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CHEMICAL INDUSTRIES ASSOCIATION

NOVEMBER 2023

CIA Fourth Quarter Economic report 2023

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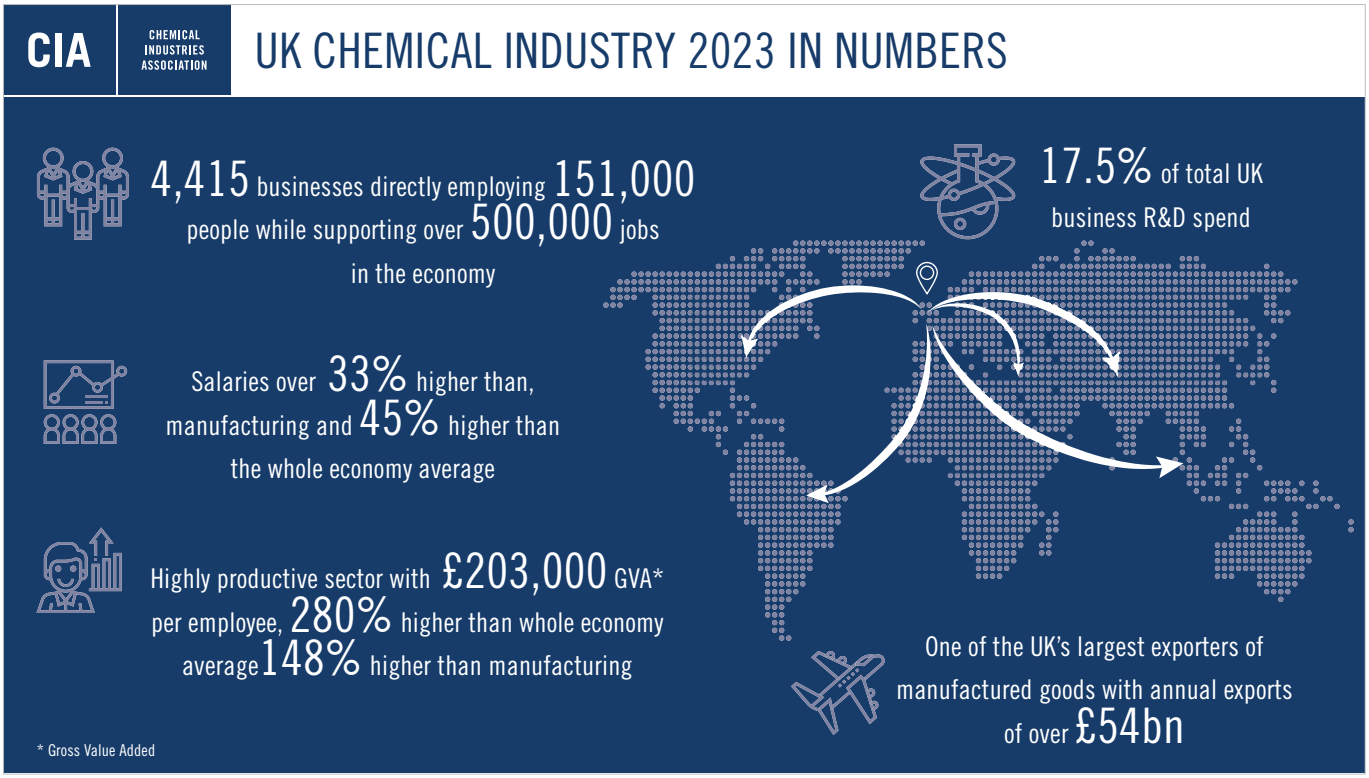
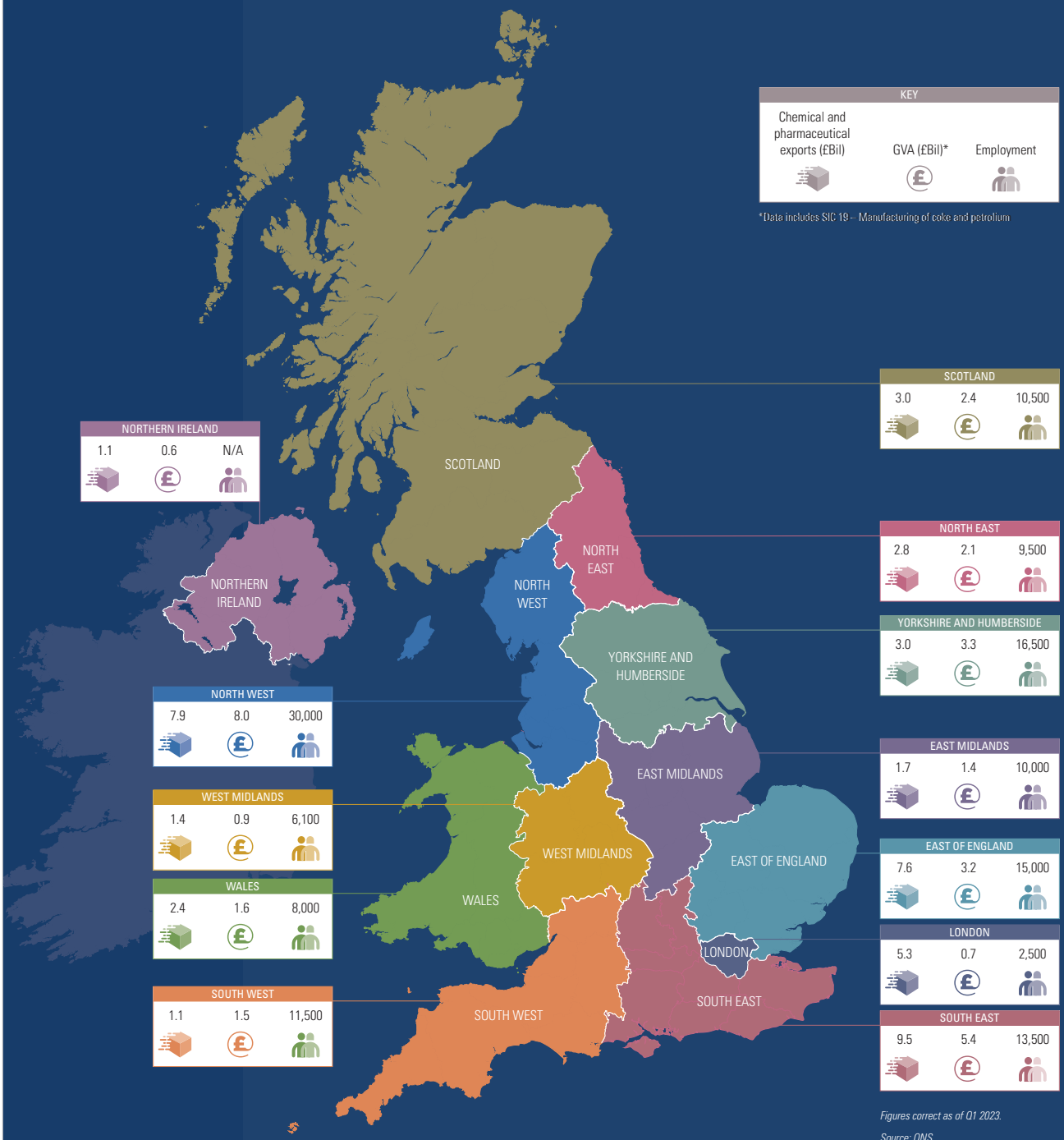
Current shape of the industry



CIA CHEMICAL INDUSTRIES ASSOCIATION

MADE IN THE UK, SOLD ACROSS THE WORLD

Our Chemical Industry



Figures correct as of Q1 2023.

Source: ONS

Executive summary

I am pleased to present our latest economic report, which has been written by Michela Borra, our Economist.

This report has two sections. The first is a CIA analysis of government data via the Office for National Statistics (ONS). This section assesses the UK chemical industry's performance against that of the wider economy and is followed by a look at what challenges lie ahead. The second section presents the results and further analysis of our own Q3 2023 Business Survey.

As we enter the second half of the year, the global economy is still struggling with challenges that emerged last year: international conflicts continue to strain global supply and demand, and inflationary trends require Central Banks to establish tight monetary policies. In the UK, the inflationary peak was reached in October 2022, with annual prices increasing by 11.1% from the previous year, but despite the tight monetary policy adopted by the Bank of England, almost a year later, inflation remains significantly above 2.0%. A core factor that led to sticky inflation was the high level of consumers' savings acquired during the pandemic and the high demand of consumers for services which they could not consume during the lockdowns, e.g. restaurants, theatre, travel.

At the beginning of the year, most forecasters expected tight monetary policy and tough operating conditions to lead the UK into a recession, but resilient consumer spending made a recession in 2023 unlikely, with updated forecasts accounting for muted growth. Whilst the general global economy is expected to weakly expand in the next two years, the global industry is expected to contract, with intermediate and energy-intensive goods being the worst-performing sub-sector.

The latest data published by the ONS looks at GDP, production and trade in the first half of the year. In Q2, GDP grew by 0.2% with expansions across all sectors. Services still have not recovered from the pandemic, whilst production and construction output levels are now above pre-pandemic. Nevertheless, high energy prices severely hindered manufacturing output, especially chemical output which relies on gas both as feedstock and energy sources. In 2022, UK chemical production fell by 4.7% with major contractions in the second half of the year. In Q1, the chemical output expanded by 1.3% but contracted by 0.7% in the second one. June and July were the better-performing months with monthly growths of 1.0% and 1.5%, respectively.

The value of the UK chemical trade fell in the second quarter of 2023 as both exports and imports contracted. The main driver of the decrease is trade with EU countries, which was not offset by marginal increases in non-EU trade. Nevertheless, in the year to July 2023 we exported over £60 billion worth of chemicals and remain the second largest UK export.

Consumer Side Inflation in the first quarter averaged at 10.1%, and at 8.4% in Q2. In July, it fell to 6.8% and in August to 6.7%; core CPI drove August's slowdown. Core CPI's slowdown from 6.9% to 6.2% likely guided the Monetary Policy Committee's decision to maintain interest rates at 5.25%.

For chemical producers, inflation is easing as input and output prices have been deflating for four consecutive months. The deflation of chemical input and output prices is the symptom of low demand and diminishing production levels. Despite tight operating conditions, in the three months to July, chemical pay increased but not above inflation, resulting in real terms pay cuts for the seventh consecutive month.

Turning to our survey, it is evident that operation conditions remain tight as for the fifth consecutive quarters sales fell with quicker falls in domestic sales and European exports. Low demand led to lower production levels, capacity utilisation, and employee numbers as companies continued to struggle through diminishing margins. Energy costs remained largely unchanged but are expected to increase significantly through winter, putting an additional toll on margins as output prices remain low due to strained demand.

The general consensus is that the last quarter of 2023 will not differ significantly but will be better than Q4 2022, which was the worst recorded quarter as per CIA Business Survey records. Sales, both domestic and international, are expected to improve by less than 20% of respondents as most expect contractions or no significant changes. Production levels and capacity are also not expected to improve, with almost a third of respondents fearing further reductions.

Long-term estimations are slightly more positive due to a baseline effect. Over half of the respondents expect sales to increase from current levels over the next 12 months, but over a year of falling margins has led two-thirds of respondents not to expect higher margins in a year's time. These estimations also show caution in terms of energy, as 27% fear further increases in their energy costs.

For the second quarter in a row, 'weakening demand' was ranked as the main issue by over half of respondents, followed by 'labour cost increases' and 'energy price increases'. Both 'energy price increases' and 'skills shortages' were considered the main challenges to business by 9% of respondents. Among the issues that are expected to worsen: 'weakening demand' and 'labour cost increases' ranked higher, followed by 'energy price increases' and 'raw material price increases', and unexpectedly 'fright price increases' and 'Net Zero Transition'.

The open-ended part of the survey uncovered that companies feel the need for the establishment of a better Net Zero framework with more clear and consistent objectives. Other areas that require government focus are the reduction and further stabilisation of energy costs – which ideally would be attained through green energy – improvements to national infrastructure and raw materials storage facilities, and further investments in education and skills development. These same areas of interest were amongst the ones mentioned as the main barriers to the implementation of manufacturing innovations in the UK.

This survey and further discussions with members show strong feelings from the industry of lack of tangible government support, exemplified by the lack of an internationally competitive industrial strategy.

Steve Elliott
Chief Executive
Chemical Industries Association

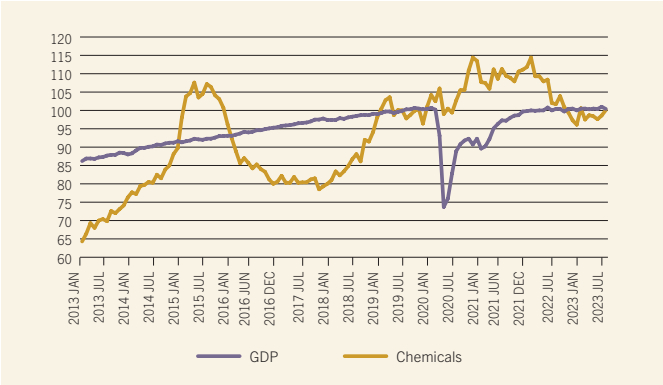
The survey data presented in this report was collected from CIA members between 19 and 29 September 2023. The macroeconomic data, predominantly sourced from the Office for National Statistics was gathered up to the end of September 2023.

A better-than-expected first half of 2023, with caution for the second half

GDP and Chemical production

Starting with GDP, the UK economy narrowly avoided entering a recession, defined as two consecutive quarters of negative growth, in the final quarter of 2022. Despite this avoidance, 2023 and 2024 will be characterised by challenging economic conditions, especially for the production sector. Official data from the Office for National Statistics (ONS) show that in Q1 and Q2, GDP grew by 0.1% and 0.2% respectively, but July marked a tough start to Q3 with a 0.5% monthly contraction. Quarterly growth was the result of expansion across all sectors of the economy, with production, construction, and agriculture above pre-pandemic levels. The service sector, which was the most affected by lockdowns, despite rapid growth, remains 0.9% below pre-pandemic levels.

Graph 1: Index figure of GDP and Chemical Output, September 2019-July 2023, Q4 2019 = 100



Source: CIA Analysis of ONS data

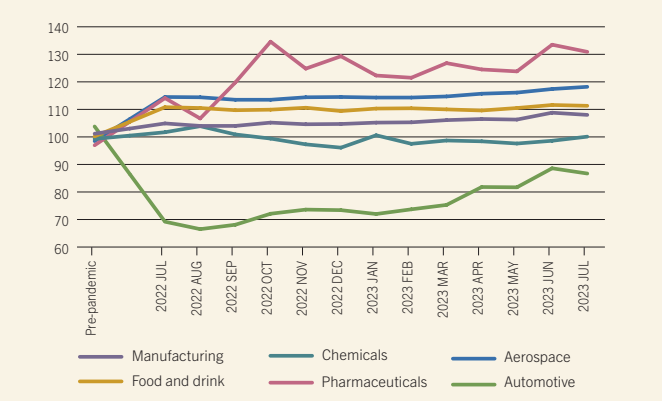
Turning to the chemical industry graph 1 shows that chemical production peaked in 2015, but due to the cyclical nature of the sector, production levels surpassed 2015's only towards the end of 2020. The impact of the pandemic on chemical production was less strong than on other sectors, as chemicals tend to be used as input in other productions rather than sold directly to consumers. Nevertheless, climbing energy prices severely impacted output levels due to the sector's reliance on energy as feedstock. Another issue facing the sector is weakening demand, as other production industries are incentivised by tight monetary policy to destock and keep low input stocks.

The yellow line shows that in Q4 2022, chemical output reached the lowest levels since Q4 2018. Following this severe contraction, in Q1, chemical production increased by 1.3% but contracted by 0.7% in Q2. Lower energy prices in summer brought some relative relief, with monthly production increasing both in June and July by 1.0% and 1.5% respectively. In July, chemical output was 0.8% above pre-pandemic levels for the first time since the beginning of the year. Whilst July's figure is encouraging, it is 2.6% below July 2019's levels.

With tight monetary policy putting a toll on capital-intensive activities, such as manufacturing, the CIA expects industrial production to continue to fluctuate between flat growth and contractions, with chemical production contracting more than other industrial productions due to its demand. Some other challenges that the CIA recognises for chemical producers in the UK are a lack of cohesive long-term industrial strategy, international uncompetitive incentives for the green economy transition, a tight labour market with difficulties recruiting skilled, experienced workers, and overall lower international competitiveness in terms of production costs and opportunities.

Graph 2 compares the monthly index of production for the chemical industry to the UK's food and drink, pharmaceutical, automotive, and aerospace industries that, along with the chemical industry, are colloquially referred to as the 'Manufacturing Five' or 'M5' industries. Indexes show contractions or expansion from a determined level, in this case each sector's 2019 average production level. Levels below 100 show a contraction, whilst above 100 an expansion.

Graph 2: Index figure of M5 output, pre-pandemic level and July 2022-July 2023, 2019 = 100



Source: CIA analysis of ONS data

The purple line shows that manufacturing output has marginally expanded since 2019. In Q2 2023, it expanded by 1.6%, resulting in a 5.9% growth from pre-pandemic levels. July 2023 marked a less optimistic start to Q3, with manufacturing output contracting by 0.7%.

Moving on to M5's production levels, automotive – green line – businesses severely suffered from the pandemic, and despite output increasing consistently in the past 12 months with a 14.0% growth in Q2, it remains 16.5% below pre-pandemic. Chemical production also contracted from 2019 but less severely, and in both January and July 2023 production was above pre-pandemic.

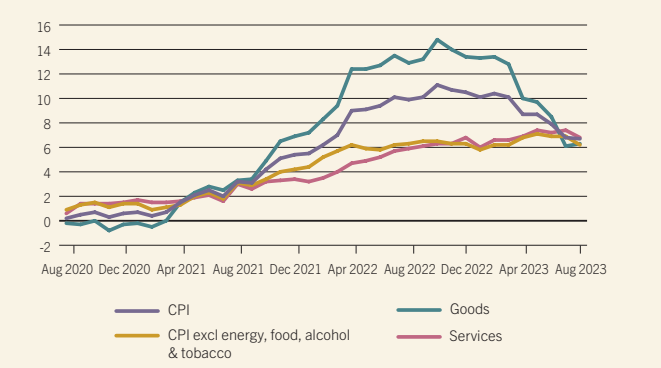
The yellow line shows that Food, Drink, & Tobacco output increased since the pandemic and despite July's 0.3% contraction it remains 11.1% above pre-pandemic levels. Aerospace – blue line – saw the biggest expansion in Q2 2023, which resulted in a 20.0% increase from Q4 2019 levels. Finally, pharmaceutical output, as shown by the pink line, is highly volatile by nature as it depends on the NHS. Boosted by high demand during COVID is the better-performing manufacturing sector and despite July's 1.9% contraction, its output remains 34.9% above pre-pandemic.

By comparing July 2023 and July 2022 levels, the only M5 industry that did not increase its level of output in the past 12 months is the chemical one. This indicates that among manufacturing productions, chemical output is the one that is mostly affected by the current economic situation.

Consumer Side Inflation

Steep price increases over the past three years originated a cost of living crisis. The higher energy cost started with the reopening of the economy and was exacerbated by the Russian invasion of Ukraine, strengthening the initial inflationary wave. High production costs were transmitted to consumers through higher prices, which led the Bank of England (BoE) to establish a tight monetary policy to disincentivise economic activity and keep the cost of living under control. Nevertheless, strong consumer savings and resilient demand resulted in stickier-than-expected inflation, which is deteriorating slower than expected.

Graph 3: Headline annual inflation rate (CPI), price of goods and services, and core CPI, August 2020-August 2023



Source: CIA analysis of ONS

Graph 3 shows prices of goods and services, consumer side inflation (CPI), and core inflation over the course of the last three years.

The green line shows the price of goods from August 2020 to August 2023. Good prices were the first ones to show the effect of higher production costs linked to the energy crisis. Higher good prices and energy prices – which impacted CPI directly and indirectly – drove up CPI. Services that rely on goods (e.g. restaurants) faced higher energy and input costs increased their prices, leading to inflationary trends also for the price of Services. After October's peak, goods' prices have been falling relatively steadily, whilst services' are stickier.

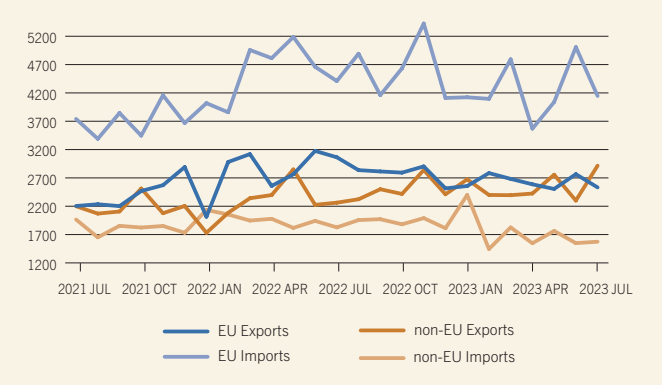
The yellow line represents core CPI, excluding energy, food, alcohol, and tobacco. Since energy does not directly impact core CPI, it did increase as quickly as CPI, but it is now not deteriorating as fast. Sticky core CPI is the main cause of lingering inflation, and it is the reason behind the continuous increase in interest rates by the BoE. In August, core CPI decelerated from 6.9% in July to 6.2%. This slowdown has been identified as being the main driver of the Monetary Policy Committee's decision to maintain interest rates at 5.25%.

Even if inflation in the first few months of Q3 slowed down significantly, it remains above the 2.0% target and high for international standards. In August, Euro Zone inflation was 5.2%, in the US 3.6%, and in China 0.1%.

Trade

Alongside the publication of official GDP and production data, the ONS published the value of trade in the first half of the year. The value of chemical exports in Q2 2023 was £15.3bn, £0.3bn lower than in Q1 2023. Imports also had a quarterly decrease as the value of imports for Q2 was £17.5bn, down from £18.7bn in the previous quarter. Even if quarterly exports decreased, in the year to July, the total value of UK chemical exports was above £62 billion[1]. Nevertheless, due to the nature of the chemical industry, the 6.4% drop in imports is not the result of higher domestic production but rather of industries that use chemicals as inputs, slowing their production.

Graph 4: Chemical monthly trade with EU and non-EU countries, July 2021-July 2023, £ (thousands)



Source: CIA analysis of ONS data

Graph 4 represent chemical imports and export towards EU and non-EU countries. The two blue lines represent trade flows with the EU, and the two orange lines trade flows with non-EU countries. Exports are illustrated by the two darker lines (dark blue and dark orange), and imports are the two lighter lines (light blue and light orange).

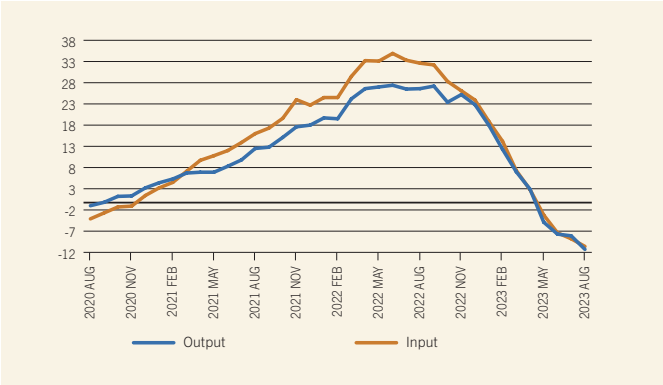
Focusing on imports first, the light blue line is consistently higher than the light orange line, indicating that imports from EU countries are higher than imports from non-EU countries. Since June 2023, chemical imports from EU countries have diminished by almost £1bn due to lower imports from Ireland and the Netherlands.

Moving on to exports, the dark lines are much closer together, and they intersect multiple times, indicating that the UK exports similar values of chemicals towards EU and non-EU countries. Looking at the 12-month trend of the dark blue line over the last year, we can notice a downward trend suggesting that exports towards EU countries are decreasing, whilst the opposite trend is visible for the dark orange line, indicating that exports towards non-EU countries are increasing. Focusing on the most recent data for export, in May and July, chemical exports towards non-EU countries generated more money than towards EU countries.

Even if trading with non-EU countries is intensifying, the UK remains highly dependent on the EU for chemicals and efforts to maintain a stable relationship with the continent's trading block is essential for the future of UK manufacturing.

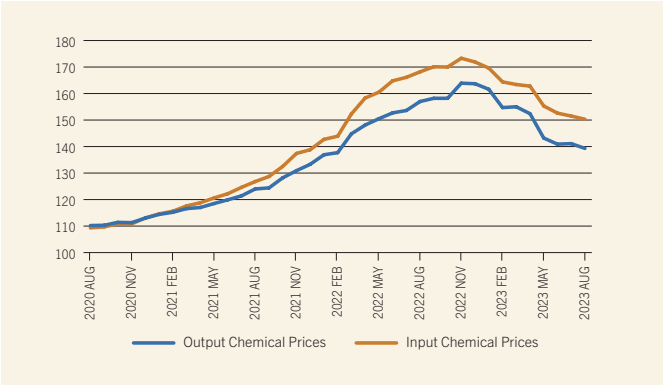
Prices

Graph 5.1: Chemical Input and Output Prices Growth Rates, August 2020-August 2023



Source: CIA analysis of ONS data

Graph 5.2: Day-ahead UK gas and electricity prices over the last year, October 2022-October 2023



Source: CIA analysis of ONS data

Chemical input price growth rate has been above chemical output prices' one for the most of the past three years. On the right-hand side of graph 5.1, the vicinity of the blue and orange line indicates that the two growth rates have been very similar since November 2022.

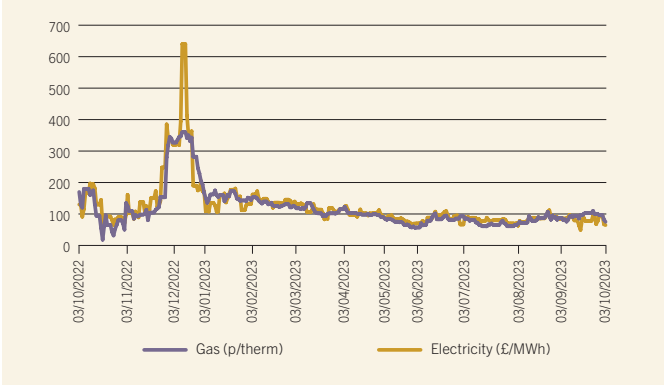
The dark horizontal line in graph 5.1 marks the line between inflation and deflation. When growth rates are above this line it means that prices increased from the previous year, if they are below it indicates a fall.

In Q1, input prices increased on average by 13.5%, whilst output prices by 12.5%. In Q2, the trends were reverted as the average deflation was of 2.6% for input and 3.2% for output prices. Provisional figures for July and August show that output prices are still falling quicker than input prices.

Whilst deflating input prices translates to lower production costs, this deflation indicates lower production levels. Similarly, deflating output prices relate to weak output demand, which induces chemical business to lower their prices in order to attract demand.

Graph 5.2 shows the level of chemical input and output prices. In the graph, input prices are represented by the orange line and output prices by the blue one; the fact that the orange line has been consistently above the blue one for the past three years indicates that the price paid by chemical companies for their inputs have been higher than the ones they can charge for their finished products. Despite the previously mentioned deflationary trend and less dissimilar growth rates, input prices remain 7.3% higher than output prices and 27.3% higher than in August 2020.

Graph 6: Day a-head gas and energy prices, 3 October 2022-3 October 2023



Source: CIA Energy Price Dataset partnered with InspiredEnergy

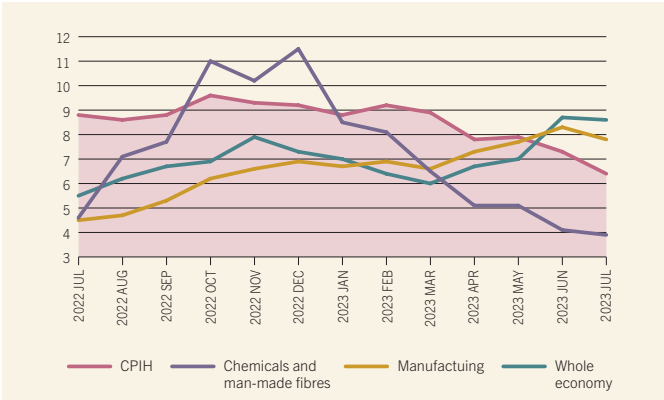
Graph 6 displays the day-ahead wholesale gas and electricity prices in the UK over the last year. Although remaining significantly higher than the long-run average, recent UK gas and electricity prices have settled at the lowest level since summer 2021, but they remain roughly three times higher than pre-pandemic. Moreover, even if prices have been less volatile in the past few months, the situation has not improved as UK energy storage and production facilities still lack the capacity to meet industrial and domestic demand during winter.

In terms of energy support, since April 2023, the Energy Bill Relief Scheme has been substituted by the Energy Bill Discount Scheme. The new scheme partially subsidises energy prices as it covers the band between 209p per therm and 407p per therm; anything below or above that price point will be the responsibility of the user.

Labour market

The labour market remains tight with economy-wide difficulties recruiting, requests of pay increases to keep up with inflation, and high retirements and redundancies rates. This situation is extremely complicated for manufacturers as through Brexit numerous European skilled workers left the country and many STEM students prefer to go into industries deemed more profitable, like consulting or finance.

Graph 7: Growth rate of regular pay in the chemical industry, manufacturing sector, whole economy compared to CPIH inflation, July 2022-July 2023



Source: CIA analysis of ONS data

Graph 7 shows the pay growth rate in the economy, manufacturing sector, and chemical industry compared to CPIH inflation. CPIH inflation is considered a more accurate measure of the cost of living as it includes owner-occupiers' housing costs.

The pink line indicates the level of CPIH inflation, and any point within the yellow area indicates that inflation was higher than pay growth rates, resulting in pay cuts.

The green and yellow lines shows that until the three months to June 2023, average pay growth rates in the general economy and manufacturing were below inflation and resulted in real-terms pay cuts. For the general economy, the latest data show that regular pay grew by 8.6% and total pay (which includes bonuses) grew by 8.3%; with CPIH at 6.4%, they resulted in effective pay increases of 2.2% and 1.9%, respectively. For the manufacturing sector, in the three months to July, regular pay grew by 7.8% and total pay (which includes bonuses) grew by 7.5%, resulting in effective pay increases of 1.4% and 1.1%.

The same cannot be said for chemical employees, whose pay is represented by the orange line. Whilst in the last quarter of 2022, chemical pay increased significantly higher than inflation, resulting in real terms pay increases, pay growth rate decreased throughout the first half of the year and reached a 12-month low in the three months to July 2023. In that period, regular pay grew by 3.9%, and total pay (which includes bonuses) grew by 3.1%, resulting in effective pay cuts of 2.5% and 3.3%.

Rounding up the official data

During the first and second quarter of 2023, most of the difficulties businesses faced in 2022 remained widely unchanged. UK GDP expanded by 0.2% in Q2 but contracted by 0.5% in July from June. In Q2, chemical output contracted by 0.7% from the previous quarter, but it expanded both in June and July by 1.0% and 1.5%, respectively. Among the other M5 industries, chemical output is the only one that decreased from last year.

Moving on to chemical trade, the UK remains highly reliant on the EU as over a third of imports come from member countries. However, trade is intensifying with non-EU countries, especially in terms of exports.

Prices in the chemical industry also started stabilising, with input prices deflating for four months in a row. This deflation is the result of more stable energy prices as well as lower demand.

The UK's labour market remains challenging as companies are experiencing difficulties recruiting to increase pay to keep up with inflation, retirements and redundancies. In the chemical industry, total pay-which includes bonuses and one-off payments- rose by 3.1% in the three months to July 2023 but resulted in a 3.3 % pay cut due to the levels of inflation.

Survey results

About the survey

At the close of each quarter, we survey member companies of the Association to get on-the-ground data about current trading conditions and views on what lies ahead. The information from this is incredibly useful in our work and we are grateful to all who respond.

The CIA's Q3 2023 Business Survey was live between the 19th and the 29th of September 2023. The survey received responses from around 50% of CIA membership. This edition of the survey was split into three sections. The first and second sections contained the standard industry performance and challenges & opportunities questions. In the third sections we asked respondents four questions, one that we used to improve our economic reporting, and three focusing on areas that require government intervention. There were three questions in the industry performance section that asked respondents whether the 19 variables listed below had increased, decreased or stayed the same in the third quarter of 2023 compared to the second quarter of 2023 and what member's expectations were for these variables in the fourth quarter of 2023 and 12 months' time.

Industry performance variables:

1. Total sales
2. Domestic sales
3. Exports
4. EU exports
5. Rest of the world exports
6. New orders
7. Production levels
8. Capacity utilisation
9. Employee numbers
10. R&D spend
11. Business investment
12. Your level of business optimism
13. Time to deliver
14. Raw material (input) prices
15. Cost of importing
16. Cost of exporting
17. Your energy costs
18. Finished goods (output) prices
19. Your company / site profit margins

When displaying the industry performance data diffusion indexes are used. These are an easy to interpret statistical tool that can be read in the same way as S&P Global's Purchasing Managers Indexes (PMIs), therefore any figure below 50 indicates a contraction, above 50 an expansion while 50 means it remained constant. To compute these indexes, we combined the percentage of respondents that reported experiencing an increase with half of those that reported experiencing no change.

Industry performance

Performance in third quarter

Table 1 displays the diffusion indexes for the 19 variables mentioned in 'About the survey' and the percentage of respondents that reported experiencing a decrease in the variables. The first column is the diffusion index for the performance in the third quarter, the second column contains the diffusion index for what was expected for the third quarter of 2023 when respondents were asked in the CIA's Q2 2023 Business Survey, the third column contains the diffusion index for the performance in the second quarter of 2023, and the final two columns contain the percentage of respondents that experienced a decrease of that variable in the current quarter and the previous one. This allows comparisons to be made between the performance in the third quarter of 2023 compared to expectations and the prior quarter.

Table 1

	Q3 Actual	Q3 Expected	Q2 Actual	Percentage that experience a decrease in Q3 2023	Percentage that experience a decrease in Q2 2023
Total sales	33.7	44.2	25.0	46.9%	55.0%
Domestic sales	26.5	38.3	29.2	51.0%	50.0%
Exports	34.7	45.8	29.2	40.8%	45.0%
EU exports	29.6	43.3	27.5	44.9%	45.0%
Rest of the world exports	37.8	45.0	30.0	36.7%	45.0%
New orders	28.6	47.5	28.3	46.9%	53.3%
Production levels	25.5	47.5	27.5	57.1%	51.7%
Capacity utilisation	22.4	46.7	27.5	57.1%	53.3%
Employee numbers	33.7	40.0	36.7	38.8%	31.7%
R&D spend	39.8	43.3	47.5	20.4%	11.7%
Business investment	45.9	46.7	42.5	20.4%	25.0%
Your level of business optimism	24.5	40.8	23.3	57.1%	58.3%
Time to deliver	42.9	46.7	45.8	18.4%	16.7%
Raw material (input) prices	39.8	40.0	41.7	40.8%	41.7%
Cost of importing	49.0	49.2	47.5	12.2%	18.3%
Cost of exporting	50.0	49.2	49.2	10.2%	16.7%
Your energy costs	43.9	39.2	30.0	32.7%	48.3%
Finished goods (output) prices	38.8	40.0	40.0	38.8%	35.0%
Your company / site profit margins	24.5	38.3	26.7	57.1%	51.7%

Source: CIA Q3 Business Survey

Key take away

- The third quarter was better than the second one but worse than expected. Less companies reported falling sales than in Q2 but production levels, capacity utilisation, and employee numbers fell indicating low optimism about the future.

With chemical output contracting in 2022 by 4.7%, mainly due to severe falls in Q3 and Q4, operating conditions improved in 2023 but remained tight. In Q3, almost half of respondents reported lower total sales, but fewer companies reported lower sales than in Q2, suggesting that this quarter was marginally better than the previous one. Nevertheless, domestic sales kept falling for the fifth consecutive quarter, with less than 5% of respondents reporting an increase; overseas demand-especially non-EU – was mildly stronger as exports remained the same for almost 50% of businesses. With demand continuing to be the biggest challenge for businesses, almost two-thirds of respondents decreased their production levels and capacity utilisation from Q2.

Five consecutive quarters of sales contracting, tight margins, and lower production levels led to falls in employee numbers, R&D spending, and business investment. These variables are often referred to as the 'slower moving variables' because they tend to be less volatile quarter-on-quarter due to plans being made on a multiyear basis. Seeing our member companies having to cut production and reduce costs due to adverse market conditions is further evidence that short and medium-term optimism is low.

Despite tough market conditions, costs have remained vastly unchanged, with 40.8% of respondents noticing a decrease in raw material prices and 32.7% in energy costs. Output prices also fell by 38.8% due to low demand and cheaper foreign competition. Even if the cost side remains unchanged, it is important to notice that current energy levels are more than twice what they were pre-pandemic, and official data shows that input prices are 27.3% higher than three years ago.

Expectations for the last quarter

Table 2 displays the diffusion indexes for what is expected for each of the 19 variables in the fourth quarter of 2023 and the percentage of respondents that expects to see an increase.

Table 2

	Q4 Expectations	Percentage of respondents that expect an increase
Total sales	46.9	22.4%
Domestic sales	44.9	16.3%
Exports	45.9	20.4%
EU exports	46.9	18.4%
Rest of the world exports	45.9	16.3%
New orders	48.0	20.4%
Production levels	44.9	20.4%
Capacity utilisation	43.9	18.4%
Employee numbers	37.8	4.1%
R&D spend	42.9	0.0%
Business investment	42.9	6.1%
Your level of business optimism	40.8	12.2%
Time to deliver	45.9	0.0%
Raw material (input) prices	44.9	10.2%
Cost of importing	48.0	6.1%
Cost of exporting	51.0	8.2%
Your energy costs	67.3	44.9%
Finished goods (output) prices	44.9	16.3%
Your company / site profit margins	35.7	8.2%

Source: CIA Q3 Business Survey

Key take away

- Conditions appear more positive than last year, but roughly a third of respondents still expect decreases across the board, with production levels and capacity utilisation contracting the most. Winter is expected to raise energy costs, and respondents are sceptical about being able to pass these added costs onto consumers due to low demand.

For energy-intensive industries, winter is the most challenging time as increased domestic demand for energy raises prices. These added costs, coupled with five consecutive quarters of weak demand, led our membership to remain sceptical throughout Q4. Last year's official data shows that output contracted 8.0% from Q2 to Q4, with the largest fall in Q4. This was reflected in our Q4 2022 CIA Business Survey, where multiple members reported shutting down production to reduce costs. Whilst most members do not expect expansions in Q4 2023, they also do not expect it to be as challenging as last year.

A third of respondents expect sales to continue falling and almost half to remain the same. More companies expect exports to fall than domestic demand, mainly due to cheap non-EU imports in the European market and the overall performance of EU businesses. With demand not expected to increase, 30% of respondents can foresee contractions in production levels and capacity utilisations.

Higher energy prices are expected to increase energy costs, but output prices are not expected to rise by almost 75% of businesses. These tough operating conditions will diminish margins for over a third of respondents.

Expectations for twelve months' time

The data in Table 3 is derived from members' expectations over the next 12 months, and due to the nature of the survey, this data should be used as a gauge of the industry's sentiment rather than rigid forecasts. Like Table 2, this data contains an index that describes whether the variables will increase or decrease and the percentage of respondents that estimate an increase in the next 12 months.

Table 3

	12-month Expectation	Percentage of respondents that expect an increase
Total sales	65.3	57.1%
Domestic sales	59.2	44.9%
Exports	60.2	44.9%
EU exports	59.2	40.8%
Rest of the world exports	60.2	38.8%
New orders	66.3	51.0%
Production levels	66.3	53.1%
Capacity utilisation	64.3	46.9%
Employee numbers	43.9	14.3%
R&D spend	42.9	6.1%
Business investment	50.0	22.4%
Your level of business optimism	63.3	42.9%
Time to deliver	50.0	4.1%
Raw material (input) prices	50.0	16.3%
Cost of importing	52.0	8.2%
Cost of exporting	50.0	6.1%
Your energy costs	53.1	26.5%
Finished goods (output) prices	57.1	30.6%
Your company / site profit margins	54.1	30.6%

Source: CIA Q3 Business Survey

Key take away

- CIA members show some optimism with more than half expecting sales and production levels to improve. Slower moving variables are expected to contract or remain unchanged and 59% of respondents expect constant or lower margins. Energy remains a considerable challenge with less than a third of respondent expecting their costs to decrease.

After a challenging year, it is hard for our membership to exhibit high levels of optimism. While 57% of respondents expect sales to increase in 12 months, there might be a baseline effect. Consecutive periods of contraction in chemical sales and production levels may mean that expectations of improvements could not result in overall growth. Due to the current state of the UK economy, which led to low domestic demand, domestic sales are expected to increase by 45% of respondents. Similarly, EU exports are expected to increase more than non-EU exports due to the lower-than-average current levels.

More companies still expect employee numbers to contract than to expand, suggesting that the increase in sales and production levels might not offset the fall experienced over the past year.

Energy costs are still expected to remain a challenge, whilst there is more security over input prices. Almost a third of respondents expect their output prices to increase, showing that companies are hopeful that demand will pick back up and that they will be able to pass on to their consumers some of their higher production costs.

Whilst some of these figures indicate optimism, over 20% of respondents expect their margins to fall and roughly half to remain the same.

Challenges and Opportunities

The second section of the CIA's Q3 Business Survey focused in more detail on the challenges faced by members and the opportunities that they identified. The first question in this section asked respondents to rank 13 challenges faced by the industry from greatest to smallest, with '1' signalling the greatest issue and '12' the smallest.

In the Q2 Business Survey, we added 'weakening demand' as one of the challenges, and it ranked first for 58% of respondents. This quarter, 'weakening demand' remains the number one challenge for 62% of respondents, followed by 'labour cost increases' and 'energy price increases'. In graph 8, the orange and pink dots show the percentage of respondents that ranked each issue as their main one in Q3 and Q2 Surveys, respectively. The percentage of respondents who ranked 'weakening demand' as their core issue increased across the quarter, as did the ones who ranked ' energy price increases' and 'skills shortages'. With winter approaching, it was expected to see more members (9% in Q3 from 3% in Q2) concerned about energy costs.

The cost-of-living crisis continues to affect the labour force of the chemical business as 4% of respondents ranked 'labour cost increases' as their main challenge, and considering all the rankings, it scored second on our challenges list with the second highest blue column in graph 8.

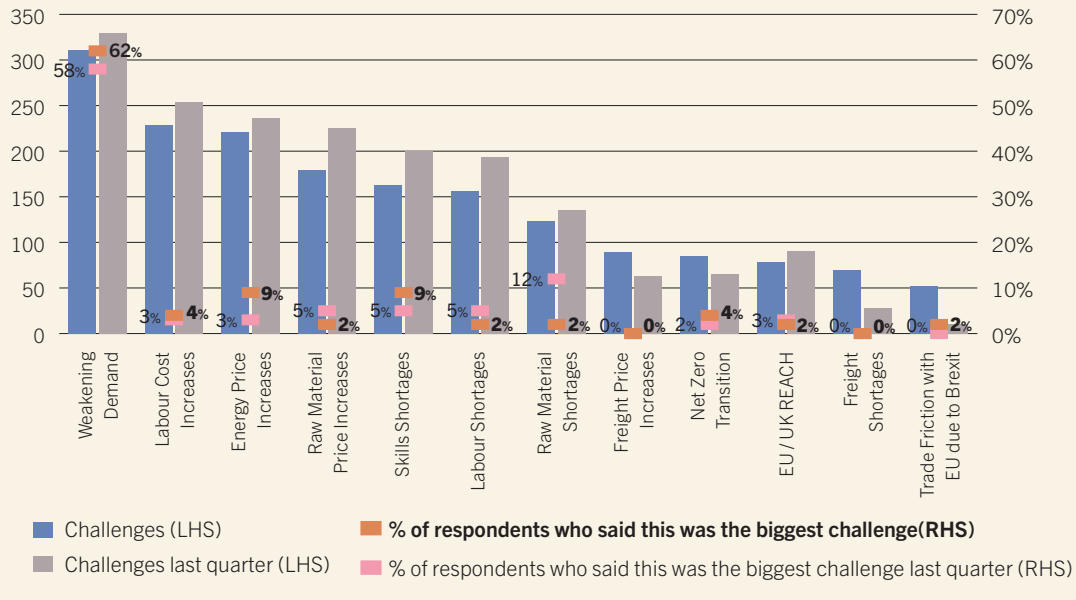
The 'smallest' challenges still pose a serious threat to the industry in the mid-to-long term. They, however, are not being felt as acutely as the soaring input costs, low demand, and labour frictions. It is therefore important that these challenges, including REACH, the net zero transition, and trade friction with the EU, are not underestimated. This point was reiterated by CIA members when they were presented with the data, and the CIA will continue work in these areas opposite government and other stakeholders, especially in relation to the Net Zero Transition and the perceived lack of support from the government.

Members were also vocal about other challenges that were not mentioned in the survey, such as:

- Uncertainty created by the government (upcoming elections
- The lack of clarity over Net Zero and the general lack of an Industrial Strategy and legislation)
- Cheaper overseas competition saturating the European market
- And general concerns about the economic situation (high headline inflation, tight monetary policy, struggling of other major economies, and the reappearance of COVID-19).

The next question asked respondents whether the 13 challenges from the previous question were improving, worsening, or remaining unchanged. Table 4 displays the diffusion indexes of the answers with figures above 50 indicating an improvement, below 50 worsening, and 50 equals no change, and the percentage of respondents that expect a worsening in the near future.

Graph 8: Ranking of Challenges



Source: CIA Q3 Business Survey

Table 4

Issues	Percentage of respondents that expect worsenings
Weakening Demand	71%
Labour Cost Increases	52%
Energy Price increases	31%
Raw Material Price Increases	31%
Skills Shortage	27%
Labour Shortages	15%
Raw Material Shortages	4%
Freight Price Increases	21%
Net Zero Transition	21%
EU / UK REACH	6%
Freight Shortages	8%
Trade Friction with EU due to Brexit	4%

Source: CIA Q3 Business Survey

Table 4 shows how many respondents expect the current issues to worsen. 'Weakening demand' and 'labour cost increases' are expected to worsen by over half of respondents. 'Energy price increases' and 'raw material price increases' also remain concerning, as almost a third of respondents expect further increases.

International lack of competitiveness of the Net Zero framework has also led 21% of respondents to expect the transition to become a bigger challenge, especially as the government is failing to establish a cohesive and long-term Industrial Strategy to attract Foreign Investment. This is especially challenging for CIA members with overseas headquarters who noticed a decrease in investment since other international governments established more pro-industry legislations.

Moving onto opportunities, the most recurrent themes were:

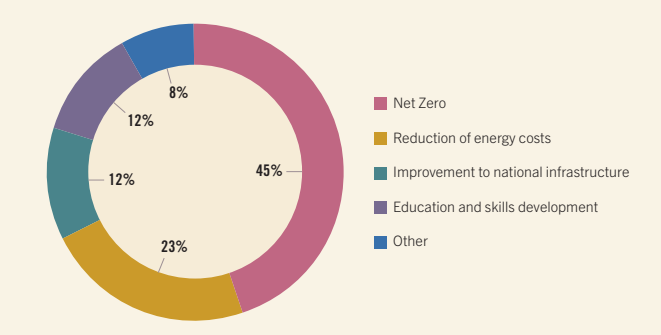
1) Digital innovations – e.g. introduction of machine learning
2) Net Zero / green economy subsidies and transition
3) Expansion of exports (especially outside of the EU)

Government Intervention Areas

The final part of the survey asked members three open-ended questions.

In the first question we asked where an hypothetical £1 billion government investment in the chemical industry should be spend.

Graph 9: Areas to spend £1 billion investment from government

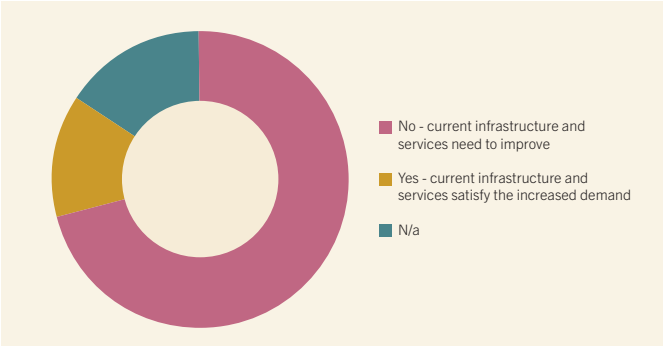


Source: CIA Q3 Business Survey

Graph 9 shows the percentage of answers that mentioned 'net zero', 'reduction of energy costs', 'improvement to national infrastructure', 'education and skills development' or 'other' as investment areas. Due to the internationally uncompetitive net zero approach of the government, 45% of answers mentioned it as the area that could benefit from a hypothetical financial intervention. With UK energy costs significantly above our competitor countries, the reduction of energy costs was also mentioned in 23% of responses with specific emphasis on the availability of cheaper, greener energy. In terms of infrastructure, members were vocal about the need to improve the country's raw materials storage facilities and investing in chemical clusters. Other responses mentioned investment subsidies, lengthening the durability of capital expenditure schemes, and Investment in Nuclear plant construction and nuclear energy.

The second question was both multiple-choice and open-ended. In the multiple choice part, we asked members if current infrastructure is enabling respondents' businesses to realistically meet the 2050 net zero target. We then offered the opportunity to add to their answer through a comment box.

Graph 10: Is current UK infrastructure enabling you to meet 2050's net zero Target?



Source: CIA Q3 Business Survey

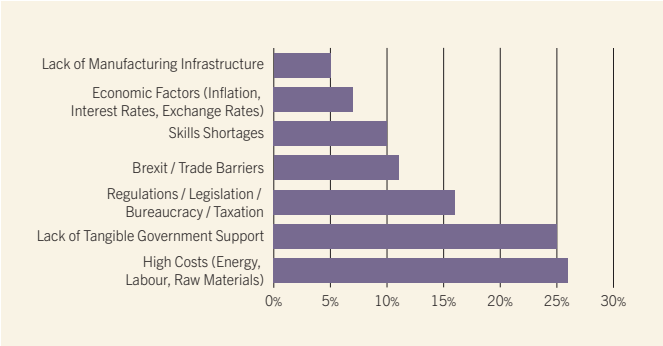
The above pie chart shows that 71% of members does not believe that current infrastructure is developed enough to allow them to meet the target. Among the improvements needed are:

- Improvements to existing infrastructure and services are not quick nor big enough
- Both the Electric Grid and Hydrogen Infrastructure are unable to meet demand due to inadequate capacity
- Government offers little support for companies undertaking Net Zero R&D
- Upfront cost are prohibitive for small businesses with limited capital

Both this question and the previous one show that, even if it was not ranked amongst the top three challenges for business in the 'Challenges Section', the Net Zero transition is a core issue for chemical business and they are vocal about the need for government intervention.

The last question in the survey asked members what may be a barrier for manufacturing innovation in the UK, especially when focusing on products and processes developed within the excellence of the UK academia, which are then manufactured overseas.

Graph 11: Barriers to the development of UK manufacturing innovation in the UK?



Source: CIA Q3 Business Survey

Lack of tangible support from the government, which in this question came out as the second most common barrier to UK manufacturing innovation, was reiterated during the call, indicating a strong feeling of the industry to be unsupported by government. Another key issue that keeps emerging in all questions is 'skills shortages'. After the pandemic, there was a wave of early retirements, which led to a loss of experienced skilled workers. Companies feel the current struggle with skills shortages as they take longer to fill their vacancies, and newly graduated students/apprentices lack the necessary field experience.

Final thoughts on the survey

Q3 Business Survey marked the fifth quarter in a row of falling sales, exports, and new orders. Even if sales fell at a slower rate than in Q2, domestic demand remains weak with severe contractions also on the European market. Five consecutive quarters of contraction led to decreased production levels, capacity utilisation, and employment. Energy costs remain a considerable challenge as they are more than double what they were before the pandemic. These higher costs, coupled with the inability to pass on these extra costs to consumers due to low demand, contracted margins for over 55% of respondents.

Looking ahead to the last quarter of 2023, respondents are disillusioned as they expect the situation to remain unchanged with further contractions in sales, production levels, and margins. Winter is expected to raise energy costs by 45% of respondents, and low demand will squeeze output costs, which 27% of respondents expect to contract. The outlook is more positive over the next 12 months as sales are expected to pick up and margins to improve.

'Weakening demand' remains the biggest challenge for the chemical business, followed by 'labour cost increases' and 'energy cost increases'. In terms of future predictions, respondents expect a worsening of demand and the labour market. Lower ranking issues, such as 'freight price increases' and 'net zero transition', are expected to worsen by 21% of respondents.

Open-ended questions uncovered the industry's need for improvements over the Net Zero strategy in terms of infrastructure and framework. Other areas that were felt to need intervention are energy availability and costs, education and apprenticeship, and legislation. The main feeling that arose from the survey and subsequent conversations with members is the lack of support from government, prompted by the lack of international competitive industrial strategy and net zero investment/subsidies/policies.

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