REPORT

Cost of the Fossil Fuel Crisis – Wales

Executive Summary

This report examines the economic impact of the energy crisis on Wales.

It explores how surging global prices have led to increased gas, electricity, and road fuel costs in Wales and how this has affected Welsh households, road users, and business and industry. It also considers how these costs have been felt differently across the regions of Wales.

It finds that:

- Welsh consumers faced **£5.64bn** in additional *direct* costs during the crisis, driven entirely by spikes in global oil and gas prices.
- Households bore **£3.14bn** in excess direct costs, averaging the equivalent of **£2,285 per home**. Residents in some of the most deprived areas of Wales, where average household incomes are lowest – including Blaenau Gwent, Merthyr Tydfil, Rhondda Cynon Taf, and Newport – have paid a greater proportion of their income on excess energy costs than households in more affluent areas of Wales.
- Industrial users incurred **£0.95bn** in excess energy costs, while commercial, agricultural and public sector organisations faced **£1.1bn**.
- Non-domestic road fuel costs added a further **£440m**, shared across all sectors.
- Flintshire and Wrexham experienced the highest non-domestic cost increases, reflecting their high concentration of energy intensive industrial activity.

- All 22 Local Authorities saw substantial household impacts, with variation driven by differences in energy consumption patterns and exposure to standing charges.
- Wales remains highly exposed to global fossil fuel price volatility, with significant economic consequences.

Introduction

The global fossil fuel crisis has had a profound impact on every part of the UK's economy and across the country, exposing the UK's deep vulnerability to volatility in global oil and gas markets. Beginning in 2021 when global demand rose as countries began to recover from Covid-19 and escalating the next year as prices soared following the Russian invasion of Ukraine, the crisis highlighted the consequences of the UK's continued dependence on fossil fuels, with the International Monetary Fund estimating that the British economy was the worst hit in western Europe.[1]

This report examines how the crisis affected the nation of Wales, building a picture of the excess costs that were borne by domestic, industrial, commercial and public sector actors across the Welsh economy resulting from the spikes in UK oil and gas prices experienced between 2021 and 2024.

We aim to capture as comprehensive a picture as possible, including how spending on gas and electricity bills rose across all sectors of the Welsh economy due to a sharp increase in the cost of wholesale gas over the course of the crisis as well as how the spike in oil prices led to higher road fuel costs.

This Wales-focused report begins by quantifying excess costs above pre-crisis baseline levels for the UK as a whole, before examining how those costs were distributed across Welsh regions and sectors. The analysis apportions excess gas, electricity and road fuel costs to Welsh Local Authorities and ITL3 regions, drawing on datasets from DESNZ, the Office for National Statistics (ONS), StatsWales and others. We present Welsh national results, followed by a

[1] The Guardian, "Energy crisis: UK households worst hit in western Europe, finds IMF"https://www.theguardian.com/money/2022/sep/01/energy-crisis-uk-households-worst-hit-in-western-europe-finds-imf

breakdown of nondomestic costs by ITL3 region and household impacts across all 22 Local Authorities.

This research highlights the enormous economic consequences that the fossil fuel crisis has had on Wales, finding that Welsh consumers paid **£5.64bn** in additional direct costs during the crisis – twice as much than the Welsh government proposes on spending on education (£2.3 bn) over the upcoming financial year (ref). Over half of these costs (£3.14 bn) fell directly onto Welsh households primarily in the form of higher energy bills, averaging the equivalent of £2,285 for every home in Wales.

The report also highlights the impact of spikes in global oil and gas prices on Welsh industry and businesses, finding that industrial users incurred **£0.95bn** in excess energy costs, while commercial, agricultural and public sector organisations faced **£1.1bn**.

Together, these findings illustrate the scale of the burden placed on the Welsh economy and society during the crisis. Although global prices have fallen from their peak at the height of the crisis, they remain above pre-2021 levels. Recent events, including the increase in gas prices associated with unrest in Iran and the resulting concerns for global supply, also show that future price shocks are likely, and the Energy Crisis Commission warned the UK is "dangerously unprepared" for this.[2]

This research highlights the economic risks associated with continued reliance on volatile fossil fuel markets.

Methodology

Our approach seeks to quantify the direct costs faced by energy consumers during the crisis period, over and above that which would be expected had the price spikes not occurred.

For each sector or cost area we therefore establish a baseline using historical cost data from DESNZ available at the UK level, compare this to actual costs during the crisis, and then use additional data from the ONS, StatsWales and others to apportion these costs to national and subnational levels. Fiscal spending by the UK government on various measures implemented to shield

[2] The Energy Crisis Commission, "Protecting the UK From a Future Energy Crisis", https://energycrisiscommission.uk/the-report-2/

consumers from the worst impacts of the price shocks are excluded as the cost of public sector debt and spending cannot be reasonably disaggregated, but these costs will inevitably be ultimately borne by all constituent nations of the United Kingdom.

DESNZ's Digest of UK Energy Statistics (DUKES) table 1.3 reports annual gas and electricity spending across all economic sectors for the UK as a whole. After adjusting for inflation, we compare expenditure in each reported sector over the four years 2021 to 2024 against a baseline of 2016 to 2019 (omitting 2020 on the grounds of disruption from the pandemic).

For road fuels, baseline and per-litre excess costs were established using DESNZ data on monthly average fuel prices[3] and total purchase volumes.[4] For each fuel, a 'structural break test' was used to define the duration of the price spike (October 2021 to February 2023 for petrol, and November 2021 to June 2023 for diesel)[5] and prices during these spikes were compared to pre-crisis averages, generating monthly excess cost values on a per litre basis.

Domestic gas and electricity

Disaggregation of UK domestic energy cost data is performed using DESNZ's regional and local authority electricity and gas consumption statistics, which provide average domestic consumption and meter counts for all GB local authorities between 2005 and 2024.[6] [7] These are used to generate a timeseries of consumption as a share of the GB total, for each fuel, at the Local Authority (LA) level.

The core DESNZ Digest of UK Energy Statistics (DUKES) dataset used to calculate excess costs is adjusted to remove Northern Ireland's consumption and align with the local consumption dataset. Finally, the calculated consumption shares are applied to the adjusted DUKES data to calculate LA-level expenditure on each fuel across the crisis period and preceding years, which are used to determine excess cost incurred above the pre-crisis baseline

[3] QEP 4.1 (DESNZ, 2025)

[4] Data from Energy Trends 3 (DUKES, 2025) is reported in tonnes and was converted to litres using BP conversion factors.

[5] The price spikes were defined to have started when the monthly average inflation adjusted price reached a level 5% above the pre-crisis (2016-2019) average for two consecutive months, and to have finished when the price fell below this level for the same duration.

[6] https://www.gov.uk/government/statistics/regional-and-local-authority-electricity-consumption-statistics

[7] https://www.gov.uk/government/statistics/regional-and-local-authority-gas-consumption-statistics

in line with the previous work[8]. Excess standing charge costs are apportioned according to numbers of households from StatsWales. All cost figures are adjusted for inflation.

Non-domestic gas and electricity

Equivalent LA-level consumption data for non-domestic sectors is unavailable, so an alternative approach is taken to cost disaggregation, using ONS figures for regional Gross Value Added by Standard Industrial Classification (SIC) group.[9] This dataset includes annual inflation-adjusted output, reported at International Territorial Level 3 (ITL3) units. These are less granular than Local Authorities, with 12 covering Wales, versus 22 LAs.

The DESNZ source data reports non-domestic energy expenditure against two non-domestic headings: 'Industrial' and 'Other', the latter encompassing the commercial and agricultural sectors, and the public sector. For each heading, we calculate the regional shares of total UK GVA in relevant industries and use this to apportion total UK energy expenditure and determine excess costs in each geography[10]. Shares for the 'Industrial' heading are calculated using GVA figures for the SIC *Production Sector*, while 'Other' shares take the combined outputs of the *Services Sector, Agriculture, Forestry and Fishing* and *Construction* sectors, weighted according to their respective energy intensities.[11]

[8] Apportionment of excess costs is performed based on consumption volumes rather than overall cost and therefore does not explicitly account for regional variation in unit costs and standing charges, or the relative prevalence of different payment methods which impact consumer prices. These are known to differ across the UK https://www.ofgem.gov.uk/information-consumers/energy-advice-households/get-energy-price-cap-standing-charges-and-unit-rates-region. The impact of this omission is minimised by reporting only the *excess* costs over and above a pre-crisis baseline calculated for each region, thus assuming only that the characteristics of each region vis. energy cost ranking and payment type mix remains stable over the crisis period.

[9] https://www.ons.gov.uk/economy/grossvalueaddedgva/datasets/nominalandrealregionalgrossvalueaddedbalancedbyindustry

[10] Apportioning excess energy costs using GVA shares relies on the assumption that the energy intensity of production in the relevant industry(ies) is equal across different subnational regions. While there may be some degree of regional variation where particularly energy intensive subsectors are clustered, the use of high-level SIC categories covering a broad range of subsectors mitigates the risk of such clusters skewing the results.

[11] Energy intensities used to weight GVA figures are annual UK sectoral averages from the ONS: https://www.ons.gov.uk/economy/environmentalaccounts/datasets/ukenvironmentalaccountsenergyreallocatedenergyconsumptionandenergyintensityunitedkingdom

Road fuels

Calculation of local road fuel costs during the crisis period relies on DESNZ's sub-national road transport consumption data[12], which publishes annual petrol and diesel consumption figures (in ktoe) at LA level. These undergo minor processing to group by domestic and non-domestic use[13] and by fuel and convert to litres. These LA fuel consumption volumes are then multiplied by the monthly fuel price excess values, to generate a total value for excess costs incurred by motorists during the crisis.

A note on tax

Throughout this analysis, reported figures include tax costs only where they are not recoverable by the consumer. Thus, VAT is included in figures relating to domestic consumption at the relevant rate but excluded for non-domestic consumers as it is assumed that it will be reclaimed by commercial users and therefore does not represent a net cost. Fuel duty, as a non-recoverable expense, is included for all consumers.

Results

National

The fossil fuel crisis has had an enormous economic toll on Wales. Across Wales, higher fossil fuel prices during the crisis forced consumers to spend an extra £5.64 bn on gas, electricity and road fuels compared to pre-crisis levels. Just over half of this fell directly onto households, primarily in the form of higher energy bills.

The industrial sector was hit by energy bill cost increases of just under £1bn, while the 'other' category, encompassing commercial, agricultural and public sectors, incurred £1.1bn. These last two categories also shared £440 million in extra road fuel costs.

Consumer/cost group	Total excess cost

[12] https://www.gov.uk/government/collections/road-transport-consumption-at-regional-and-local-level

[13] Energy Consumption UK table C8 (DESNZ, 2025). This user spilt is not recorded at the pump and therefore reliable data is not available, but recorded data on fuel use by vehicle type was used as a proxy to calculate an appropriate allocation. All LGV, HGV and bus fuel use (primarily diesel) was considered to be non-domestic. Petrol cars and motorcycles were assumed to be 95% for domestic use due to limited commercial use as fleet vehicles and taxis, while 75% of diesel car use was considered to be domestic, reflecting a higher prevalence of diesel car use in commercial fleets. Diesel cars have historically been overrepresented in company fleets, but the proportion has been falling in recent years – see Benefit in kind statistics commentary June 2025 (HMRC, 2025).

Domestic consumers	£3.14 bn
of which energy unit costs	£2.14 bn
of which standing charges	£0.44 bn
of which road fuels	£0.56 bn
Industrial energy bills	£0.95 bn
Other energy bills	£1.10 bn
Non-domestic road fuels	£0.44 bn
Wales Total	**£5.64 bn**

Non-domestic costs by ITL3 region

The crisis has had profound implications for Welsh industry and businesses. The table below outlines excess non-domestic energy and road fuel costs, apportioned by Welsh ITL3 regions. The manufacturing hub of Flintshire and Wrexham incurred notably high excess industrial energy costs of £353 million and £500 million across the wider non-domestic sector, while the urban regions of South East Wales also saw some of the highest cost increases over the period.

Neath Port Talbot is notable for seeing lower excess costs than other Southern regions, despite significant industrial output. This is likely due to declining output over the modelled period: excess costs are calculated based on the difference between modelled energy spending during the crisis period and a baseline based on the four-year pre-crisis period 2016-2019. Port Talbot's share of UK GVA in the production sector used to apportion excess energy costs has declined over this period, so apportioned costs in later years are lower and excess cost over the baseline are lower as less energy is assumed to have been used.

Modelling region-specific output trends into baselines is beyond the scope of this analysis, but it can be safely assumed that had output not been falling over the period, excess energy costs would have been significantly higher.

It should also be noted that this analysis focuses on gas and electricity and therefore does not capture the coking coal used as the primary fuel in Port Talbot's steelwork's blast furnaces.

The output of Port Talbot has declined over decades, producing just 1.1 million tonnes of output in 2024[14] after the blast furnaces closed in July and September that year, from around 4.5 million tonnes in 2013[15]. There are many reasons for this; before Brexit, UK Steel indicated that Chinese exports increased[16], limiting UK competitiveness, and after Brexit Tata Steel has stated that there was a 15% increase in transport and processing costs[17]. Over the last 10 years, UK Steel has stated that energy costs are a major factor in declining output with their analysis finding that energy costs have been significantly higher than in Germany or France, largely driven by the wholesale energy component of bills. The trade association has said[18] that "the primary driver of the price disparity is now wholesale electricity costs, which **are largely driven by the UK's reliance on natural gas for power** generation".

Region	Industrial excess energy costs	'Other' sector excess energy costs	Non-domestic excess road fuel costs	Total non-domestic excess costs
Units	*2024 £M*	*2024 £M*	*2024 £M*	*2024 £M*
Isle of Anglesey	18	26	10	55
Gwynedd	24	45	19	88
Conwy and Denbighshire	17	69	32	119
Flintshire and Wrexham	353	103	44	500
South West Wales	55	118	49	223
Mid Wales	53	72	39	164
Neath Port Talbot	25	32	20	77
Swansea	24	82	24	130
Central Valleys and Bridgend	146	111	55	312
Gwent Valleys	112	78	30	220
Monmouthshire and Newport	78	90	60	228

[14] https://www.tatasteeluk.com/sites/default/files/pimcore_doc/tata-steel-uk-limited-annual-report-2025.pdf

[15] https://www.itv.com/news/wales/2016-01-19/port-talbot-and-its-long-tradition-of-steel-making

[16] https://senedd.wales/media/avsbwrvq/16-023-web-english.pdf

[17] https://www.tatasteeluk.com/sites/default/files/pimcore_doc/tata-steel-uk-limited-annual-report-2021.pdf

[18] https://www.uksteel.org/steel-news-2025/new-report-uk-industrial-electricity-still-uncompetitive-steel-industry-sets-out-plan-to-fix-it

Cardiff and Vale of Glamorgan	46	273	58	376
Wales Total	**950**	**1,099**	**441**	**2,490**

Domestic costs by local authority

Over half of all the excess costs associated with the fossil fuel crisis have been shouldered by Welsh households. Across all Local Authorities of Wales, households have had to bear significantly higher gas, electricity and road fuel costs driven by the spike in global oil and gas prices. On average across the country, consumers paid £2,285 per household in additional direct costs for energy.

This report highlights some regional variation in excess household energy costs across Wales.

Local Authority	Total excess household costs	Number of households, 2023	Excess cost per household	Excess cost as % of disposable household income
Units	*2024 £M*	*2023*	*2024 £*	*%*
Isle of Anglesey	64.5	31,206	£2,067	1.09%
Gwynedd	114.1	52,222	£2,185	1.22%
Conwy	114.6	52,297	£2,191	1.14%
Denbighshire	93.5	42,949	£2,177	1.15%
Flintshire	154.5	67,481	£2,289	1.09%
Wrexham	124.6	58,656	£2,125	1.13%
Powys	128.5	61,093	£2,104	1.08%
Ceredigion	67.6	31,709	£2,131	1.16%
Pembrokeshire	122.3	56,466	£2,166	1.16%
Carmarthenshire	184.0	83,069	£2,215	1.20%
Swansea	244.3	108,952	£2,243	1.25%
Neath Port Talbot	139.6	62,562	£2,231	1.27%
Bridgend	148.2	63,250	£2,343	1.22%
Vale of Glamorgan	146.4	58,749	£2,492	1.08%
Rhondda Cynon Taf	243.7	105,839	£2,303	1.33%
Merthyr Tydfil	59.0	25,475	£2,317	1.34%
Caerphilly	170.7	76,594	£2,229	1.20%
Blaenau Gwent	66.2	30,587	£2,166	1.42%
Torfaen	93.8	40,728	£2,304	1.26%
Monmouthshire	109.9	41,525	£2,647	1.09%

Newport	173.6	68,264	£2,543	1.33%
Cardiff	382.3	157,399	£2,429	1.21%
Wales Total	**3,146.1**	**1,377,071**	**£2,285**	1.20%

Critically, this highlights how the burden of higher energy costs has not fallen evenly across the population. Excess costs as a share of total gross disposable household income over the period of the crisis varies between local authorities, with households in many of the least affluent areas forced to spend more as a share of their income than those in wealthier regions[18]. Essentially, this means the poorest households have been hardest hit, a pattern seen across the rest of the UK too.[19]

In Blaenau Gwent, the hardest hit area in share of income terms, households spent on average an extra 1.42% of their disposable income on excess energy costs, almost a third more than those in Powys and Vale of Glamorgan. Some of the wealthiest areas of Wales, notably Vale of Glamorgan and Monmouthshire, were hardest hit in absolute cost terms, but these costs represented a significantly lower share of average incomes than most other regions of the country, while communities in the South Wales valleys, already among those with the lowest disposable incomes in the UK, bore the heaviest burdens as energy costs rose.

Wider economic impacts

This analysis seeks to capture the *direct* cost impacts on Welsh consumers of increased fossil fuel prices, via energy bills and road fuels but it should be noted that this is far from the end of the story in terms of wider economic implications.

Rising energy costs have been the primary driver of high inflation in the years since the crisis began, with businesses forced to either absorb increased cost base at the expense of profitability, or pass on higher costs to consumers via higher prices of food and other consumer products. Lower profitability and economic uncertainty impact investment across the economy, with broad impacts for GDP growth and productivity playing out long after the initial price shocks have subsided.

[19] Scope, "Extra Burden of Energy Crisis on Disabled Households", https://www.scope.org.uk/campaigns/research-policy/extra-burden-of-energy-disabled-households#Extra-cost-of-essentials-for-disabled-households-click

Meanwhile, high energy bills have left households struggling to keep up, with UK-wide levels of energy debt and arrears reaching historic highs of £4.5bn in Q3 2025.[20] For many, this means that despite falls in the energy price cap over the last year, high monthly repayments on accrued debt mean that the actual cost of living may take much longer to fall.[21]

Conclusion

The fossil fuel crisis which began in 2021 has had far-reaching impacts on the economy of the UK, including Wales. Households have faced a bill of over £3.1bn directly as a result, which is the equivalent to £2,285 per home, with those in the poorest areas having the highest costs as a proportion of household incomes.

Industry also had increased direct costs, of around £1bn while commercial, agricultural and public sector organisations faced a bill of £1.1bn. Port Talbot, amongst other industrial sites, has experienced a decline in output partly as a result of high energy prices over the last decade, which the UK's steel trade association links to the UK's "reliance on natural gas". In addition, non-domestic road fuel costs added a further cost of £440m, shared across all sectors.

With continuing geopolitical uncertainty and gas prices spiking in recent weeks[22], partly as a result of continuing global uncertainty about gas supplies, questions remain about how prepared Wales is for any future crisis.

[20] https://www.ofgem.gov.uk/data/debt-and-arrears-indicators

[21] https://www.nea.org.uk/news/april-2024-price-cap-debt/

[22] Trading Economics, "UK Natural Gas", https://tradingeconomics.com/commodity/uk-natural-gas