businesses and organisations as the lockdown results in income reducing drastically, potentially closing down a significant proportion of the supply chain, leading to unemployment and failed contract obligations.
- Earlier this year there was significant confusion over the rules and disruption to supply chains. Generally, most energy and low carbon technologies businesses have now identified ways to deliver their services in a Covid-19 secure way and initial confusion over working practices seems to have eased. Managerial/professional roles can be delivered from home whilst site/external based activity can be delivered in a Covid-19 safe way with many well thought-out industry or trade specific guidance documents available

Midlands Engine Opportunities

The Midlands Engine have recently released their [Green Recovery Prospectus](#), highlighting how the pan-regional partnership will drive forward recovery from the Covid-19 crisis. More detail on the organisation's working projects to bring this agenda forward can be found in the prospectus. Below is a summary of some projects.

Building upon these initial successes, Midlands Engine will be working with a range of partners during Winter 2020 to develop a ten-year Environment Strategy. This will seek to maximise opportunities for the environment, the economy and communities at a pan-regional level

Energy Generation and Storage

- Energy Innovation Zones across the West Midlands in Tyseley Energy Park, the Black Country and more
- Midlands Engine Energy Partnership
- Decarbonising the industrial cluster of the Black Country
- Bromsgrove Heat network
- Worcester River Severn Heat network
- Worcestershire Public estate energy efficiency
- Keele University and The Smart Energy Network Demonstrator
- The Institute of Energy and Sustainable Development at De Montford University

Hydrogen

- Potential development of a regional transport plan which incorporates hydrogen fuel cells
- JLR
- Energy Research Accelerator (ERA)
- Birmingham Centre for Railway Research and Education (BCRRE) at the University of Birmingham
- Keele University, and the HyDeploy3 project
- Cenex, located on the Loughborough University Science and Enterprise Park
- Loughborough-based Intelligent Energy
- Midlands Hydrogen and Fuel Cell Network
- Technology developed in the Midlands, such as the new hydrogen boiler and heat pumps produced by Bosch Thermotechnology Ltd.
- Worcestershire Hydrogen Working Group

Wind

- Possible wind technology opportunities similar to Humber Gateway Wind Farm

Nuclear

- The development of Small Modular Reactors ("SMRs") is being led by Rolls Royce

Solar

- Trent Basin housing development in Nottingham as exemplar for solar powered housing
- Loughborough University's Centre for Renewable Energy System Technology
- 44MW Solar Farm at Defford

Storage

- Liquid Air Energy Storage approach was developed in the Midlands
- Centre for Energy Storage - in Birmingham University
- £4 million battery facility in Walsall
- Energy Innovation Centre at the University of Warwick
- Installation of a 'Smart Grid' in the West Midlands
- Gigafactory

Transport

- 80% of UK freight passes through the region and advancing plans to modernise and amplify rail capacity across the region to make the modal shift from road to rail for freight, such as Midlands Engine Rail, will see carbon reductions at scale.
- HS2
- Midlands Engine Rail, Midlands Connect
- E-scooter trials in West Midlands
- Clean Air Zones
- The Starley Network cycle hire scheme

Alternative fuel sources

- Synthetic fuels need further development
- Hydrogen e.g. HydroFLEXx project collaboration between Birmingham Centre for Railway Research and Porterbrook, a railway rolling stock company in Derby
- Battery Electric Vehicles e.g. JLR site in Castle Bromwich
- Faraday Challenge recycling lithium-ion batteries

Case Studies:

Midlands Engine Development Corporation

- The Midlands Engine Development Corporation will contribute substantially to inclusive, zero carbon growth and levelling up by initially realising the enormous potential of three key sites – the HS2 Hub at Toton and Chetwynd, the Ratcliffe Power Station and the East Midlands Airport Area.

West Midlands Fuel Poverty Programme – Warm Homes Save Lives

- Starts with the person experiencing fuel poverty, who is at the centre of the process.
- Requires high-quality delivery leading to better outcomes and generating the learning that will drive continuous improvements.
- Integrates actions to address fuel poverty into the broader landscape.
- Shifts operational decision making away from energy companies (providing ECO) and commercial installers to the public sector, health and third sector.
- Releases capital based on a whole house plan rather than the installation of ad hoc individual measures

Midlands Engine Opportunities

Digital Connectivity

- Midlands Engine pushing for full digital connectivity between East and West Midlands
- 5G Fixed Wireless Access (FWA) technology
- The country's very first multi-city 5G testbed (WM5G) & the West Midlands Key Route Network, & the AppyWay parking project
- Expertise of the 'Worcestershire 5G' testbed (W5G).
- Nottingham's Civic Agreement to continue to invest in physical and digital zero-carbon infrastructure
- 2006 the Midlands was the site of Highways England's first Active Traffic Management pilot
- Keele University Live Lab
- W5G, Bosch Thermotechnology Ltd & IOT manufacturing project
- Smart Cities parking project
- Agri-Tech opportunities

Skills Transition

- Offering retraining as firms pivot in their operations
- The two skill shortages are, firstly, when the number of skilled workers is insufficient ("quantitative skills shortage") and secondly, where the number of people is adequate but there is a skill deficit ("qualitative skills shortage").
- The Midlands is well placed to enable the training required and has demonstrated in the past its ability to reskill workers (for example, from the move from manufacturing and heavy industry to a service-based economy).

Education providers

- Nottingham University and Nottingham Trent University Civic Agreement
- Midlands Innovation, a collaboration between eight universities in the Midlands
- *Potential for a 'green college' which could be the centre of excellence for green skills*
- National College for High Speed Rail

Post Covid-19 Futures

Whilst waiting for a Covid-19 vaccine, we may have to live through more waves of the virus and associated lockdowns as it continues to infect people. We do not know how long it will take to get back to pre-Covid-19 levels of consumption, but the means to get there will take international coordination with a focus on energy and ecological transitions. However, the goal for a rapid recovery might lead some countries to favour cheaper, less sustainable modes of production in a bid to outsmart global competition.

Investment in low carbon and green technologies will be a powerful vector for growth, and [research](#) reveals that climate-friendly policies can deliver better results for the economy and for the environment. The road to recovery should include investment in renewable energy production, such as wind or solar. Other policies included

- Building efficiency retrofit spending,
- Clean research and development spending,
- Natural capital investment for ecosystem resilience and regeneration,
- Investment in education and training to address immediate unemployment from Covid-19 alongside unemployment from decarbonisation.

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