UK Government

# Fossil Fuel Price Assumptions 2025

## Final Report

January 2026

# Contents

# Overview

*This publication presents the 2025 Fossil Fuel Price Assumptions (FFPA) produced by the Department for Energy Security and Net Zero. It outlines the methodology used and describes how the assumptions should be interpreted.*

## 1.1 Introduction

Each year the Department for Energy Security and Net Zero, formerly the Department for Business, Energy and Industrial Strategy, updates its long-term price assumptions for oil, gas and coal. These are assumptions for the wholesale fossil fuel prices that are relevant for the UK economy, which are set in international markets. They are not forecasts of future energy prices and do not provide Government's view of future prices, either in the short or long-term.

These assumptions are required for long-term economic appraisal and therefore reflect a range of potential long-term trends. These assumptions feed into work across Government to appraise the economic impacts of policies and are intended to support modelling of future policy decisions by providing a range of possible prices and the ability to stress-test policy options.

The 2025 FFPA presents assumed annual average wholesale prices for gas, oil, and coal, from 2025 to 2050. The process by which the Department generates its price assumptions is based on estimates of market fundamentals to arrive at a range of future prices.

Making assumptions about future fossil fuel prices is extremely challenging – particularly as the world embarks on the energy transition, and markets face considerable exogenous shocks. This uncertainty is limited through two approaches. The first is only using annual prices, which reduces intra year volatility. The second is to reduce inter-year volatility by producing three assumptions for future prices for each fuel, based on different assumptions about future global markets. We encourage users to consider the full range of possible values when making an assessment based on these results, and not to take a single value as representative of what is most likely to occur.

## 1.2 FFPA Methodology Summary

This section provides a brief overview of how the assumptions are calculated. The Methodology section below contains a more in-depth explanation of the calculations and underlying methodological approach for each fuel.

The FFPAs provide a linearly interpolation between short-term assumptions for the first three years, based on market forward curves, and a long-term ‘anchor’ in 2040, based on long-term supply and demand curves. Due to the uncertainty in assuming prices so far into the future,

prices are flatlined after 2040, meaning that prices are assumed to be unchanged from 2040 to 2050. All prices are presented in real terms (2024 prices).

### Methodology to Calculate Short-term Assumptions

Short-term prices from 2025 to 2027 are calculated from market forward prices taken during the Spring of 2025. The forward prices provide a market clearing equilibrium price for the underlying commodity in a given future month, with a certain amount of volatility factored in, if you were to buy the commodity today. The monthly forwards are then aggregated to produce annual values, with outturn prices also taken into account for the first year.

A high and low assumption is calculated from this figure using the market volatility assessment assumed for the period the forward prices were collected. This results in three sets of assumptions for each fossil fuel.

### Methodology to Calculate Long-term Assumptions

For the long-term analysis, the intersection of different demand and cost of supply curves is used to estimate the marginal break-even wholesale prices for each fossil fuel in 2040.

The demand curves are (in most cases) from the International Energy Agency's World Energy Outlook 2024 scenarios. Whilst the cost of supply curves were provided to the Department for Energy Security and Net Zero (DESNZ) by Rystad Energy in 2023. The detailed supply curve methodology was published alongside the FFPAs in 2023[1].

## 1.3 Quality Considerations

This model is based on existing data and assumptions and does not model potential future shocks or significant shifts to the global market. The methodology helps to overcome future uncertainties about shocks by providing a smoothed representation of assumptions of future annual prices, with three sets of assumptions per fuel. As such intra- and inter-year volatility or price cycles are accounted for either within the annual price (within year) or through a range of assumptions (across years). Testing policy against all three assumptions offers the best approach to understanding how choices may fare in different market conditions; the range between Assumption A and Assumption C provides the likely bound of prices.

## 1.4 Users and Uses of FFPA

The Fossil Fuel Price Assumptions are used by publications across the Department for Energy Security and Net Zero, and HMG. They are not forecasts of future energy prices and do not provide Government's view of future prices, either in the short or long-term. The assumptions are not used in isolation but are used as inputs into further modelling by these teams. Notable publications that use these assumptions are:

[1] Fossil fuel price assumptions: 2023 - GOV.UK

1. Energy Emissions and Projections
2. Dynamic Dispatch Model
3. Green Book Supplementary Guidance

# Fossil Fuel Price Assumptions 2025

## 2.1 Gas Price Assumptions

### Gas Results

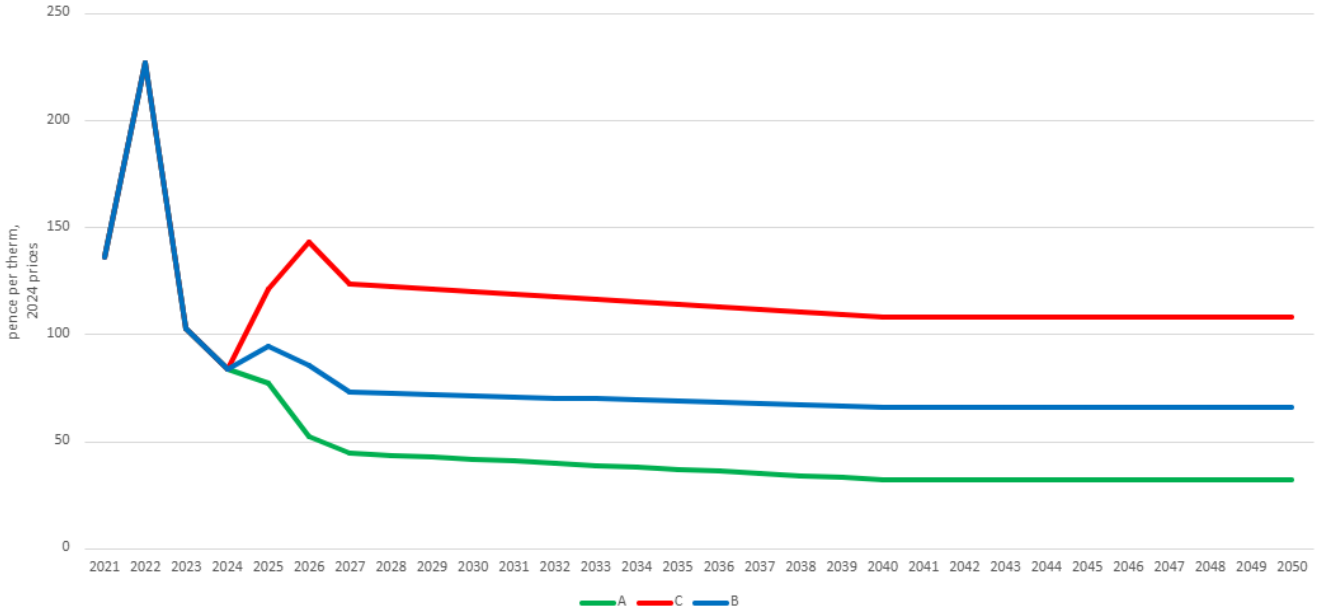
The 2025 FFPA update offers three gas price assumptions out to 2050. The figures shown in Table 1 are annualised average wholesale prices. All prices are presented in real terms (2024 prices).

**Table 1: Gas 2025 Assumptions: 2021 – 2050**

| 2025 DESNZ gas fossil fuel price assumptions: 2021 - 2050 | | | |
|---|---|---|---|
| p/Therm<br>Real 2024 Prices | A | B | C |
| 2021 | 136 | 136 | 136 |
| 2022 | 226 | 226 | 226 |
| 2023 | 103 | 103 | 103 |
| 2024 | 84 | 84 | 84 |
| 2025 | 77 | 94 | 121 |
| 2026 | 52 | 85 | 143 |
| 2027 | 44 | 73 | 124 |
| 2028 | 43 | 72 | 122 |
| 2029 | 43 | 72 | 121 |
| 2030 | 42 | 71 | 120 |
| 2031 | 41 | 71 | 119 |
| 2032 | 40 | 70 | 118 |
| 2033 | 39 | 70 | 116 |
| 2034 | 38 | 69 | 115 |

| | | | |
|---|---|---|---|
| 2035 | 37 | 69 | 114 |
| 2036 | 36 | 68 | 113 |
| 2037 | 35 | 68 | 112 |
| 2038 | 34 | 67 | 110 |
| 2039 | 33 | 67 | 109 |
| 2040 | 32 | 66 | 108 |
| 2041 | 32 | 66 | 108 |
| 2042 | 32 | 66 | 108 |
| 2043 | 32 | 66 | 108 |
| 2044 | 32 | 66 | 108 |
| 2045 | 32 | 66 | 108 |
| 2046 | 32 | 66 | 108 |
| 2047 | 32 | 66 | 108 |
| 2048 | 32 | 66 | 108 |
| 2049 | 32 | 66 | 108 |
| 2050 | 32 | 66 | 108 |

**Chart 1: Gas 2025 Assumptions: 2021 – 2050**




## Gas Narrative

Following the retreat from record high European gas prices seen in 2022, prices fell to 84p/th in 2024 as market conditions eased. However, over the first half of 2025 prices have risen to 94p/th[2] as Europe exited Winter 24/25 with low storage volumes, requiring higher LNG imports to refill inventories ahead of Winter 25/26, in line with European targets.

The short-term trend in assumptions A and B see prices falling in 2026 as a new wave of LNG liquefaction output increases gas supply and puts downward pressure on prices. Assumption C sees a continuation of rising prices due to the ongoing supply demand mismatch, and any risks around the delay of new LNG projects coming online.

There is a slight downward trend towards 71p/th for Assumption B in 2030, 42p/th for Assumption A and 120p/th for Assumption C. Prices remain relatively flat from 2030 onwards – apart from Assumption A which continues to fall towards 32p/th in 2040.

Further considering short-term wholesale price assumptions, wholesale prices are expected to remain high over the remainder of 2025 as Europe refills storage ahead of winter. There are some risks to European supply, including potential reductions to Russian pipeline or LNG exports, which could push up prices further.

The key variables that will affect short-term prices include:

1. The type of winter experienced – i.e. whether there is a mild winter as experienced over 2022/23 and 2023/24, or whether temperatures drop below historic averages and raise heating demand. Winter 24/25 saw temperatures in Europe return to more “normal” conditions, which pushes up gas demand and saw prices rise.

[2] GB National Balancing Point (NBP) Day-Ahead prices up to and including market close on 17/09/25. Data from ICIS.

2. How European storage fares, with the current expectation that Europe is likely to fill storage in line with EU targets ahead of Winter 2025/26, offering mitigation against a shock to demand (e.g. a Cold Winter) or supply (e.g. remaining Russian supply is curtailed).
3. The extent of Asian demand. As the largest LNG-consuming region, demand patterns in Asia are critical for global gas balances. Heatwaves in Northeast Asia can push up demand for LNG and so raise prices in Asia and Europe. Moreover, China is the world's largest LNG buyer so its demand has a major impact on global market balances. However, in 2025 China's LNG demand has been slower than previously expected due to ramped up domestic production and pipeline imports. The future of Chinese LNG demand growth will continue to affect gas prices in Europe and Asia.

## 2.2 Oil Price Assumptions

### Oil Results

The 2025 FFPA update offers three oil price assumptions out to 2050. A long-term anchor was used for 2040, and all assumptions are flatlined from 2040 onwards as there is too much uncertainty after that point for robust analysis.

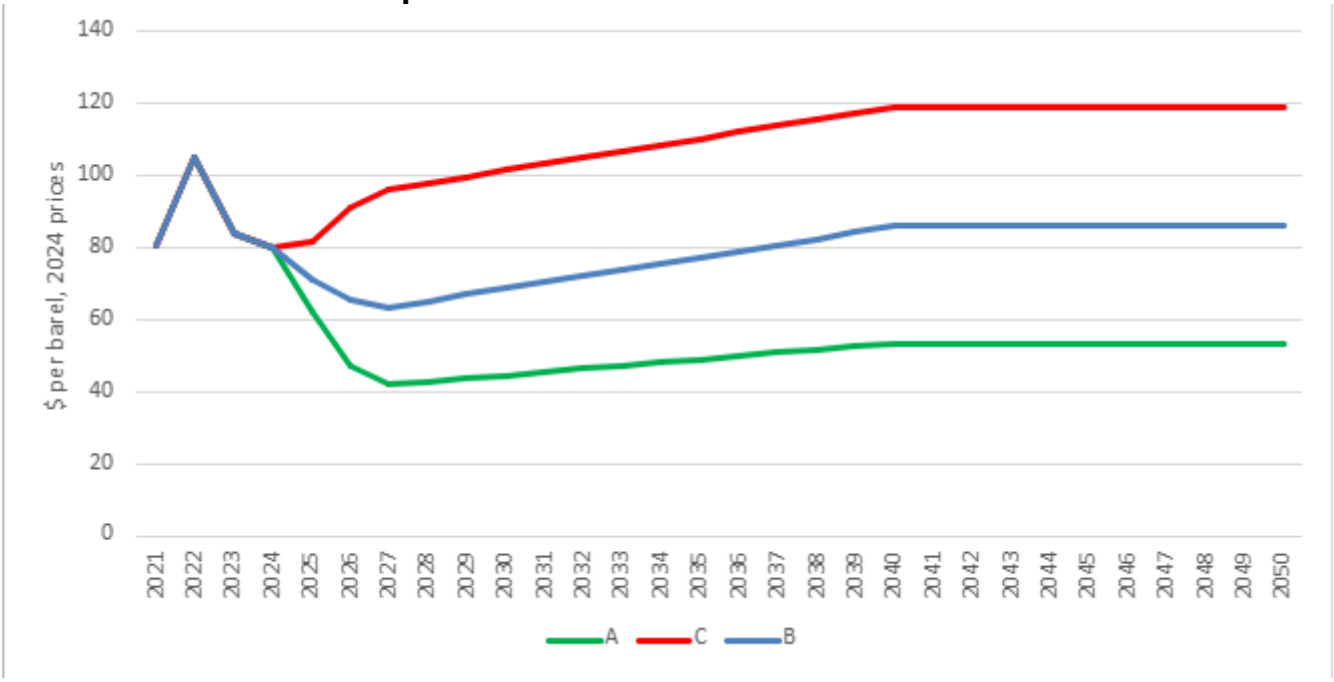
The figures shown in Table 2 are annualised average wholesale prices.

**Table 2: Oil 2025 Assumptions: 2021 - 2050**

| 2025 DESNZ oil fossil fuel price assumptions: 2021 - 2050 | | | |
|---|---|---|---|
| $/bbl<br>Real 2024 Prices | A | B | C |
| 2021 | 81 | 81 | 81 |
| 2022 | 105 | 105 | 105 |
| 2023 | 84 | 84 | 84 |
| 2024 | 80 | 80 | 80 |
| 2025 | 62 | 71 | 82 |
| 2026 | 47 | 66 | 91 |
| 2027 | 42 | 64 | 96 |

| | | | |
|---|---|---|---|
| 2028 | 43 | 65 | 98 |
| 2029 | 44 | 67 | 100 |
| 2030 | 45 | 69 | 102 |
| 2031 | 46 | 71 | 103 |
| 2032 | 47 | 72 | 105 |
| 2033 | 47 | 74 | 107 |
| 2034 | 48 | 76 | 109 |
| 2035 | 49 | 77 | 110 |
| 2036 | 50 | 79 | 112 |
| 2037 | 51 | 81 | 114 |
| 2038 | 52 | 83 | 116 |
| 2039 | 53 | 84 | 117 |
| 2040 | 54 | 86 | 119 |
| 2041 | 54 | 86 | 119 |
| 2042 | 54 | 86 | 119 |
| 2043 | 54 | 86 | 119 |
| 2044 | 54 | 86 | 119 |
| 2045 | 54 | 86 | 119 |
| 2046 | 54 | 86 | 119 |
| 2047 | 54 | 86 | 119 |
| 2048 | 54 | 86 | 119 |
| 2049 | 54 | 86 | 119 |
| 2050 | 54 | 86 | 119 |

**Chart 2: Oil 2025 Assumptions: 2021 – 2050**




## Oil Narrative

The oil market is currently well supplied, with prices well below recent 2022 highs, despite geopolitical instability. In the short-term, Assumption B price trends slightly below current levels to $64/bbl in 2027.

However, oil prices are nonetheless very sensitive to market imbalances and speculation and there remain very significant risks linked to geopolitical risk in the US, Middle East and Russia. Assumption C reaches $96/bbl on average in 2027, while at the other end of the range the average annual price in Assumption A falls to $42/bbl by 2027. Lower prices could materialise in the case of an unexpected slowdown in the global economy, or if OPEC+ continues to unravel its production agreements.

In the longer term, average prices increase to around $86/bbl in 2040 under Assumption B, while Assumption A trends to $54/bbl and Assumption C reaches $119/bbl. These differences are mainly driven by different levels of success in the global adoption of demand-side climate policies, which alters the long-term trajectory of global demand.

## 2.3 Coal Price Assumptions

### Coal Results

The 2025 FFPA update offers three coal price assumptions out to 2050. A long-term anchor was used for 2040, and all assumptions are flatlined from 2040 onwards, as there is too much uncertainty after that point for a robust analysis.

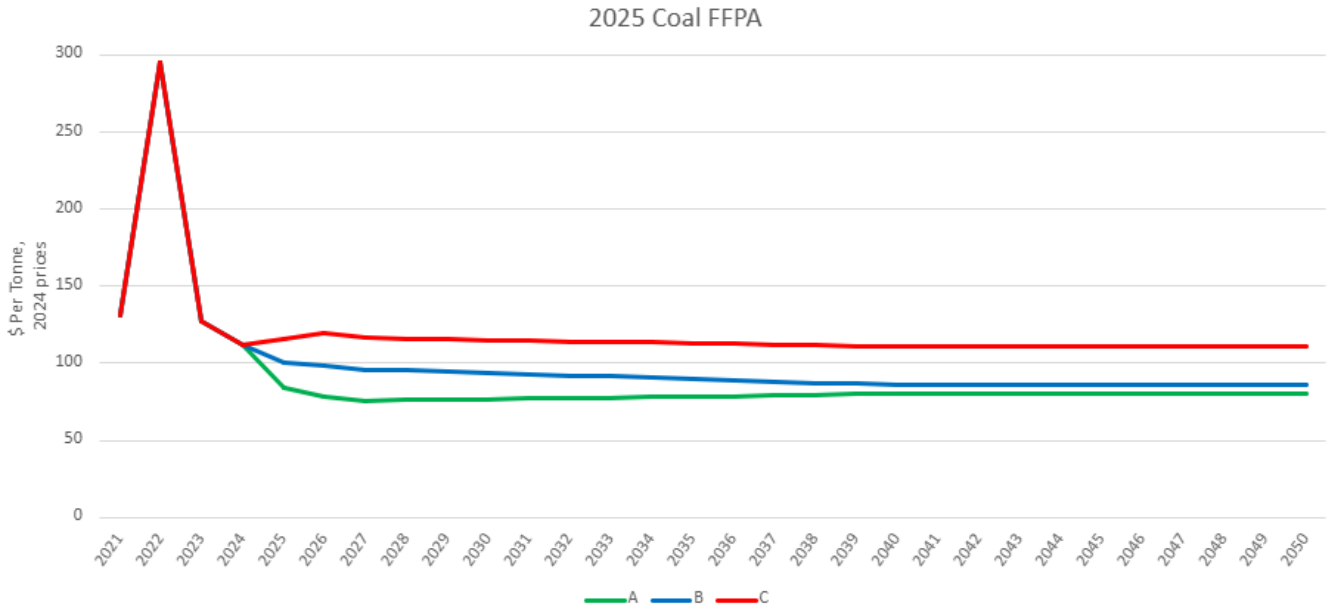
The figures shown in Table 3 are annualised average wholesale prices.

**Table 3: Coal 2025 Assumptions: 2021 - 2050**

| 2025 DESNZ coal fossil fuel price assumptions: 2021 - 2050 | | | |
|---|---|---|---|
| USD/Tonne<br>Real 2024 Prices | A | B | C |
| 2021 | 131 | 131 | 131 |
| 2022 | 295 | 295 | 295 |
| 2023 | 127 | 127 | 127 |
| 2024 | 112 | 112 | 112 |
| 2025 | 84 | 100 | 116 |
| 2026 | 78 | 99 | 119 |
| 2027 | 76 | 96 | 116 |
| 2028 | 76 | 95 | 116 |
| 2029 | 76 | 95 | 116 |
| 2030 | 77 | 94 | 115 |
| 2031 | 77 | 93 | 115 |
| 2032 | 77 | 92 | 114 |
| 2033 | 78 | 91 | 114 |
| 2034 | 78 | 91 | 113 |
| 2035 | 79 | 90 | 113 |

| | | | |
|---|---|---|---|
| 2036 | 79 | 89 | 113 |
| 2037 | 79 | 88 | 112 |
| 2038 | 80 | 87 | 112 |
| 2039 | 80 | 87 | 111 |
| 2040 | 80 | 86 | 111 |
| 2041 | 80 | 86 | 111 |
| 2042 | 80 | 86 | 111 |
| 2043 | 80 | 86 | 111 |
| 2044 | 80 | 86 | 111 |
| 2045 | 80 | 86 | 111 |
| 2046 | 80 | 86 | 111 |
| 2047 | 80 | 86 | 111 |
| 2048 | 80 | 86 | 111 |
| 2049 | 80 | 86 | 111 |
| 2050 | 80 | 86 | 111 |

## Chart 3: Coal 2025 Assumptions: 2021 - 2050



## Coal Narrative

Following the retreat from record high coal prices seen in 2022, short-term trends show prices ranging between $76-116/t in 2027. All three assumptions show prices continuing to fall from the recent highs reported, settling at between $80/t and $111/t in 2040.

Despite the recent volatility we have seen in European coal markets, we are more certain about the future of European coal demand due to recent phasing-out agreements, creating a more stable planning environment and a tighter price range between assumptions. Generally, a return to pre-invasion and pre-Covid prices is seen by 2025 and then remain relatively steady.

# Methodology

The last full FFPA was published in 2024[3]. The same methodology has been applied for the 2025 FFPAs, with an update on key underlying assumptions to better reflect current market expectations. However, given the nature of different markets some small alterations in methodological approach have been applied for the different fuels to calculate the price assumptions. The following section outlines the methodological approach, including the methodological nuances and the updated assumptions.

## 3.1 Short Term Methodology

For the short-term update, the 2025 FFPA uses forward curve prices for the next three years (2025, 2026 and 2027) as well as the Black-Scholes volatility formulae (as per previous FFPA iterations) to give a 75% confidence interval for the high and low scenarios.

### Short-term Model Calculations (Gas and Oil)

Forward prices for each month from April 2025 to December 2027 were collected throughout the four-week period in March 2025 for oil markets, and over a 3-month period between March and May for gas markets. This change in approach for gas markets in 2025 was a result of the higher period of volatility in European gas markets in March 2025 due to it being the shoulder month for inputting to gas storage – it was also a period of uncertainty for EU gas storage obligations.

For the collection period, each price had a corresponding volatility value, expressed as a percentage. The higher the percentage, the more assumed volatility for that month's price.

Using the following formula, the price and the volatility for each month was used to construct a high and low price for that month, assuming a 75% confidence interval for the calculation.

$$E(f_{t,k}) > f_{t,k} * exp\left(-z_{\alpha/2} * \sigma_k \sqrt{t}\right) \text{ for the lower limit}$$

$$E(f_{t,k}) > f_{t,k} * exp\left(z_{\alpha/2} * \sigma_k \sqrt{t}\right) \text{ for the upper limit}$$

where

$E(f_{t,k})$ = Expected month k price at experiation date t
$f_{t,k}$ = Month k futures price at day t
$\sigma_k$ = implied volatility for option on month k futures contract
$t_k$ = Time to experiation for month k futures contract (in years)
$z_{\alpha/2}$ = Standardized normal distribution value for $(1-\alpha)$ confidence level

For each month from April 25 to December 27, there is now a base price, an upper limit and a lower limit. These are aggregated with the outturn data between January 2025 and March

[3] Fossil fuel price assumptions: 2024 - GOV.UK

2025 to get the average for each year. These are then adjusted using the GDP deflator to 2024 prices and used as the short-term assumptions in the model.

For oil, forward data was taken from Bloomberg and gas forward data was taken from ICIS, as with previous iterations of FFPA.

### Short-term Model Calculation (Coal)

The central short-term coal price assumption is derived from an average of the January 2025 to March 2025 outturn prices and the monthly forward contract for April 2025 to December 2027, aggregated to get the average for each year.[4]

Since data availability and market depth is far more limited for coal than in oil and gas markets, it would not be reasonable to use the implied volatility approach that is applied to oil and gas. Therefore, high and low scenarios for coal prices are derived from historic deviations of outturn coal prices for a 10-year period between 2011 and 2020. The high scenario is derived by adding one standard deviation to the central scenario whereas the low scenario subtracts one standard deviation.

## 3.2 Long Term Methodology

For the medium and long-run values, Rystad supply curves (2023) are intersected with demand curves based on the International Energy Agency's World Energy Outlook (WEO) 2024 scenarios for 2040. For all assumptions across all fuels, demand curves have been intersected with Rystad's base cost of supply curves in 2040 to derive the breakeven cost of the marginal production asset in that year.

The IEA scenarios are set out in the WEO as follows:

- Stated Policies Scenario (STEPS) - provides an outlook based on the latest policy settings, including energy, climate and related industrial policies. Its projections give a sense of the current direction of travel for the energy economy, based on the actual state of play in different sectors, countries and regions.

- Announced Pledges Scenario (APS) - assumes all national energy and climate targets made by governments are met in full and on time. It shows how the future would be different if all countries were to hit their aspirational targets.

- Net Zero Emissions by 2050 Scenario (NZE) - maps out a way to achieve a 1.5°C stabilisation in the rise in global average temperatures.

[4] This methodology differs slightly to the 2023 analysis (which interpolated from outturn data to the 2040 anchor year) but is now consistent with the approach taken to the 2019 coal price assumptions.

The underlying IEA WEO demand scenarios used to create each long-term assumption (A, B, C) for each fuel are set out in the table below.

Table 4: Underlying IEA WEO Demand Scenarios by Assumption and Fuel Type

| Assumption | Gas | Oil | Coal |
|---|---|---|---|
| A | APS | APS | NZE |
| B | STEPS | STEPS | APS |
| C | STEPS+ | STEPS+ | STEPS |

As set out in the table above, the assumptions in the STEPS scenario, used in Assumption B for gas and oil in the 2025 analysis, align well with the underlying assumptions in wider baseline government analysis which in many cases use a “current policies” approach. A lower demand world characterised by all national energy and climate targets being met on time, provides the 2025 Assumption A for gas and oil.

For assumption C a higher demand scenario than STEPS has been created to provide a further policy stress test for gas and oil (‘STEPS+’). Gas STEPS+ increases demand by 50% in the 2040 anchor year. Oil STEPS+ increases demand by 4 million barrels per day in the 2040 anchor year. These assumptions are based on shorter-term forecasts from market participants, and the IEA themselves, being higher than the STEPS scenario even in 2030. These higher demand assumptions are flatlined to 2040 to reflect the commonly held view that once fossil fuel demand peaks, there will be an undulating plateau rather than a steep decline.

The IEA WEO scenarios have been applied differently to coal in this analysis where there is less of a need to stress test a higher demand scenario than STEPS given recent phasing-out agreements.

2040 has been used as the model’s anchor point. For the years between the end of the short-term model in 2027 and the 2040 anchor year, a linear interpolation was used to estimate the values. It was felt that there was too much uncertainty in analysing prices beyond 2040, so all three series have been flatlined after that point. The model does not therefore account for any changes to prices that might occur from Net Zero or other polices post 2040.

Rystad has provided a methodology document that explains the assumptions underlying the cost of supply curves in detail which was published alongside the 2023 FFPA results. The supply curves were developed and presented to be compatible with the analysis undertaken and represent the cost of supply for delivery to Europe.

All costs and prices have been adjusted where needed to represent real 2024 prices throughout the price series.

This publication is available from: www.gov.uk/environment/energy-and-climate-change-evidence-and-analysis

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