The Critical Importance of West Midlands Manufacturing

1.1 The importance of the manufacturing sector in the UK

There are 138,400 manufacturing businesses in the UK[1], representing 5% of the UK's total businesses population and with a wide and diverse range of sectors (from foundation industries, machinery, electronics and electrical equipment, rubber and plastics, chemicals and pharmaceuticals, to food and drink, transport and textiles).

With an annual output of £183 billion, the UK is the ninth largest manufacturing nation in the world[2]. It provides 2.5 million jobs with wages 12% higher than average across the economy. In addition, it attracts 15% of UK's total business investment, and is the focus of 64% of all UK business research and development.

1.2 Manufacturing in the West Midlands

There are 221,510 businesses in the West Midlands, of which 14,220 are manufacturers[1].

In 2020[3] the West Midlands manufacturing sector contributed 10.6% of the UK's manufacturing sector GVA (£19.8bn out of £186.9bn) which is the third highest proportion after the North West (14.3%) and the South East (12.9%). In the West Midlands region it represented 14% of the GVA of all industries (which totalled £140.3bn).

The main manufacturing sub-sector contributing to the GVA[4] is the manufacture of transport equipment (SIC07- CL 29-30) contributing 31% of the sector's GVA. This is followed by the manufacture of basic and fabricated metal products (SIC07 – CH24-25) contributing 17% of the sector's GVA and 24% of the sector's jobs (66,000 jobs). Rubber, plastic and non-metallic minerals (SIC07- CG22-23); machinery and equipment (SIC07-CK28) and food and beverages (SIC07- CA10-12) each contributed approximately 9% of the sector's GVA.

The West Midlands manufacturing sector is also a significant employer and provides 14% (278,550) of the jobs in the sector in England (total of 1,999,020) and approximately 11% of the total UK. This is 10% of all jobs within the West Midlands. Within the sector[4], after basic and fabricated metal products (24%), manufacture of transport equipment is the second largest employer at 21% of manufacturing jobs, followed by food and beverages (12%).

[1] UK business activity, size and location, ONS 2022

[2] 'Manufacturing - The Facts', Make UK, 2022

[3] ONS, 2022

Like the rest of UK industry, West Midlands manufacturing is heavily reliant on small and medium-sized (SMEs) businesses. It has, however, the largest number of medium-sized manufacturing firms of all the UK regions. Of the 14,220 SMEs in the West Midlands 75% (10,670) are microbusinesses (0 to 9 employees), 19% (2,645) are small (10-49 employees), 5% (770) are medium-sized[4] (50 to 249 people) and 1% (140) are large/very large businesses (>250 employees) (see figure 2).

Sector	GVA (£million)	% of total GVA	% of manufacturing GVA	no. of jobs	% of total jobs	% of manufacturing jobs
All industries	69,004	100	n/a	1,281,895	100	n/a
Manufacturing	8,420	12.202	100	115,495	9.010	100
Manufacture of food, beverages, textiles and clothing	659	0.955	7.827	11,295	0.881	9.780
Manufacture of wood, petroleum, chemicals and minerals	1,212	1.756	14.394	17,145	1.337	14.845
Manufacture of metals, electrical products and machinery	5,742	8.321	68.195	72,120	5.626	62.444
Other manufacturing, repair and installation	806	1.168	9.572	14,935	1.165	12.931

Figure 1: GVA and jobs contribution by manufacturing sub-sector in the WMCA geography. Source: ONS, 2022

It is these medium-sized businesses that are particularly essential to the economy as they supply critical intermediate components to original equipment manufacturers (OEM) and first tier businesses in the automobile, aerospace and food and drink retail sector. They maintain the UK's ability to provide goods and services to domestic and global markets (see figure 3).

[4] According to the official definition of Small and medium-sized enterprise (SME).

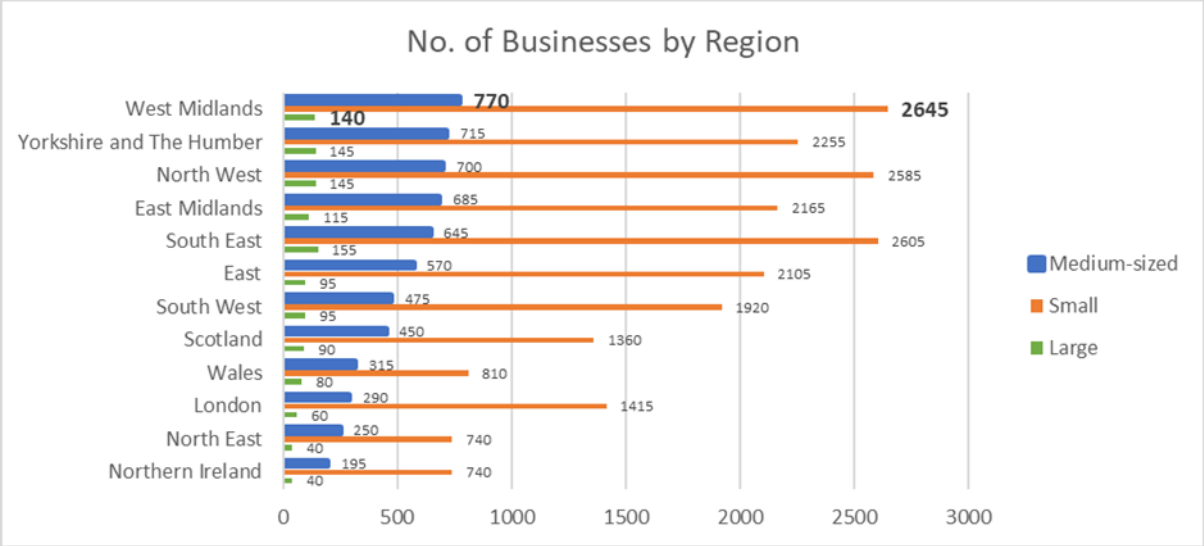

Figure 2: Number of small, medium-sized and large businesses per region in the UK. Source: ONS Crown Copyright Reserved [from Nomis on 6 October 2022]

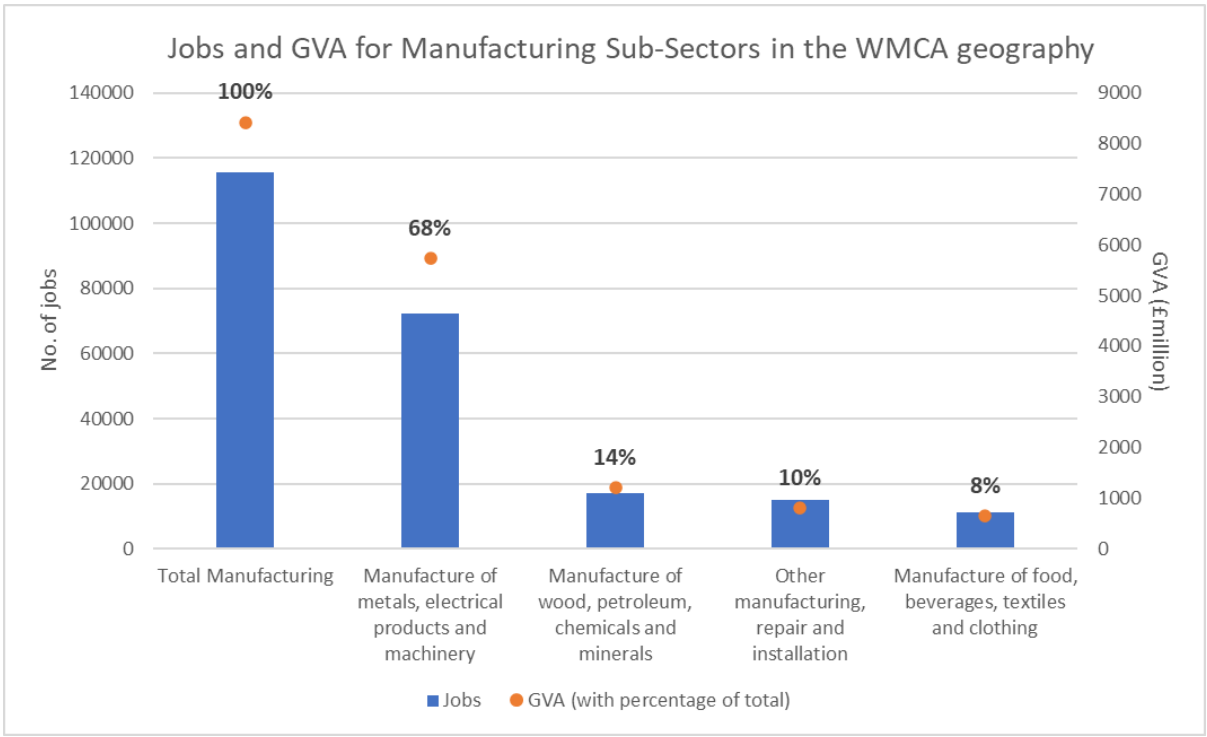

Figure 3: Top West Midlands manufacturing sub-sectors contributing to sector GVA and jobs. Source: ONS, UK Business Counts, 2022 – ONS, BRES, 2022 - Regional gross value added (balanced) by industry: local authorities

Today's energy crisis is not the only challenge. UK industrial energy prices have been relatively high compared to the EU and other developed economies for almost a decade[5], largely due to use of levies on energy bills to pay for subsidies for clean energy generation investments as well as more aggressive apportionment of network costs to industry than in competitor economies.[6] How we pay for the transition to net zero while maintaining a competitive and growing economy is not just a question for this region, but for the country as a whole.

The Mittelstand

The Mittelstand is a section of the German economy, primarily composed of companies with a diverse range of products and services, but linked by a set of qualities such as their ties to their local area and their aspirations to produce very high-quality products for global markets. The Mittelstand is difficult to pin down with strict definitions, but similarities have been drawn between it and the manufacturing sector of the West Midlands. Building on this, measures implemented to support Mittlestand companies can provide useful insights into how our own region can better be supported. For example, among others, the Mittelstand benefits from schemes which give manufacturers a voice in political circles and advise them on policy updates. The German Federal Government has also announced an energy support package for businesses worth €200bn. Whilst manufacturing in the West Midlands is not directly analogous to the Mittelstand, the proven success of the German model for manufacturing makes it a rich source when looking for case studies and ideas on how to support our region.

1.3 Manufacturing and Energy

Manufacturing businesses rely on energy more than businesses in general

The manufacturing industry is characterised by its reliance on a sufficient and affordable supply of energy to operate smoothly and make its products. In contrast to many commercial organisations, for manufacturers energy is a direct cost impacting product competitiveness in global markets; it is not simply a fixed overhead to heat and light office space.

Gas and electricity are the main fuels used in the vast majority of manufacturing sub-sectors, with biomass supplementing some specific sectors (e.g. paper, mineral products, chemicals, food and beverages, and other industries). Small, mid-size and larger factories consume relatively more gas than their very large counterparts (29% and 35% respectively versus 24%). SMEs also consume proportionally more electricity (32%) than their larger and very large

[5] Annual Industrial Electricity prices in the EU (2008-2021, including environmental taxes and levies, excluding VAT) – BEIS international industrial energy prices, statistical series

[6] Electricity Bill charges, Ofgem, or Breakdown of a Gas Bill, Ofgem August 2021, Ofgem Stats

counterparts (24% each) (figure 4). This again demonstrates the greater vulnerability of West Midlands manufacturing to energy cost increases.

The average bill for a typical (non-manufacturing) business in the UK, at around £3400 per year, is hardly higher than a household[7]. In contrast a typical mid-sized manufacturer will

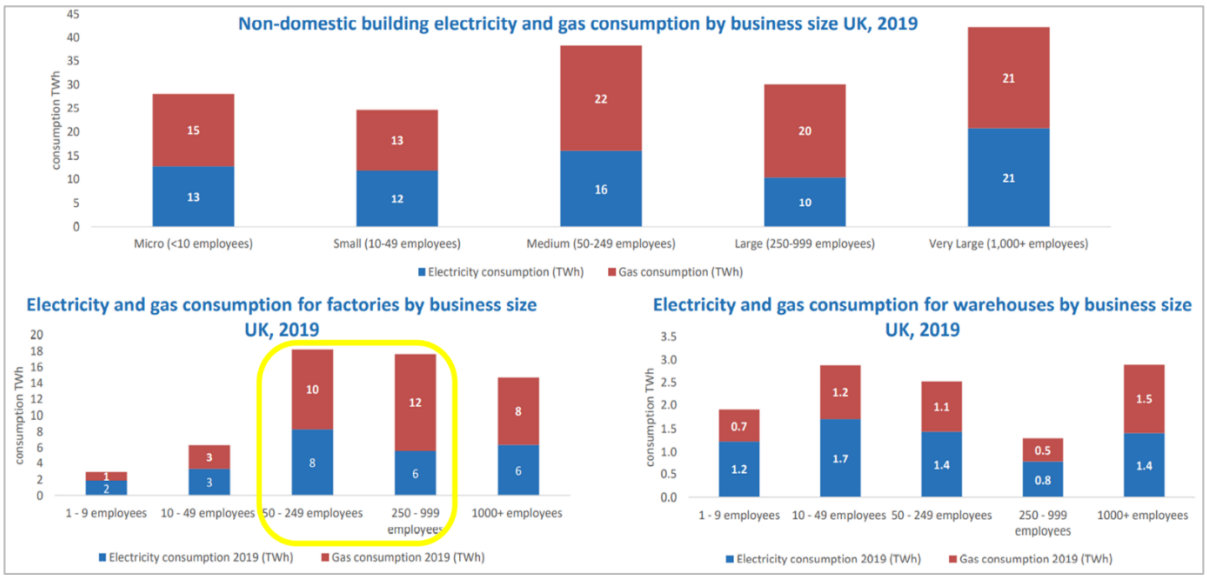

Figure 4: Use of gas and electricity by SMEs and larger factories is proportionally higher than their very large counterparts. Source: Non-Domestic National Energy Efficiency Data-Framework (ND-NEED) 2021

consume 15-20 MWh per year and pay £100,000 - £200,000 as a minimum for their energy bill, with processes typically representing 50% of total energy costs and space heating 16%, and 34% for the remainder of their operation (e.g. transport)[8].

The West Midlands manufacturing sector is particularly vulnerable to energy costs

In the West Midlands, the situation is exacerbated because of the way the economy is structured. There are more mid-and small-sized manufacturing businesses with high energy use than in any other English Mayoral Combined Authority (figure 5 and page 3 above) and the manufacturing sector is by far the most energy intense sector in the region[9] (well ahead of Transport and Storage, Wholesale and Retail Trade, and Repair of Machinery and Equipment, for example). Figure 6 shows energy intensity and GVA by sector on the same chart. The 3,555 manufacturing businesses in the West Midlands that employ more than 10 people account for 50% of total industrial and commercial energy use in the region[10]. They also account for over 60% of West Midlands manufacturing jobs (over 178,000 people).

[7] Small Business Energy Savings, Natwest
[8] Based on figures from Decarbonising Manufacturing report, Make UK, July 2022
[9] ONS Energy use reallocated and energy intensity in the UK
[10] Non-domestic National Energy Efficiency Data-Framework (ND-NEED) 2022", published by BEIS 2022

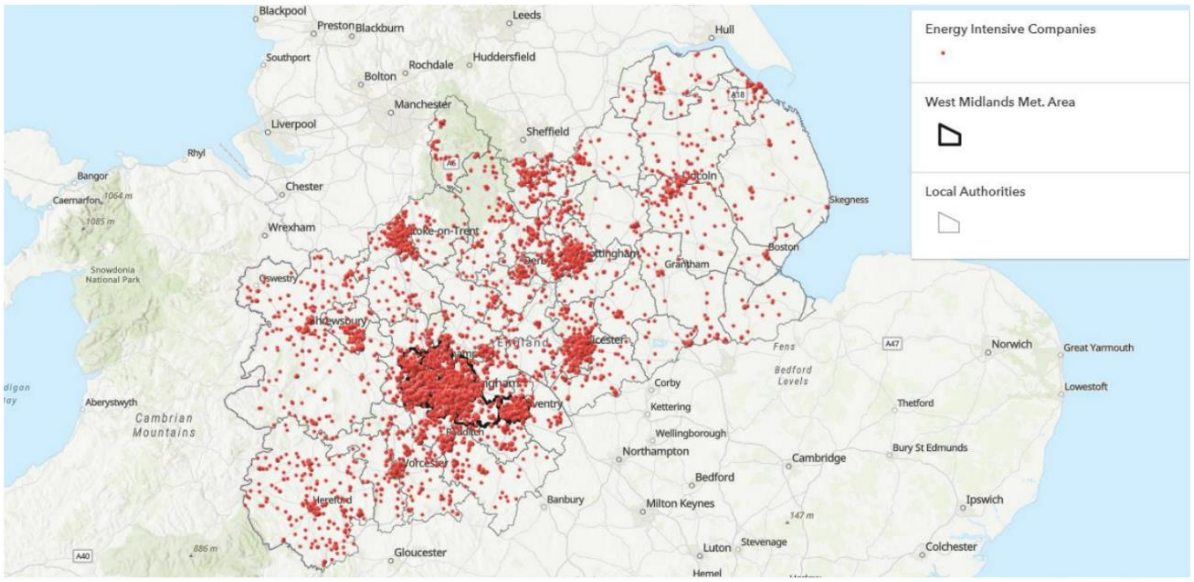

Figure 5: Map of businesses with SIC codes classed as having high energy use in the Midlands. Source: DataCity 2022 (copyright)

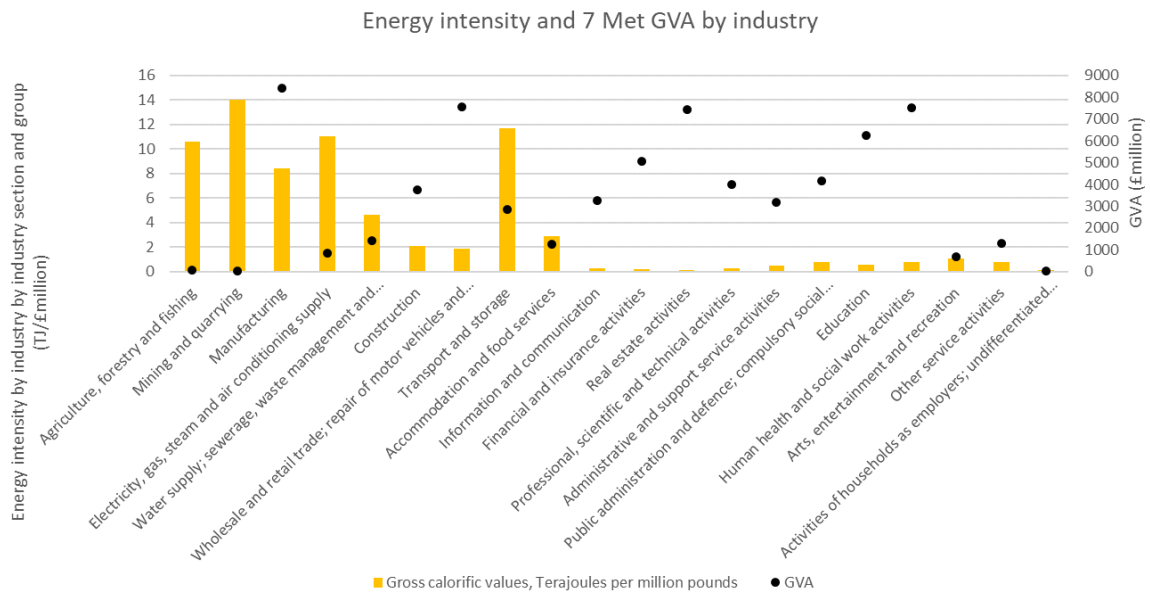

Figure 6: Energy intensity (energy use in relation to GVA) per industrial sector in the WMCA geography. Sources: ONS: Energy use reallocated and energy intensity in the UK: ONS, 2020

Definition: 'mid-sized' (manufacturing) business

In this report we define mid-sized as a manufacturing business within SIC codes 10-33, employing 10 people or more on sites within the West Midlands which are smaller than 30 hectares.
This may be larger than a Small and Medium-sized Enterprise (SME) in the classic definition. However, it captures the many mid-sized and larger West Midlands manufacturing sites employing 250 or more people but which nevertheless lack the characteristics of global petrochemicals and base metal corporations, for example.

Definition: 'energy-exposed' business

A business (usually in the manufacturing sector) with an energy intensity of more than 7TJ/£M GVA.

Energy intensity differentiates companies where energy costs directly impact competitiveness (i.e., process energy, used directly in the manufacturing process) from those where it is simply an overhead such as heat and power for buildings. A purely office-based business will typically have an energy intensity less than 0.2 TJ/£M GVA.

Companies with an energy intensity of 7TJ/£M GVA or greater will suffer a loss of profit equivalent to 20% of GVA for every 10p/kWh increase in energy costs. This is unsustainable.
In comparison, the cost of energy for a typical non-manufacturing business is only 1-2% of its turnover because energy is only used to heat, light and power its premises. The costs are indirect and not directly relevant to global competitiveness. So these businesses are not as vulnerable.

Energy costs are particularly detrimental to competitiveness when companies are exposed to global competition, either in domestic markets or when exporting. The West Midlands is the 5th highest region in the UK for exports in the year to Q2 2022 at £26.5bn.[11]

The nature of manufacturing businesses, which typically involve significant capital investment and specialist skills (reflected in above average salaries) mean that these critical mid-sized companies typically take decades to establish themselves. Most also operate in mature markets with high entry barriers and mid-sized firms, by their nature, support local eco-systems of non-manufacturing suppliers. Once lost, unlike micro-businesses, they cannot quickly rebuild themselves, and without access to capital investment and the required machinery, skilled employees cannot simply set up shop again around the corner. The impact of any losses on the West Midlands economy will not just be transient but felt for a long-time.

Moreover, the diversity and distribution of these businesses across the region (see figure 5) mean that, in contrast to the largest sites such as steelworks or oil refineries, energy cost solutions are more difficult to target, and economies of scale are often not readily available. For example, the vast majority of West Midlands manufacturing businesses cannot benefit easily or meaningfully from existing schemes supporting industry on energy costs as these are designed either for the largest sites (for example the Industrial Energy Transformation Fund (IETF)) or are really only impactful for the smallest SMEs (for example support for building energy efficiency or VAT reductions).

It is therefore of utmost importance that the West Midlands manufacturing sector can access tailored and targeted protection from the worst impacts of the acute energy price crisis, so that they can compete, grow, build resilience[12] and deliver long-term economic sustainability.

It is these 'mid-sized', 'energy-exposed' businesses that should be in the focus of future policy making and the remaining work of this taskforce.

1.4 Why take a regional approach to energy cost crisis mitigation?

The population of West Midlands SMEs and mid-sized manufacturers particularly vulnerable to energy costs is diverse, which makes sector-based national lobbying and policy influencing more challenging and less effective than in more homogeneous sectors (e.g., oil and gas, steel, finance). Regions therefore, are a key level at which these interests can be effectively consolidated and represented. Some competition between regions also drives efficiencies.

Local authorities also have a more granular and detailed grasp of local matters and differences, in principle making it easier to deliver policy outcomes that cut across silos. They understand local circumstances and opportunities for targeted approaches. Identifying energy intense and strategic businesses purely through SIC codes and economic formulae is

[11] The 'Quarterly Count of Exporters (according to the Proportion method) by Region and Partner Country'

[12] Resilience is defined as the ability to limit the impact of disruption and recover quickly.

difficult (see box). It may often be easier, simpler and more efficient to target limited support measures directly, through local authorities making and maintaining lists for example, especially when we know the total number of critical businesses in any given local authority numbers only a few hundred.

Many energy cost-saving opportunities like demand side response and renewable energy investments require careful adaptation to local circumstances to be economic (but may often also need to be pursued (principally financed) at regional scale to be economically viable.) A regional approach to creating a reliable (competitive, affordable and plentiful) supply of industrial energy might, therefore, also include a West Midlands manufacturing 'sector deal,' for example (see section 5). This 'regional manufacturing sector deal' model could also potentially be reproduced (after adaption to local circumstances and needs) in other regions.

Regional manufacturing industry is walking a knife-edge

In the aftermaths of Covid-19, while navigating the new trading rules with the EU, the impacts of supply chain disruptions and the uncertainties of the UK politics, manufacturers are not just contending with the electricity and gas prices. But as energy costs have rocketed to the point of equalling or exceeding payroll costs for the first time, their businesses are threatened to their very core.

While the new Energy Bill Relief Scheme (EBRS)[13] capping wholesale energy prices for businesses is welcome and creating a much-needed breathing space, research at national level[14] shows that 42% of manufacturers (surveyed in August 2022) said that their electricity bills have increased by 100% in the past 12 months and 32% said that gas prices have increased by over 100% in the past year, and that was even before many fixed contracts ended this autumn. Almost six in ten now say that increased energy costs are business threatening, up from 8% just four months ago.

This situation is predicted to continue for another 24 months[15, 16], with worse to come this winter. As their fixed contracts expire, over half (52%) of companies expect their electricity costs to increase by over 100% in the next 12 months and 42% expect to see their gas prices increase by over 100%.

In fact, 60% of manufacturers felt that the situation was business-threatening, and already nationally 12% had made redundancies directly linked to the costs of energy.

The WM-IETF's own monitoring survey[17], started in October 2022, also reflects this. The current average rate paid for electricity in the West Midlands is 25.3p/kWh and over 30% of manufacturers surveyed are paying more than 35p/kWh, whilst 50% pay less than 20p/kWh. This compares to pre-energy crisis 2013-2021 average industrial electricity prices ranging

[13] The EBRS will only be Introduced end of November but backdated to 1 October 2022

[14] Make UK, energy survey August 2022

[15] 'Predicted fall in the April 2023 Price Cap but prices remain significant above the EPG', Cornwall Insight, 3 November 2022

[16] United Kingdom Electricity Price forecast 2023-2024, Trading Economics

[17] Fortnightly Company Energy Survey Results (23 respondents)14 October 2022, available on West Midlands Industrial Energy Task force (WMIETF) website

from 8-12p/kWh for Energy Intensive Industries (EIIs). For gas, the current average rate paid is 6.8p/kWh with 40% of respondees paying more than 8.5p/kW, and some up to 19.8pkWh. This compares to pre-energy crisis 2013-2021 average industrial electricity prices ranging from 1.5-2p/kWh for Energy Intensive Industries (EIIs) and 1.47 for non-EIIs.[18]

At present, almost 30% of West Midlands respondees spend more than 10% of their turnover on energy, and over 13% spend more than 30% of their turnover on energy. This is a very significant increase compared to the 'old norm' where energy costs were usually well under 5% for manufacturing assembly-type operations (e.g., car-making) and 8%-15% for the forges and foundries that dominate the Black Country economy, for example[19]. Three-quarters of West Midlands companies' fixed gas or electricity tariffs will also begin to end next year: 80% of electricity fixed tariffs are due to end by November 2023, and nearly 60% of gas tariffs.

Manufacturers have already started to take measures to deal with energy cost increases, many of these have a negative impact on the regional economy

Over 30% of respondents reported that they have had to increase their prices, with a further 13.6% considering that as a response to the end of the government-mandated energy price cap in March 2023. Over 35% have, or are considering, reducing their operating times, with over 10% either considering or already diverting planned investments to Asia and Eastern Europe. 13.6% of responders have already made redundancies, with a further 22.7% seeing that as a likely measure come March 2023. More than 10% of responders struggle to see how they will be able to continue operations beyond that date and the end of the price cap, with several more relying on their fixed-rate tariffs as a way to continue operating.

Compared to this winter, where fuel stocks were filled up using Russian gas while it was still being supplied, winter 2023-24 could be worse as we struggle to replenish our fuel stores. Global demand is tight and the volatility of wholesale prices is increasing.

When it comes to investing for the future, manufacturing businesses have become more cautious, as many are now having to reallocate budget from other projects to their energy bills. They understand that instead of viewing resilience as a cost, they need to focus on building it upfront, and to consider it as an investment that will deliver sustainable growth and profitability in the longer term. But long-term thinking is a luxury in a crisis.

[18] Average gas and electricity prices for the periods 2012-2020 and 2020-2022, Inspired Energy, November 2022

[19] In contrast the government definition of an energy intense industry (EII) is broadly one with costs exceeding 20% of sales. This only captures exceptionally large operations such as steelmaking, oil refineries, cement manufacture and protects 'foundation' activities to a degree, but leaves the high-value-adding intermediate component stages of final product manufacturing (such as speciality chemical production or casting of precision aerospace components) totally unprotected – the UK cannot have a viable economy without the ability to shape foundation raw materials into the components needed to make finished goods.