



**MIDLANDS
ENGINE**

OBSERVATORY

MIDLANDS ENGINE

REGIONAL ECONOMIC IMPACT MONITOR

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Executive Summary

A more stable, competitive and effective energy system can have a significant enabling effect on the local economy. Energy is a major driver of productivity, but currently acts as a considerable hindrance to many of our businesses due to unsustainably high prices impacting business costs. This report is a vital piece of evidence to inform a growing set of work in the Midlands to improve the local energy market for the benefit of our key sectors and the overall regional economy.

The cost and supply of energy is holding back business growth or limiting the ability of firms to operate at maximum capacity. **This is key given that many of the Midlands' important sectors are relatively energy-intensive, and there are opportunities associated with the region's strengths in low carbon energy. This is a symptom of under-investment in the region over a prolonged period of time. The Midlands needs to tackle these as a priority so as to create a more level playing field vis a vis its competitor regions.**

This all comes at a time when energy is an increasingly important policy area both regionally and nationally. Within the government's Industrial Strategy, 'Clean Growth' is identified as one of four 'grand challenges', and the Midlands Engine 10 Point Plan for Green Growth **identified energy as a key cross-cutting priority.** In order to embrace the opportunities of vehicle electrification, smart cities and a low carbon economy, the Midlands more than ever needs to provide the right energy infrastructure for local people and businesses.

Place-based inequalities are greater in England than in most of its traditional comparator countries, and inequalities in the Midlands are acute. These inequalities have many dimensions, both economic and social. However, **low productivity is central, leading to low wages and relatively low living standards.** Over the past year, 47% of areas in the Midlands saw a real terms decrease in GVA, with GVA per hour still behind the UK average. For Levelling Up to be successful, it requires an improvement in the productivity of poorer areas of the country. **Only with higher productivity are we likely to see higher real wages.**

The challenges:

Energy prices feed into the consumer price index (CPI) measure of inflation. In addition to the direct effect of energy on the consumer basket, it is also a key input in the production of almost all goods and services. As a result, there is an indirect and more gradual effect of energy on inflation through this mechanism, as **energy adds costs to each stage in the supply chains of goods and services consumed by households. This has the potential to generate further inflation in the coming months over and above the high levels of inflation we are currently experiencing.**

Time will tell on the effectiveness of the [Government's energy policy announcement](#) in early September 2022, but the **relief scheme has been broadly welcomed by businesses.** However, the **business community continues to be incredibly concerned by high levels of inflation and rising interest rates,** and the effect that these will have on their plans for the coming months and the next financial year. The biggest challenges to Midlands businesses are still the **cost of energy, staffing, supply chain, inflation and interest rates.** Likewise, [fiscal changes](#) made by the Chancellor include **major shifts in economic approach, sure to impact the cost of living and doing business crisis; for good or bad for business and communities remains to be seen.**

Support has been provided to households via the Energy Price Cap, but has now been replaced with the Energy Price Guarantee. On 1 April 2023, the Energy Price Guarantee was set to rise by 20% on average, taking a typical bill under the EPG from £2,500/year to £3,000/year but Chancellor Jeremy Hunt has now announced this rise will be postponed and bills will remain at a typical £2,500/year until July. The £400 Government support is ending in March, however, the extra payments for those on many benefits, with disabilities and for pensioners will continue.

Latest figures show that fuel poverty is acutely affecting the Midlands, with 19.2% of West Midlands households in fuel poverty, the highest rates out of all the UK regions. The East Midlands is also above the UK average at 13.9%. This suggests that Midlands households may be in need of extra support, over and above the current Government schemes.

Productivity

Economic Regulation, Energy, Productivity and Growth

Economic regulation can play a key role in both enabling and hindering productivity growth. **Well designed economic regulation that addresses market failures like market power and negative externalities can contribute hugely to economic efficiency.** But economic regulation can also be a drag on productivity growth.

Dieter Helm's 2019 paper summarises the UK's **serious infrastructure problems** in all of rail, electricity, water, airports, and mobile and fixed-line telephony.

The underperformance of these affects productivity because of the essential role infrastructure plays in the functioning of the economy. **The quality of infrastructure affects many of the basic costs of production, movement of people and goods, communication, and innovation. Poor water and energy infrastructure can raise the costs of planning. Energy infrastructure is currently a threat to the roll-out of new technologies like electric cars and our ability to switch from traditional sources of energy to new sources.** And the wrong level of infrastructure may mean that we are operating with sub-optimal combinations of labour and capital, which raises costs. Put another way, getting more out of bad infrastructure may require very inefficient operating approaches.

Innovation:

The system has failed to deal well with innovation. The experience with smart meters is a good example. The focus was on maximising competition between suppliers in their roll out (which was badly done, delayed, and expensive). Less attention was paid to the more mundane back-office system changes that were needed to make time-of-use tariffs feasible. A decade on, the project remains a work in progress. As a further example, the UK has made significant investment in offshore wind, but is **now hitting constraints due to the failure to invest in the grid to transport this energy and to balance the system.**

Efficiency leads to productivity gains in particular by lowering maintenance costs and increasing production yields per unit of input. In addition, improvements in operation and process reliability, which can result from efficiency gains, lead to reductions in equipment downtime, shutdowns or system failures. Optimising processes to enhance efficiency can also reduce staff time required to enhance operations and scheduling while reducing the risk of human errors.

Source: [Fingleton, 2022](#)

More benefits are possible in an Efficient World

Between 2000 and 2017, energy intensity – final energy consumption per unit of gross value added (GVA) – in the industrial sector decreased by 25%. **Greater productivity gains are still possible from the adoption of cost-effective energy efficiency measures, as described by the IEA Efficient World Scenario (EWS). By 2040, manufacturing industries could produce nearly twice as much gross value-added from each unit of energy use.**

The most important and common factors holding back productivity and growth across the Midlands are: **(i) skills; (ii) infrastructure; (iii) access to growth finance; and (iv) barriers to R&D collaboration, commercialisation and knowledge diffusion/technology adoption.**

Other issues include premises, utilities, digital connectivity, inadequate business support, and more generally, outdated perceptions of the Midlands, which hamper efforts to attract talent and investment.

The supply of utilities, especially electricity, fibre broadband and water supply is holding back business growth. In some instances, this is holding back expansion or limiting the ability of firms to operate at maximum capacity (e.g. in the Black Country). **This is key given that many of the Midlands' important sectors are relatively energy-intensive, and there are opportunities associated with the region's strengths in low carbon energy.**

This is a symptom of under-investment in the region over a prolonged period of time. The Midlands needs to tackle these as a priority so as to create a more level playing field vis a vis its competitor regions. These challenges are not necessarily unique to the Midlands – but they are important.

To improve the Midlands Engines productivity, there should be a **strong focus on improving within sector/firm productivity levels, business growth and business formation** across the Midlands. A particular emphasis should be placed on **creating more technology-rich High Growth Firms.**

Source: [IEA, Multiple Benefits of Energy Efficiency, 2022](#)

Productivity Scorecard

The Productivity Institute UK ITL1 Productivity Scorecards, based on CBI/KPMG (2021) and inspired by Jordan and Turner (2022), are comprised of **five main regional productivity drivers** that need to be analysed: **business performance, skills and training, policy and institutions, health and wellbeing, investment and infrastructures**. These five regional productivity drivers are captured using 17 indicators, and their past performance is analysed in the short and long-term to help develop regional strategic initiatives and objectives.

Disparities between regional productivity performance are significant both across and within UK ITL1 regions. London remains the most productive part of the country in absolute terms, while Northern Ireland appears as the lowest productivity performer. However, the picture is not clear cut, with most regions having areas that are doing well and some that could be performing better.

The West Midlands scores green on 5 of the 17 indicators and also scores well on **R&D and innovation intensity and FDI and digital connectivity**.

The East Midlands scores strongly on 3 indicators. Like the West Midlands, the **East Midlands** also scores well on **R&D and policy indicators**. It also does well on **low economic activity**. But, in contrast, the West-Midlands, is average on FDI and connectivity.

| Productivity driver | ITL1 median | London (1st) | South East (2nd) | Scotland (3rd) | East of England (4th) | North West (5th) | South West (6th) | West Midland (7th) | East Midland (8th) | North East (9th) | Yorks & The Humber (10th) | Wales (11th) | Northern Ireland (12th) |
|----------------------------|-------------|--------------|------------------|----------------|-----------------------|------------------|------------------|--------------------|--------------------|------------------|---------------------------|--------------|-------------------------|
| Export Intensity | 24.2% | Green | Green | Green | Yellow | Red | Red | Yellow | Yellow | Green | Red | Green | Yellow |
| R&D Intensity | £631.55 | Red | Green | Red | Green | Red | Green | Green | Green | Red | Red | Red | Green |
| Innovative Firms | 45.3% | Red | Yellow | Red | Green | Yellow | Yellow | Green | Yellow | Red | Green | Yellow | Red |
| SME Finance | 8.0% | Red | Green | Yellow | Green | Red | Green | Yellow | Red | Red | Yellow | Red | Red |
| Business Creation | 11.6% | Green | Red | Red | Red | Green | Red | Green | Yellow | Green | Yellow | Yellow | Red |
| Tertiary Education | 39.3% | Green | Green | Green | Green | Yellow | Green | Yellow | Red | Red | Yellow | Yellow | Green |
| Unskilled population | 17.5% | Green | Green | Green | Green | Yellow | Green | Yellow | Red | Yellow | Yellow | Red | Red |
| Training Opportunities | 50.0% | Green | Yellow | Green | Yellow | Yellow | Yellow | Yellow | Yellow | Green | Yellow | Yellow | Yellow |
| Skill-mismatches | 5.0% | Yellow | Red | Green | Red | Red | Red | Yellow | Yellow | Green | Yellow | Yellow | Green |
| Political Uncertainty | 24.0% | Red | Yellow | Red | Green | Yellow | Green | Green | Yellow | Yellow | Yellow | Yellow | Red |
| Red Tape | 21.0% | Red | Green | Red | Yellow | Green | Red | Yellow | Yellow | Yellow | Yellow | Red | Red |
| Economic Inactivity | 21.6% | Green | Green | Red | Green | Red | Green | Yellow | Green | Red | Yellow | Red | Red |
| Long-term ill Health | 24.6% | Green | Green | Red | Green | Red | Yellow | Yellow | Yellow | Red | Yellow | Red | Red |
| Active Population | 62.0% | Green | Yellow | Yellow | Green | Yellow | Yellow | Yellow | Yellow | Yellow | Yellow | Yellow | Yellow |
| FDI Intensity | £30,858 | Green | Green | Green | Yellow | Red | Yellow | Green | Yellow | Red | Red | Red | Red |
| Physical Capital Intensity | £10,122 | Green | Green | Yellow | Green | Red | Yellow | Red | Yellow | Red | Yellow | Red | Yellow |

The use of those indicators is helpful to English regions and devolved nations to assess their relative strength and weaknesses in relation to others and **help them understand which policy areas might deserve further investigation to improve performance**.

Each region can only do well on some indicators. There is no silver bullet to improve productivity. But broadly speaking, a larger group of indicators performing well above the UK median across the five main regional productivity domains points to a better productivity performance.

Source: [The Productivity Institute, 2023](#)

Gross Value Added & Productivity

The Midlands Engine total **Gross Value Added (GVA)** decreased from **£249.2bn** in 2019 to **£240.3bn** in 2020. This equated to a 3.6% annual decrease, reflecting the UK trend (-3.4%) – **driven by the onset of the Covid-19 pandemic**. Notably, out of the 65 Midlands Engine local authorities, just **10 local authorities increased in total GVA** between 2019 and 2020.

Midlands Engine **GVA per head** decreased from **£24,081** in 2019 to **£23,100** in 2020. This equates to a 4.1% (-£981) decrease, above the UK average decrease of 3.8%. In 2020, there was a GVA per head **shortfall of £5,964** to the UK figure (£29,063).

Of the Midlands Engine’s ten defined sectors, **business, professional & financial services remains the largest in terms of GVA, accounting for 27.2% (£65.3bn)** of total GVA in 2020. However, this sector’s GVA decreased by 3.4% (nearly £2.3bn) since 2019. **Despite, the overall decline in GVA, two sectors for the Midlands Engine area increased** between 2019 and 2020. These were; public sector inc. education, increasing by 6.4% (+£1.8bn) to reach £29.9bn; and healthcare and life sciences increasing by 15.3% (+£3.2bn) to £24.4bn.

GVA by Sector for the Midlands Engine overall and UK-wide:

| | Midlands Engine | | | | | UK | | | |
|---|-----------------|---------------|---------------|--------------|-----------------|-----------------|-----------------|---------------|-----------------|
| | 2019 | 2020 | % Change | Num. Change | % of 2020 total | 2019 | 2020 | % Change | % of 2020 total |
| | £ Billions | | | £ Billions | | £ Billions | | | |
| Advanced Manufacturing | £41.8 | £37.8 | -9.70% | -£4.1 | 15.70% | £200.3 | £186.9 | -6.60% | 9.60% |
| Business, Professional & Financial Services | £67.6 | £65.3 | -3.40% | -£2.3 | 27.20% | £708.0 | £692.1 | -2.20% | 35.50% |
| Construction | £18.0 | £16.1 | -10.20% | -£1.8 | 6.70% | £141.0 | £123.7 | -12.30% | 6.30% |
| Creative, Design & Digital | £9.6 | £9.5 | -0.20% | -£0.0 | 4.00% | £125.2 | £123.3 | -1.60% | 6.30% |
| Energy & Low Carbon Activities | £12.1 | £11.6 | -4.50% | -£0.5 | 4.80% | £89.9 | £80.4 | -10.60% | 4.10% |
| Healthcare & Life Sciences | £21.2 | £24.4 | 15.30% | £3.2 | 10.20% | £152.6 | £177.3 | 16.20% | 9.10% |
| Public Sector inc. Education | £28.1 | £29.9 | 6.40% | £1.8 | 12.50% | £217.2 | £231.0 | 6.40% | 11.80% |
| Retail | £29.8 | £28.6 | -4.00% | -£1.2 | 11.90% | £210.8 | £203.8 | -3.30% | 10.50% |
| Transport Technologies & Logistics | £10.6 | £10.2 | -3.70% | -£0.4 | 4.30% | £80.4 | £70.7 | -12.10% | 3.60% |
| Visitor Economy | £10.5 | £6.8 | -35.30% | -£3.7 | 2.80% | £91.9 | £60.3 | -34.30% | 3.10% |
| Total | £249.2 | £240.3 | -3.60% | -£8.9 | 100% | £2,017.3 | £1,949.6 | -3.40% | 100% |

Productivity

The Productivity Institute published [Productivity in the UK: Evidence Review](#) in June 2022. **The report contains contributions from the Midlands Engine Observatory.**

The key points from the report include –

- In the three decades since the Second World War, the average annual productivity growth rate (output per hour worked) was around 3.6 per cent. The following three decades saw this fall to around 2.1 per cent. From the start of the financial crisis in 2007 to 2019, this declined even further to 0.2 per cent. **Demonstrating the importance of productivity for the economy and living standards**, the Office for National Statistics (ONS) reports that **if productivity had continued to grow at two per cent per year in the last decade, it would have meant an extra £5,000 per worker per year on average.**
- **The bulk of evidence indicates that the slowdown in UK productivity growth started circa 2007-08**, around the time of the financial crisis. As reported by the ONS, there was a very sharp slowdown in output per hour worked in the UK after the financial crisis.
- **The UK’s productivity performance has been uneven across the country.** There is a persistent gap between London and the South-East and the rest of the UK regions and cities. Human capital is highly concentrated in London and broader South-East. A view presented to The Commission is that productivity growth has been held back by ‘productivity laggards’ in the long tail. The alternative view also presented is that the gap between the high- and low-productivity firms did not increase substantially since the financial crisis. Rather, it is frontier firms, which often export, that have struggled to bounce back and boost productivity growth.
- Numerous policies are suggested to improve the UK’s poor productivity performance by tackling structural problems, which include **over-centralisation, weak and ineffective institutions and policy churn, institutional and policy silos, as well as short-termism and poor policy coordination.**

Midlands Engine Productivity per Hour

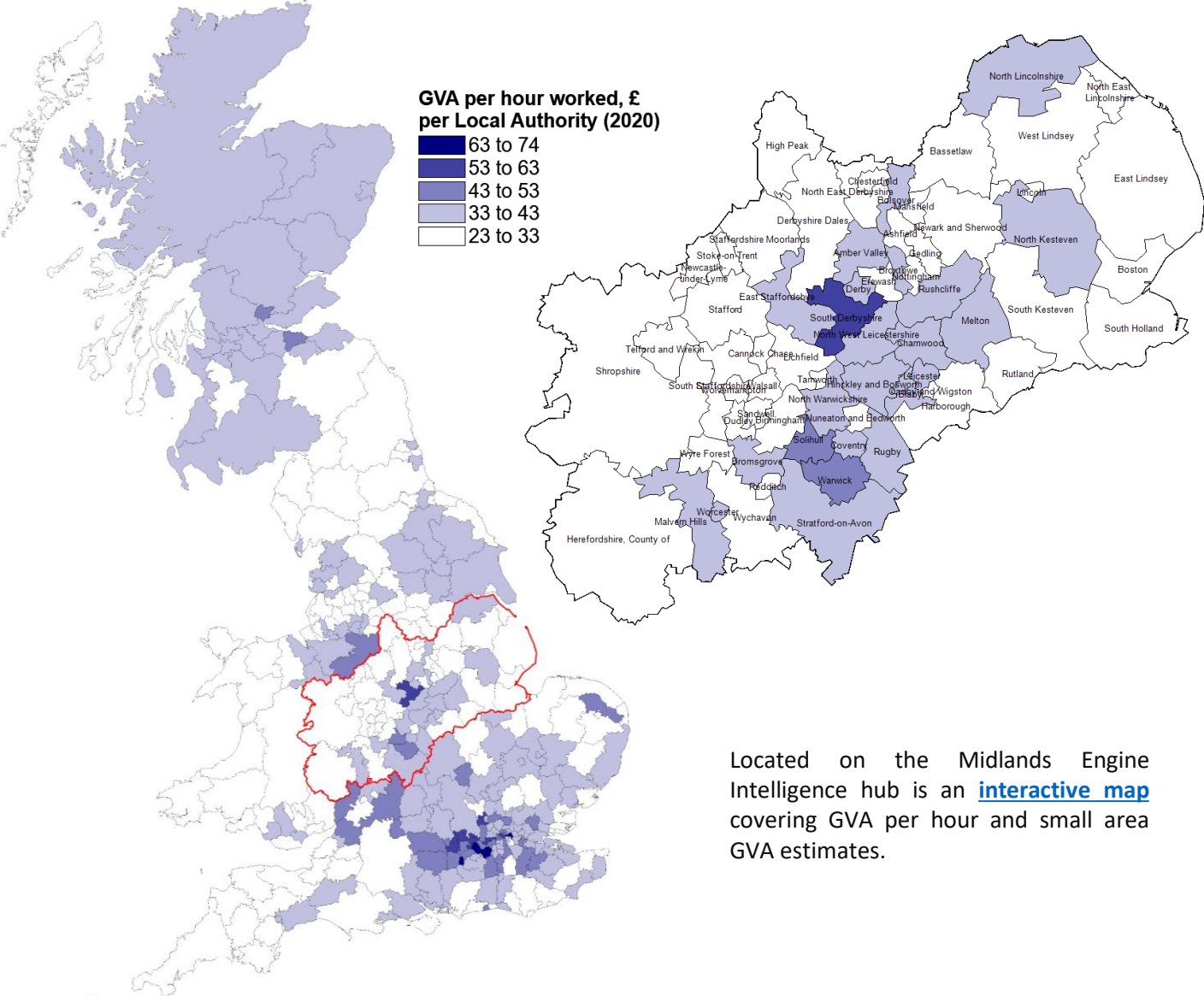
The **Midlands Engine unsmoothed GVA per hour worked increased from £32.05 in 2019 to £34.71 in 2020 (+8.3%, +£2.66)**. The UK unsmoothed GVA per hour worked increased from £36.49 in 2019 to £39.94 in 2020 (+9.5%, +£3.45). There was a **shortfall of £5.23 when comparing the Midlands Engine area to the UK**.

Within the Midlands Engine, 2 local authorities decreased in smoothed GVA per hour since 2019; Rugby (-£0.04 to £35.43) and Staffordshire Moorlands (-£0.36 to £27.29). At the other end of the scale, South Derbyshire increased by £2.45 (to £58.74), Rushcliffe by £2.18 (to £42.92) and Broxtowe by £1.76 (to £37.15).

In 2020, smoothed GVA per hour worked varied for the Midlands Engine 9 LEPs from £28.61 (+2.4%, +£0.67 since 2019) in the Marches LEP to £38.08 (+1.0%, +£0.38 since 2019) in Coventry and Warwickshire LEP.

Smoothed GVA per hour worked for the West Midlands region increased by 1.9% (+£0.62) since 2019 to £33.07 in 2020. Smoothed GVA per hour worked for the East Midlands region increased by 2.5% (+£0.78) since 2019 to £32.58 in 2020. The UK smoothed GVA per hour worked increased by 2.1% (+£0.78) since 2019 to £37.73 in 2020.

Smoothed GVA per hour worked across all local authorities, with a special focus on the Midlands Engine in 2020:



Located on the Midlands Engine Intelligence hub is an [interactive map](#) covering GVA per hour and small area GVA estimates.

Gross value added (GVA) per hour worked divides GVA by the total hours worked by the workforce in the area. GVA per hour worked is the preferred measure of labour productivity. In 2020, in response to the coronavirus pandemic, both the UK chained volume measure (CVM) GVA and hours worked declined substantially (by 10% and 11%, respectively). In the majority of areas, the decline in hours worked was greater than the decline in GVA. Positive productivity growth was mainly because of the distribution of economic activity between industries.

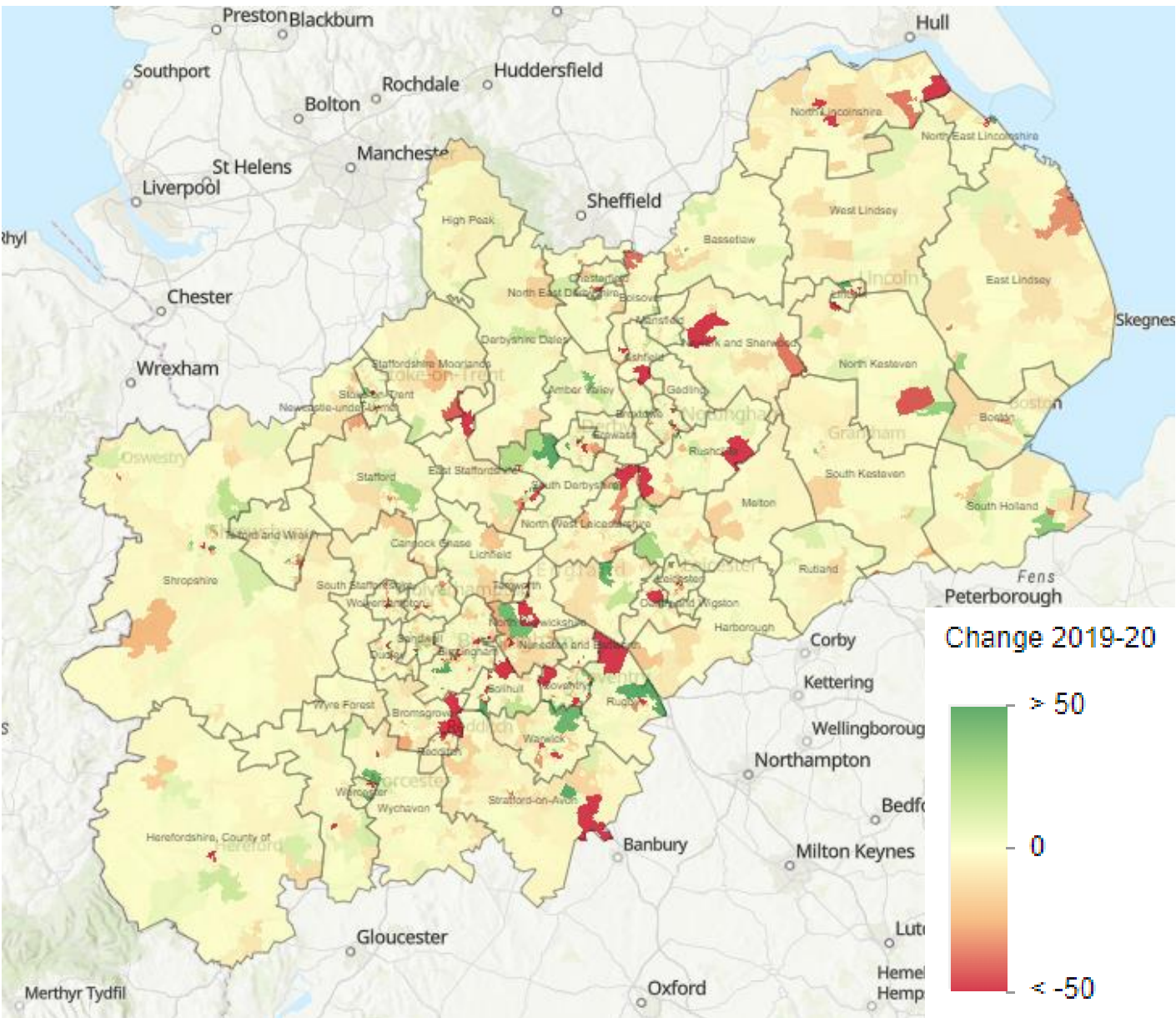
Source: [Office for National Statistics \(ONS\), Subregional productivity in the UK: July 2022](#). Please note, a Midlands Engine figure is only available on an unsmoothed basis.

Midlands Engine Productivity by Small Area

New GVA estimates are available for small areas across the UK. Across the Midlands Engine, **the top 5 Lower Support Output Areas (LSOAs) for GVA are within Birmingham (£4.0bn), West Northamptonshire (£2.7bn), Warwick (£2.2bn), Derby (£1.8bn) and Stratford-on-Avon (£1.5bn).** The bottom 5 LSOAs for GVA are within South Kesteven (£0.1m), Dudley (£0.2m), Sandwell (£0.8m) Birmingham (£0.8m) and Birmingham (£1.0m).

When looking at GVA change over time, since the previous year, **47% of LSOAs across the Midlands Engine area increased, whilst 53% decreased.** Areas which decreased include LSOAs within Solihull, Birmingham, Stratford-on-Avon, High Peak and Dudley, all seeing decreases above 90%.

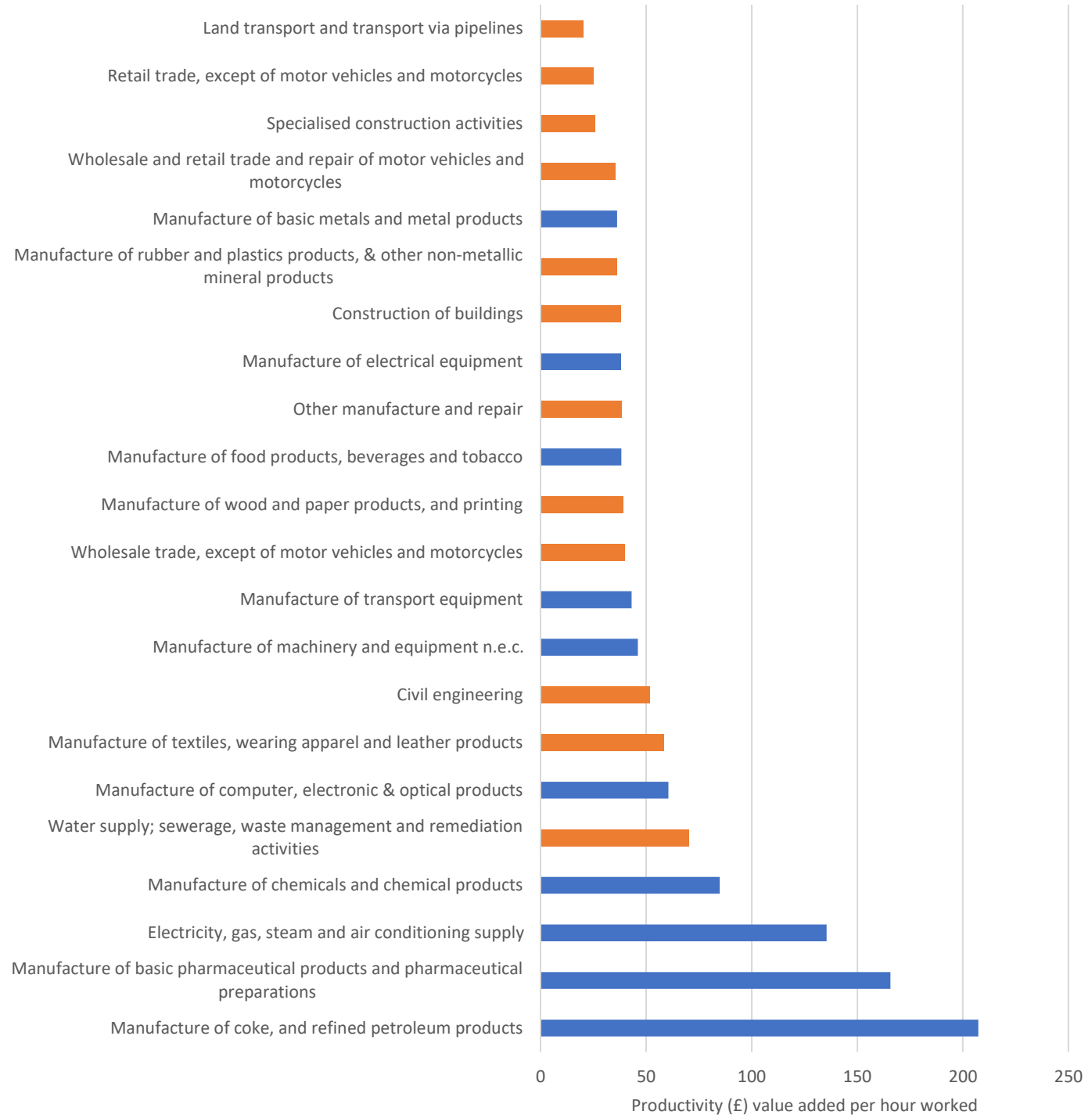
GVA estimates for LSOAs in the Midlands Engine, change from 2019 – 2020:



Productivity Correlated to Energy Intensity

The Productivity Institute have calculated the **correlation between productivity and energy intensive industries**. The below graph highlights energy intensive industries in blue, along with their productivity – the value they add per hour of work (x axis). The top 4 most productive sectors are also energy intensive. In fact, **7 out of the 10 most productive sectors are energy intensive**, highlighting the link between energy use and productivity in sectors.

Productivity - value added per hour worked aligned with energy use



Impact of Energy Price Rises on Business

Energy Prices Explained

Ofgem monitor the wholesale energy market for gas and electricity. These charts below represent the **wholesale prices that suppliers typically face when buying gas or electricity to supply their customers. The cost of suppliers purchasing wholesale energy is the largest component of a customer's bill.** Wholesale prices can vary significantly compared to other components of a household bill. Ofgem take wholesale prices into account when setting the level of the Price Cap at the beginning of February and August.

Electricity:

The price for all electricity sold in a given trading period is set by the 'marginal generator' – i.e. the last one turned on to meet demand. **Electricity prices are heavily impacted by rising gas prices** because of the importance of gas-fired power stations which can easily be switched on or off to generate quick electricity, unlike nuclear or renewable sources. This is the most significant driver of the increase in wholesale electricity prices.

More recently, issues around the nuclear generation in France and the unavailability of several nuclear reactors over the summer have influenced power prices to increase significantly. There are also concerns that issues might continue over the coming winter. As the UK is interconnected with France, UK power prices have also been affected by the very high French power prices.

Electricity Prices: Forward Delivery Contracts – Weekly Average (GB)



Gas:

These contracts, for periods that are many months in advance, are influenced by longer term market changes and traders' estimation of future supply and demand movements.

Winter 2021 saw historic highs in gas price, largely due to low levels of gas storage in Europe and reduced Russian flows to Europe compared to previous years. This was mitigated somewhat in Q1 2022, as the UK had had the highest LNG deliveries in the past 5 years.

The Russian invasion in Ukraine caused high price volatility as traders increased their risk premium among concerns that Russian flows through the main transit routes in Ukraine and Belarus would be targeted. Since March 2022 flows from Russia to Europe have significantly decreased across most major transit routes, feeding the security of supply concerns across the continent and therefore pushing prices upwards.

Gas Prices: Forward Delivery Contracts – Weekly Average (GB)



Why are Global Wholesale Energy Prices Increasing?

Although we are all experiencing the effects of rising energy prices at home and at work, this is a global phenomenon, caused by far-reaching and some unanticipated reasons:

1. **Invasion of Ukraine** - The invasion of Ukraine has caused massive disruption to energy gas supplies. This is especially the case as G7 and EU countries are reducing or banning the use of Russian energy supplies.
2. **Gas shortages** - There was a prolonged cold winter between 2020 and 2021, this drained the EU's natural gas storage.
3. **Increased demand** - As countries move away from less environmentally friendly fossil fuels, there has been a rise in the demand for natural gas to ease the transition. Therefore, there has been higher demand for liquified natural gas (LNG) from Asia, which has led to lower LNG shipments to the EU.
4. **Nord Stream 2** - The Nord Stream 2 pipeline is a \$11bn link across the Baltic Sea with the capacity to send 55 billion cubic metres of gas a year, directly from Russia to Europe, bypassing the Ukraine. However, the project has been halted due to the geopolitics surrounding the Russian invasion of the Ukraine. Currently, it is viewed by Europe that allowing this pipeline to open would give Moscow too much geopolitical power.

Why are UK energy prices so high?

Whilst we are in the midst of a global energy crisis, the UK is also suffering from additional issues:

1. **Low winds** - Over the past year, low winds have meant lower renewable energy generation. This, coupled with outages at some nuclear power stations, has led to a higher percentage of electricity production through using gas.
2. **National Grid** - A fire at a National Grid site in Kent, knocked out a power cable that runs between the UK and France, used to import electricity from the continent. This is not expected to be fully functioning again until 2023.
3. **Gas reserves** - The UK has the lowest gas reserves within Europe; this means there is little opportunity to stockpile gas to use it when most needed. Stockpile capacity is equivalent to roughly 2% of the UK's annual demand, compared with 25% for other European countries and as much as 37% in Europe's four largest storage holders.

The rates a business will be charged for energy will **depend on the size and type of business, as well as the amount of energy used, as well as how and when it is used. Location may also have an impact** of the rates that a business may pay.

The price does vary dependent annual consumption of gas. Businesses consuming under 278 MWh or very small consumers, on average pay 5.34 pence per kWh, comparative to very large consumers which consume over 277,778 MWh per year which were paying an average of 4.11 pence per kWh.

Much like gas prices, **electricity prices varied by annual volume of consumption.** Very small consumers – consuming under 20 MWh per year- were likely to pay the highest electricity price in Q4 of 2021 at 18.84 pence per kWh. Whereas extra-large consumers- consuming over 150,000 MWh annually- paid on average 17.07 pence per kWh.

How are Rising Energy Prices Affecting the UK Economy?

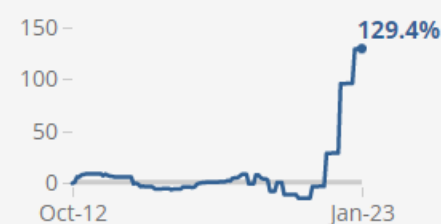
Higher costs of electricity, gas and petrol not only hurt households directly, but also indirectly as these fuels are key inputs in the production of almost all goods and services. In addition to pushing up inflation, the big rise in energy prices will reduce real GDP, real wages and productivity.

The UK's current cost of living crisis has been mostly driven by the big increase in energy prices. Rising food costs have also had a major impact, as inflation reaches levels not seen in 40 years.

Energy prices feed into the consumer price index (CPI) measure of inflation through two kinds of expenditure: **domestic energy consumption** – electricity, gas, liquid fuel oil and solid fuel such as coal or wood; and **fuels used for cars** – petrol, diesel and oil. Expenditure shares for poorer households are much larger and, consequently, they experience a higher rate of inflation.

Gas prices rose 129.4% in the year to January 2023

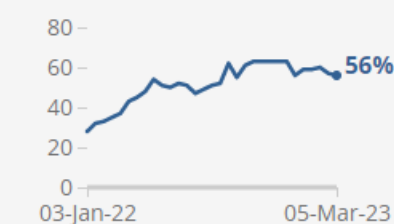
Gas annual CPIH inflation rates, UK



Office for National Statistics

Nearly 6 in 10 adults are using less fuel in their homes due to cost of living increases

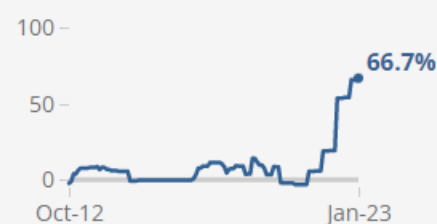
Adults in Great Britain



Office for National Statistics

Electricity prices rose 66.7% in the year to January 2023

Electricity annual CPIH inflation rates, UK



Office for National Statistics

Source: [ONS, Cost of Living Insights: Energy, March 2023](#)

While the Russian invasion of Ukraine has had a major effect, energy prices were already rising before the war. This partly reflects a 'base effect': **prices have risen from a very low levels as a result of the lack of demand during the Covid-19 pandemic**. Recovery in 2020 and 2021 meant that energy prices also came back. Supply problems in the energy industry – which were common across many other sectors post-pandemic – have also contributed. **Increasing output after a period of very low production caused problems of its own**. In fact, the global supply chain issues lasted much longer than predicted early in 2021, and only eased by the end of that year.

What are the broader effects of energy price inflation?

In addition to the direct effect of energy on the consumer basket, it is also a key input in the production of almost all goods and services. **Fuel is required for lorries to distribute most goods, and energy in the form of electricity is essential for the provision of all goods and services**. In national accounting terms, energy is an intermediate input into all sectors.

As a result, there is an indirect and more gradual effect of energy on inflation through this mechanism, as **energy adds costs to each stage in the supply chains of goods and services consumed by households. This has the potential to generate further inflation in the coming months**.

But energy price inflation will also reduce the value added of producers in the UK (the difference between the value of their output and their inputs, which include energy). **This will be reflected in a fall in GDP and productivity relative to what they would have been without the increase in energy prices**.

Energy prices affect the UK government's tax revenues and public spending – that is, they have a major fiscal impact. The costs incurred by the government to supply education, health and other services will increase directly as a result of rises in energy costs. If public sector wages go up in response to rising inflation, this will also have an effect on government spending.

Source: [Economics Observatory, 2022](#)

How are Rising Energy Prices Affecting the UK Economy?

Effects on Business

Energy “poverty” in a business sense reflects decreasing competitiveness and corporate profit through increased business costs, such as sustained and rising fuel prices. **Industrial pricing of energy is structurally uncompetitive in the UK across all users; this clearly not just a new issue, with industry suffering for many years. Industrial energy prices for large industrial consumers are up to 50-90% higher in the UK compared to EU competitor countries,** acknowledged by the Department for Business, Energy and Industrial Strategy (BEIS) in an [EII consultation](#). For large industrial consumers, **costs are 40-70% higher.**

The current energy cost crisis is exacerbating the structural issues with industrial energy markets, raising prices and making Midlands and UK manufacturers even less competitive. **Costs are reportedly doubling** in some instances, which will ultimately only result in **price rises or business contractions / failures**. This was a major problem even before Covid and Russia’s invasion of Ukraine; but is now getting worse. The impact can be split into two major categories:

- 1) Immediate:** Companies that have not hedged the cost of their energy supply (fixed it), and are thus experiencing immediate-term energy price rises. This must either be passed on to customers or subsumed into company’s operations.
- 2) Delayed:** It is true that many companies – even SMEs – have hedged the cost of their energy supply. But these contracts will run out, many later this year or next year, which creates huge uncertainty for short/medium-term business planning and order quotes in the near future. Businesses essentially have no certainty of their cost inputs from when their energy hedge contract comes to an end, making accurate quoting for new orders into next year extremely difficult.

Some key knock-on effects to business and the wider economy include:

- **Rising fuel costs limit investment and innovation into digital, circular, and decarbonised manufacturing** methods. Consequently, increasing the risk of carbon and valuable job leakage, threatening to deliver a green industrial revolution and levelling up.
- **Rising fuel costs damage business competitiveness**, especially in comparison to UK business and their EU counterparts like France or Germany. The same is for electricity, where a [2018 UCL study](#) found that UK businesses pay as much as 33% more than the rest of Europe.
- Furthermore, reports of energy costs doubling highlight structural issues with industrial energy markets, resulting in **price rises or business contractions / failures**.

The impact of inflation on rising costs / prices continues to be a major business issue, particularly for utilities, wages and materials. Business groups have warned that the **inflationary spiral is “unsustainable”** for businesses. The drastically rising cost of key inputs – such as people, materials, energy – is damaging the competitiveness and sometimes feasibility of many Midlands businesses. **Inevitable cashflow pressures are unfortunately leading to firms being in financial stress and some facing closure.** Many businesses are struggling to absorb major increases in the costs of inputs, but against the backdrop of the cost of living crisis, they **feel unable to pass on significant cost increases to customers.**

Business confidence in both the East Midlands and West Midlands has dropped further into negative territory as companies grapple with the rising cost of doing business. Sentiment tracked by [ICAEW’s Business Confidence Monitor \(BCM\)](#) for the West Midlands for Q4 2022, found confidence at -19.9, coming in at -20.1 for the East Midlands. Companies are facing tremendous input cost pressures. Annual input price inflation has been trending upwards over the last year, in part because of ongoing supply-chain disruptions, but also because of higher energy and commodity prices due to the Ukraine-Russia war.

Impact of Energy Price Rises on Midlands Business

Energy Use by Sector

The type of industry and the way businesses use energy will determine the amount of [energy used each year](#). When it comes to heating business premises, the **energy efficiency of the building will also play a part**. [The top energy consumers by industry include](#):

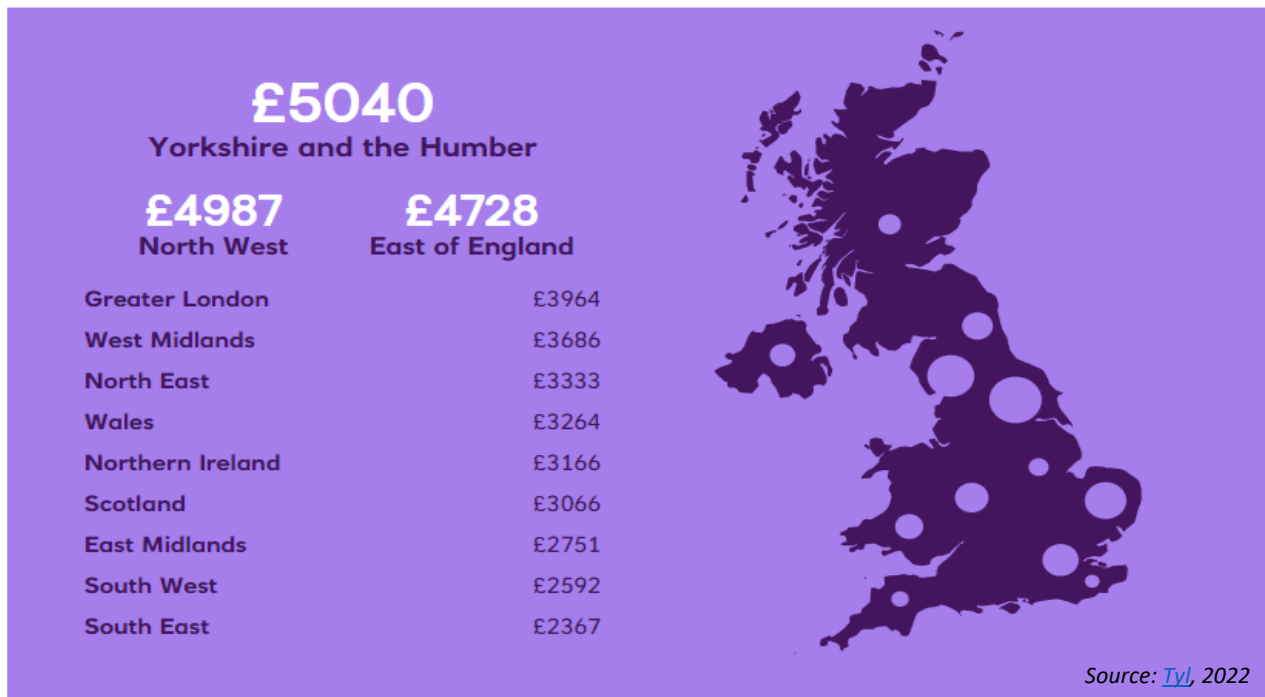
- Commercial & miscellaneous services (169,972,450 MWh)
- Public administration (64,883,770 MWh)
- Manufacturing & industrial services (42,042,450 MWh)

Impact on the Midlands

There are approximately 373,000 micro and small businesses in the Midlands, with these businesses making up 98% of the Midlands Engine total business count. **Energy prices rising will drastically impact their ability to continue to operate at current capacities**. If energy prices continue to rise at such a rate many businesses in the region may be forced to reduce operations or raise prices.

Currently, according to analysis from [Tyj](#), as can be seen below, the **average business within the West Midlands is spending £3,686 and the average business in the East Midlands is spending £2,751 on their annual energy bills**. Across the UK regions, the West Midlands was the 5th highest region and the East Midlands was the 3rd lowest region for annual energy bills. Yorkshire and The Humber was the highest region for annual energy bills at £5,040 down to the South East at £2,367.

Annual business energy bills by region:



Conclusions

Rising energy prices could see these figures climb even further, especially following the **energy price increases last October**. Unlike on domestic energy prices, there is no energy price cap on business energy rates. According to [70% of business owners](#) surveyed, rising energy prices will also continue to stifle their growth. This **stifling of growth alongside protracted high inflation could lead to stagflation in the region**.

This could be particularly acute in the Midlands as the **industrial make-up of the Midlands was highly impacted by the pandemic**, vastly reducing growth, compared to other UK regions. Some of these large sector employers in the region, such as the automotive industry, are also still grappling with inflation caused by other factors such as shortage of raw materials, supply chain bottlenecks and Brexit increasing transactional costs. **Rising energy prices will likely force many businesses in these sectors to increase prices and this will reverberate across all supply chains**.

Rising energy prices are increasing at a faster rate in the UK compared to other countries. Inflation rising at a higher rate in the UK than in other countries, will lead to **real term increases in prices comparative to other countries**. The Midlands is one of the UK's highest exporters of goods and inflation rises will reduce the comparative advantage of firms in the region compared to firms internationally. **As a result, exports may fall**.

Midlands Specific Impact

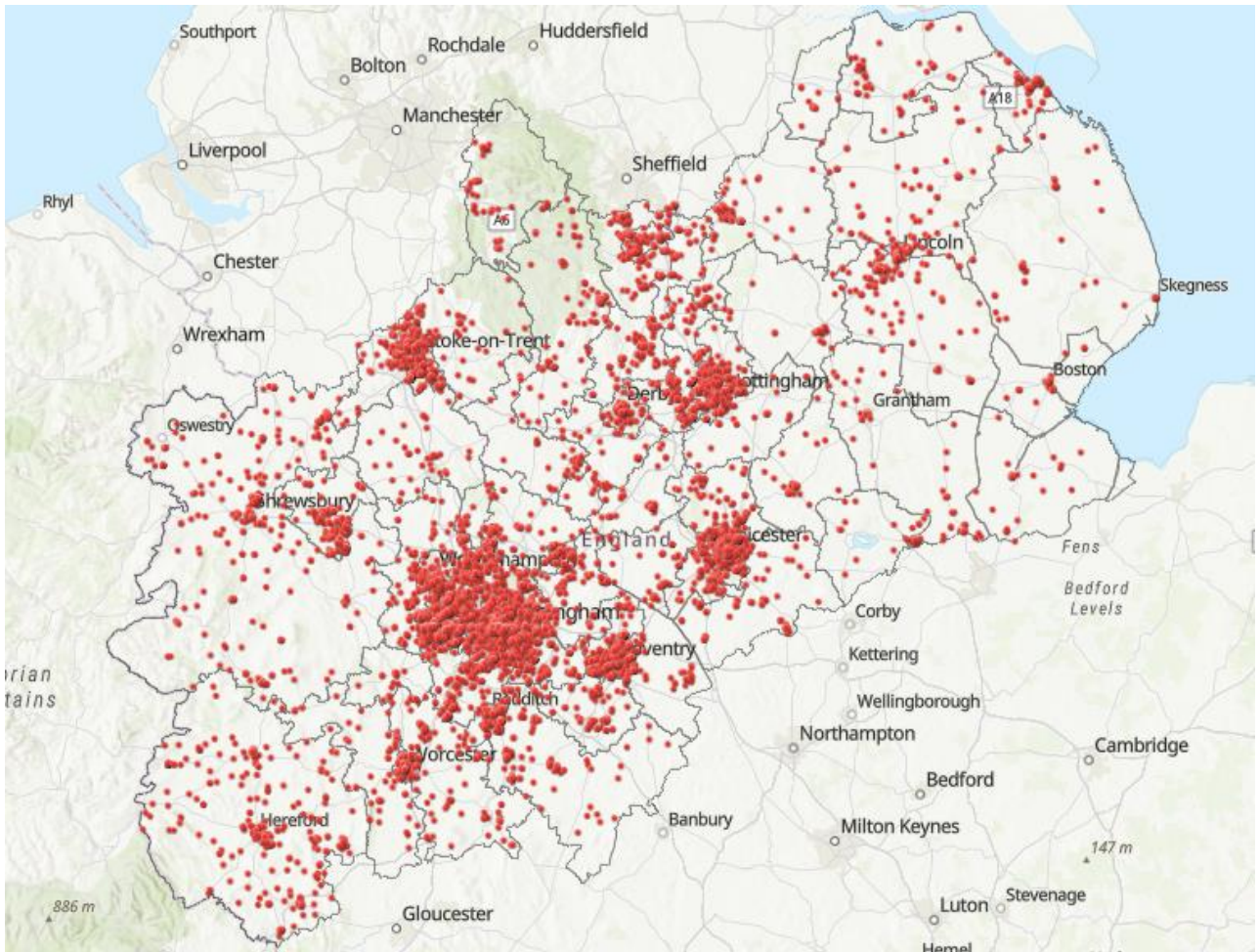
Energy Intensive Companies

The companies most exposed to increased energy costs are **medium and small manufacturing businesses exporting or competing in global markets**. Manufacturing businesses employ more than 530,850 skilled people in the Midlands Engine.

These companies are also **heavily inter-connected with international supply chains and rely on the efficient movement of goods across borders**. For multiple reasons, Midlands trade with other parts of the world has taken a **disproportionately negative impact in recent years**: the region **exported £1.9bn (-3.4%) less goods now compared to 3 years ago** (2019 vs 2022), with the West Midlands experiencing the largest decrease of all UK regions at -5.6%, and the East Midlands decreased by 0.5%. Increasing costs for critical materials is adding extra pressures. All sectors are now being affected by rising costs now though, including retail, services and hospitality.

The industrial structure of the Midlands Engine economy means it is **more at risk from increased energy costs than any other region**. The Midlands Engine has a concentration of GVA in certain sectors with high energy demand, such as manufacturing, transport and storage, and wholesale and retail trade of vehicles. **These 3 sectors alone account for 32% of the Midlands Engine GVA**. The energy price rises severely damage competitiveness of UK SME manufacturers, disproportionately impacting the wider Midlands given our industry base.

Energy Intensive Companies



The spatial distribution of companies – these are widely dispersed sites - and the average size (20-50 staff) means that many interventions which work for large single-site operations (steelworks, oil refineries) are inappropriate and uneconomic for the Midlands.

Source: HMRC: UK Regional Trade in Goods Statistics, 2023

Office for National Statistics: [Regional economic activity by gross domestic product, UK: 1998 to 2020](#) - released May 2022

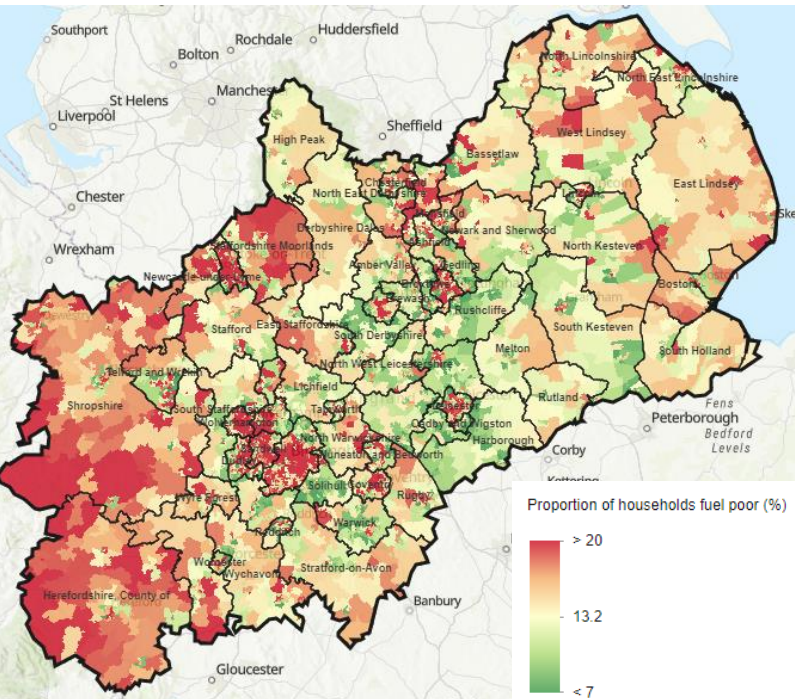
DataCity

Energy Crisis – Household Impacts

Energy Poverty

The [Department for Business, Energy & Industrial Strategy](#) (BEIS) defines that energy poverty, or fuel poverty, in England is measured using the **Low-Income Low-Energy Efficiency (LILEE)** indicator. A household can be considered fuel poor if they are living in a property with a **fuel energy efficiency rating of D band or below**, and when they spend the required amount to heat their home, they are **left with a residual income below the official poverty line**.

Fuel Poverty across the Midlands Engine when compared to the England rate:



In 2020, **16.5% of households in the Midlands Engine area were fuel poor compared to 13.2% England-wide**. This equated to approximately **718,995 households** in the Midlands Engine area. This has increased by 2.9% or 20,101 households since 2019. England-wide, there has been a 0.6% decline since 2019.

[New data released in February 2023](#) shows that the **West Midlands has the highest rate of fuel poverty out of all the UK regions, at 19.2%**. The **East Midlands comes in 4th at 13.9%**. The South East has the lowest rate at 8.6%. The UK average was 13.4%.

| Region | Proportion of households that are fuel poor |
|----------------|---|
| East Midlands | 13.9% |
| West Midlands | 19.2% |
| All households | 13.4% |

Rising Energy Bills

[The Joseph Rowntree Foundation](#), found that rising energy bills will **especially ‘devastate’ the poorest families**. Their analysis found that households on low incomes will be spending an average 18% of their income after housing costs on energy bills after April 2022. However, for single adult households on low incomes this rises to 54% with an increase of 21% since 2019/2020, with lone parents and couples without children will spend around 25% of their income on energy bills, an increase of almost 10% in the same period. This will be impactful for the Midlands as between 16-19% of local areas in the West Midlands and 10% of local areas in the East Midlands were in the bottom 10% of areas for household income after and before housing costs.

Effects on People

Energy poverty for people, like any type of poverty can have negative effects on individuals and lowering their quality of life – forcing individuals to live without necessities like indoor thermal comfort. In some cases, even leading to death. Some key effects on people:

- **Fuel poverty can lead to more deaths in the winter months i.e., Excess Winter Deaths.**
- People living under poverty are forced to make tough decisions, like **choosing to pay for energy bills or food**.
- There are **poorer health outcomes for individuals with cold homes**, placing a strain on the NHS.
- There are **associations between cold homes and poor educational performance in children**, partly caused by higher rates of sickness and absence from school. Similarly, **children living in cold homes are more likely to lack an adequate environment to do their homework**.
- Moreover, a systematic review examining **housing improvements and socio-economic outcomes indicated that improvements in the warmth of a home could reduce absence of work**, which was likely to have a **positive impact on work-related health**.

In the Midlands Engine in the 2020/21 winter period there were **10,990 excess winter deaths** including Covid-19. In the same period, England had **57,290 deaths** which included Covid-19. The Midlands Engine makes up **19.2%** of excess winter deaths which involved deaths including Covid-19 in England.

Midlands Businesses Eligible for Energy Bill Support

Energy Intensive Industries:

The Energy and Trade Intensive Industries (“ETII”) scheme has identified 121 sectors as those meeting certain thresholds for energy and trade intensity. Energy intensity was based on electricity and gas consumption as a % of a sector’s GVA using ONS data. Trade intensity was based on goods trade using ONS data. **To qualify as an ETII sector, the sector had to be above the 80th percentile for energy intensity (i.e., fall in the top 20% of sectors by energy intensity across the UK), and the 60th percentile for trade intensity (i.e., fall in the top 40% of sectors by trade intensity across the UK).**

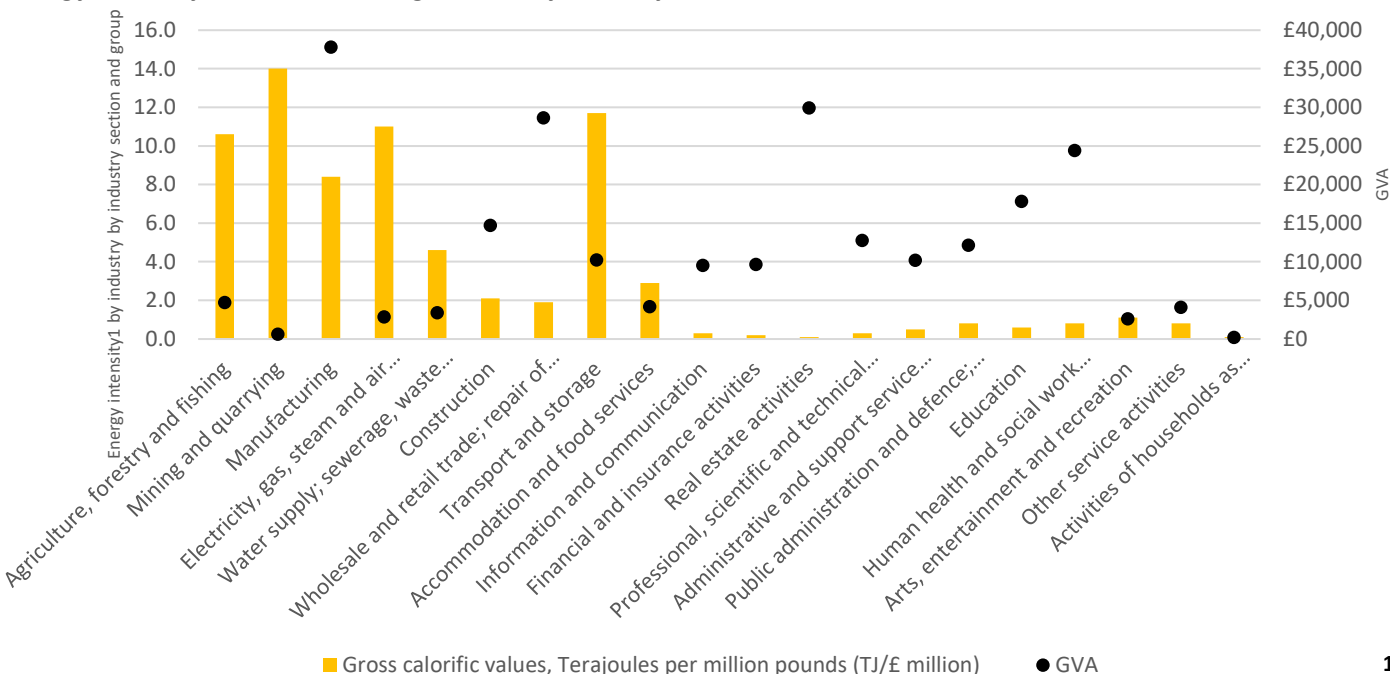
The eligible SIC codes cover 1.2% of total businesses in the Midlands Engine and 4.2% of jobs. They cover 17% of manufacturing businesses, which support 34% of manufacturing jobs locally. This means that 20,705 manufacturing businesses in the Midlands Engine are not eligible for the extra support. These ineligible manufacturing businesses provide over 335,425 jobs in the Midlands Engine (from a total of 511,000) – hence the eligibility only covers a third of local manufacturing jobs and less than a fifth of businesses. This is below the national picture, as 23% of Great Britain’s manufacturing firms are eligible, and 35% of manufacturing jobs. The Midlands Engine overall greater reliance on manufacturing means that the knock-on effects of a lack of support for large parts of manufacturing does make us more vulnerable.

Summary of businesses and jobs covered in the Energy and Trade Intensive Industries (“ETII”) scheme

| Industry | Midlands Engine businesses | Midlands Engine jobs |
|-----------------------------------|----------------------------|----------------------|
| NO. IN ELIGIBLE SECTORS | 4,520 | 190,650 |
| % OF TOTAL | 1.2% | 4.2% |
| NO. OF MANUFACTURING ELIGIBLE | 4,340 | 175,575 |
| % OF TOTAL MANUFACTURING | 17% | 34% |
| NO. OF MANUFACTURING NOT ELIGIBLE | 20,705 | 335,425 |
| TOTAL (Economy-Wide) | 382,895 | 4,494,900 |

The graph below sets out total UK energy intensity per sector (bars) compared to Midlands Engine GVA (dots). **The Midlands Engine has a concentration of GVA in certain sectors with high energy demand, such as manufacturing, transport and storage, and wholesale and retail trade of vehicles. These 3 sectors alone account for 32% of Midlands Engine GVA.**

Energy intensity and Midlands Engine GVA by industry

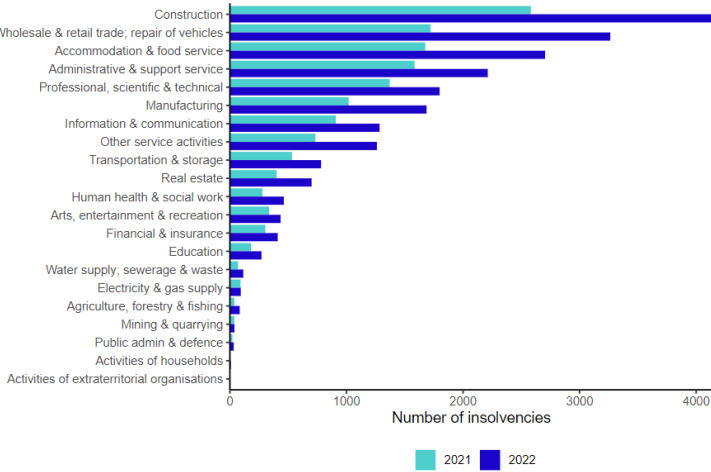


Business Deaths – Sector Analysis

Sector Analysis

Sector data for business deaths or insolvencies at the regional or local level is not published by the Insolvency Service or ONS. However, the latest national company insolvency data by sector currently reports to December 2022.

England and Wales insolvencies, 2021 compared to 2022



When comparing the total number of England and Wales company insolvencies by sector in 2021 with 2022; **manufacturing has seen an increase of 65.6%, from 1,019 insolvencies in Jan-Dec 2021 to 1,687 insolvencies in Jan-Dec 2022.**

This is higher than the economy overall rate of 57.3% and above other major sectors such as construction (+60.5%), transportation and storage (+47.0%), accommodation and food service activities (61.3%).

When looking at energy intensity in construction sub-sectors, it is clear they have higher energy demands than other activities. SIC 42 - Construction and construction works for civil engineering, has an energy intensity of 4.1 TJ/£ million*, this sector saw an increase in insolvencies at 9% since the previous year.

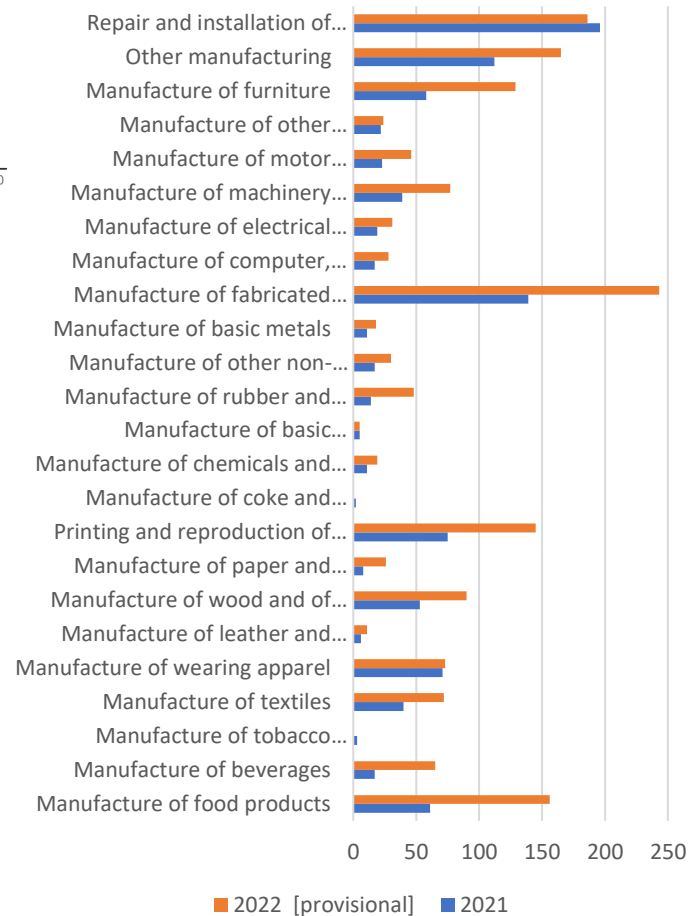
Transportation and storage sub-sectors, including SIC 49-51 – which relate to activities of air, water and land transport, have seen insolvency rates increase by 45%, 33% and 49% respectively. These 3 sub-sectors have significant energy demands, having some of the highest energy intensity rates out of the entire economy, with air transport services (SIC 51) having an energy intensity of 174.3 TJ/£ million.

* Gross calorific values, Terajoules per million pounds

Manufacturing

There have been recent spikes in most manufacturing sub-sectors in 2022. SIC 25 - Manufacture of fabricated metal products, except machinery and equipment has sent the largest increase in real terms, at 104 more insolvencies in 2022, taking it to a total of 243 insolvencies, the **highest number out of all the manufacturing sub-sectors.** SIC 11 - Manufacture of beverages and SIC 22 - Manufacture of rubber and plastic products both have the largest increase in percentage terms, at +282% and +243% respectively, taking them both to a total of 65 and 48 insolvencies in 2022.

Number of insolvencies for SIC codes in Manufacturing, 2021 vs 2022 in England and Wales



When looking at energy intensity in these sub-sectors, they are some of the highest rates across the entire economy, with SIC 20 having the highest energy intensity out of all the manufacturing sub-sectors at 87.3 TJ/£ million. SIC 20 saw rates of insolvencies increase by 73% over the past year. SIC 24, another energy intensive industry at 28.6 TJ/£ million, had a total of 18 insolvencies in 2022, up by 64% since 2021.

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