Hydrogen production and demand in the UK, 2022 to 2024

Official Statistics in Development

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The Department for Energy Security and Net Zero has collected, quality assured and analysed hydrogen data for the years 2022 to 2024. This data has been used to publish this article as Official Statistics in Development to involve users and stakeholders at an early stage in assessing their suitability and quality (for more information see Appendix 1: supporting information). As these statistics are in development, they carry a higher degree of uncertainty than Official Statistics. The Department will continue to evaluate their quality to ensure the data and statistical methods are robust. As part of this review, we are requesting user feedback.

To provide feedback please contact gas.stats@energysecurity.gov.uk

Key headlines

- Hydrogen production and demand is small relative to other fuels. Between 2022 and 2024, the UK produced around 14 TWh of hydrogen annually, equivalent to 4 per cent of natural gas production. Demand was also 14 TWh, around 2 per cent of natural gas demand.
- Hydrogen production is concentrated in the refining and chemical sectors with most of the UK's production being a by-product of other processes. In 2024, more than 80 per cent of production was as a by-product, with nearly 70 per cent of total production being produced by catalytic reformers. Comparatively steam methane reforming was smaller at 13 per cent in the same period.
- Whilst refinery processes produce hydrogen as a by-product, refineries also have substantial demand for hydrogen, with 70 per cent of total demand in 2024. The chemicals industry and non-energy use accounted for 27 per cent of hydrogen demand in 2024, the second and third largest consumers respectively.

Hydrogen Production

Hydrogen is not a primary energy product, it must be produced from other fuels. Currently, global hydrogen production and demand, including in the UK, is concentrated in the refining and chemicals sectors.

Annual hydrogen production was 14 TWh in the UK on average between 2022 and 2024. This is equivalent to 4 per cent of UK natural gas production in the same period. Hydrogen is commonly produced as a by-product of other activities; whereby chemical reactions used to produce other products also produce hydrogen. More than 80 per cent of production was as a by-product in 2024, the remainder was produced using natural gas. Hydrogen production from other fuels fell to zero in 2024, having made up 1-2 per cent of production in 2022 and 2023.

Hydrogen production by type in the UK, annual average 2022-2024

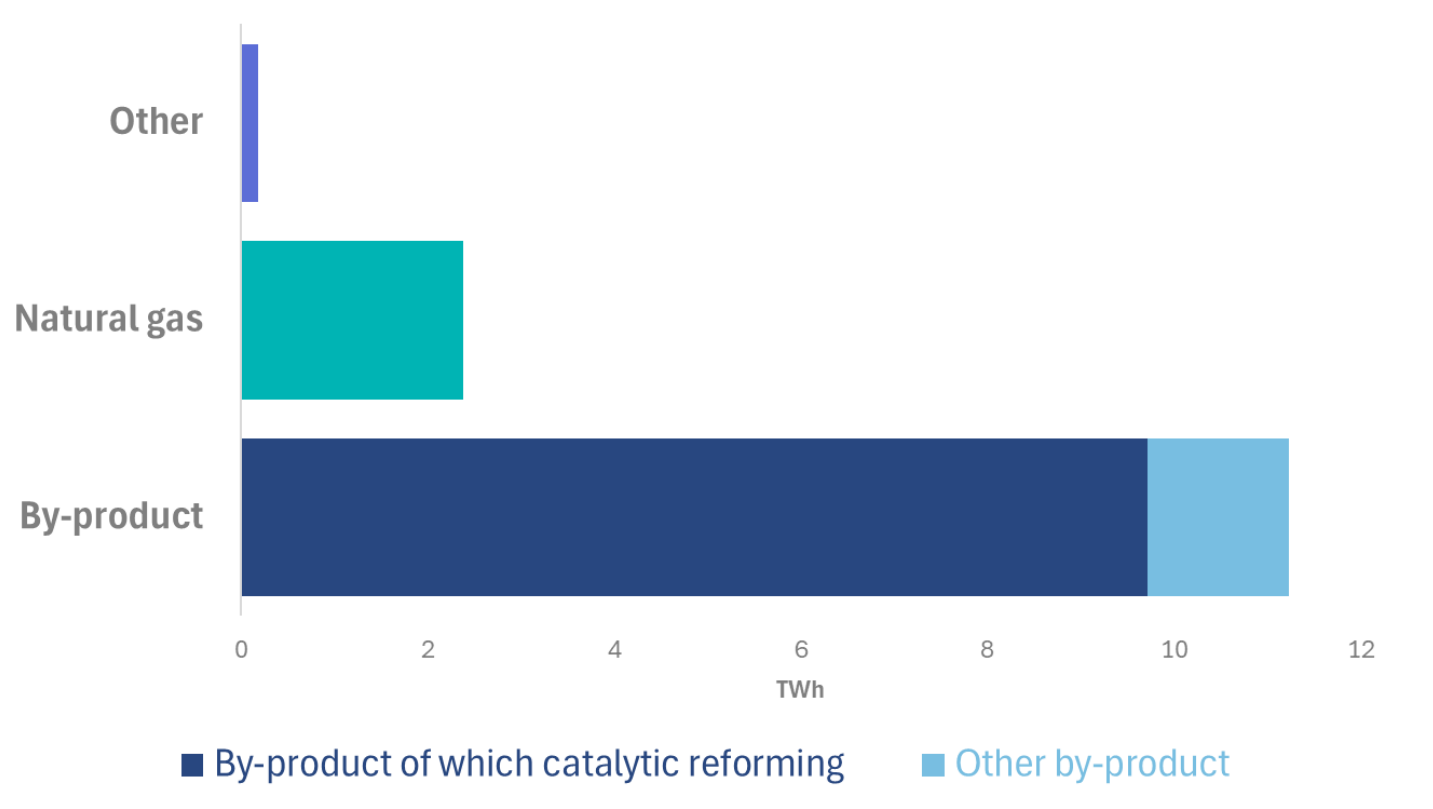
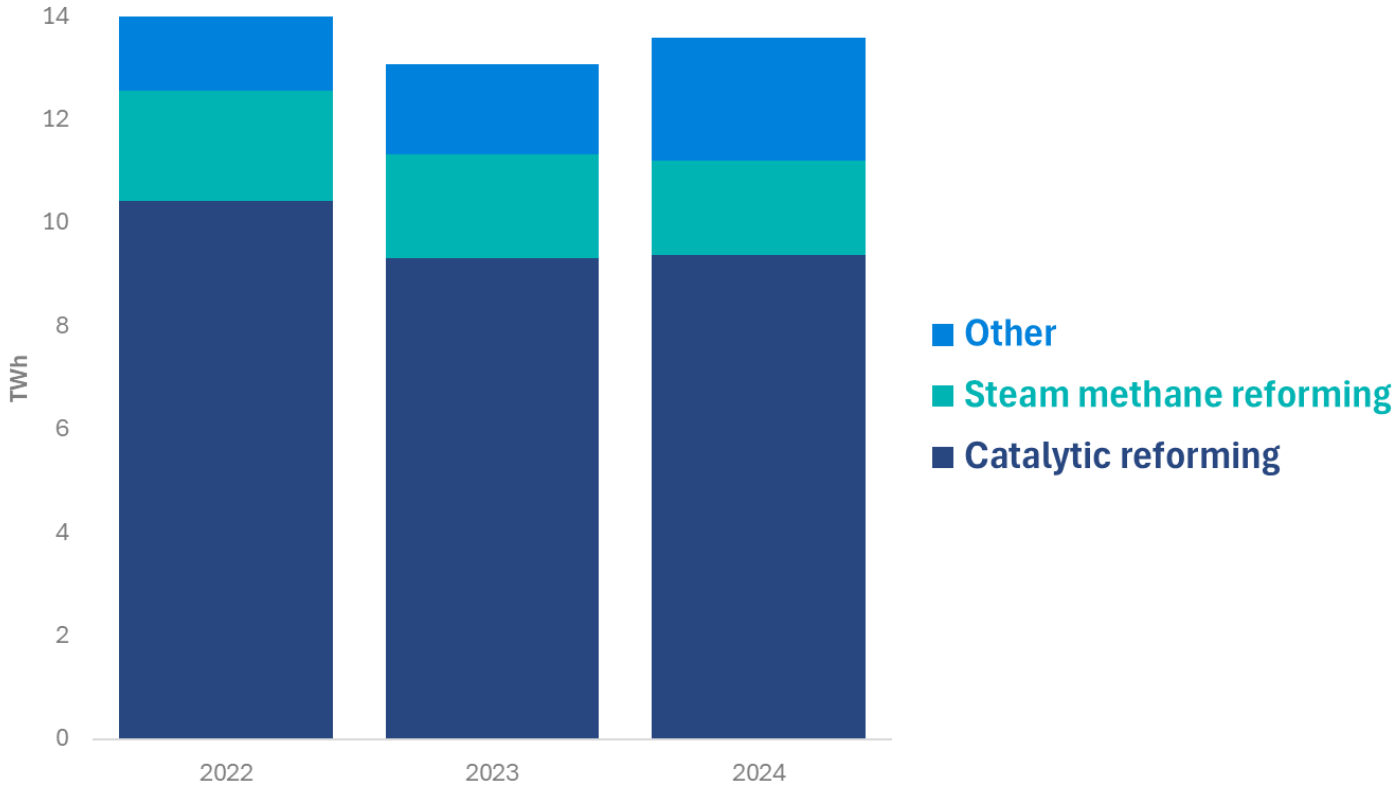


Chart updated February 2026 due to error.

The most substantial type of by-product production is through catalytic reforming. Catalytic reformers are used by refineries to produce the components of petroleum products from derivatives of crude oil; they produce hydrogen as a by-product. Nearly 70 per cent of hydrogen was produced using catalytic reformers in 2024.

A further 13 per cent of hydrogen was produced using steam methane reformers. Steam methane reformers use natural gas to produce hydrogen. Unlike catalytic reformers, the primary purpose of steam methane reformers is hydrogen production. The remaining production technologies have been aggregated to protect identifiable information (see Disclosure Control for more information).

Hydrogen production by technology in the UK, 2022-2024



Hydrogen Demand

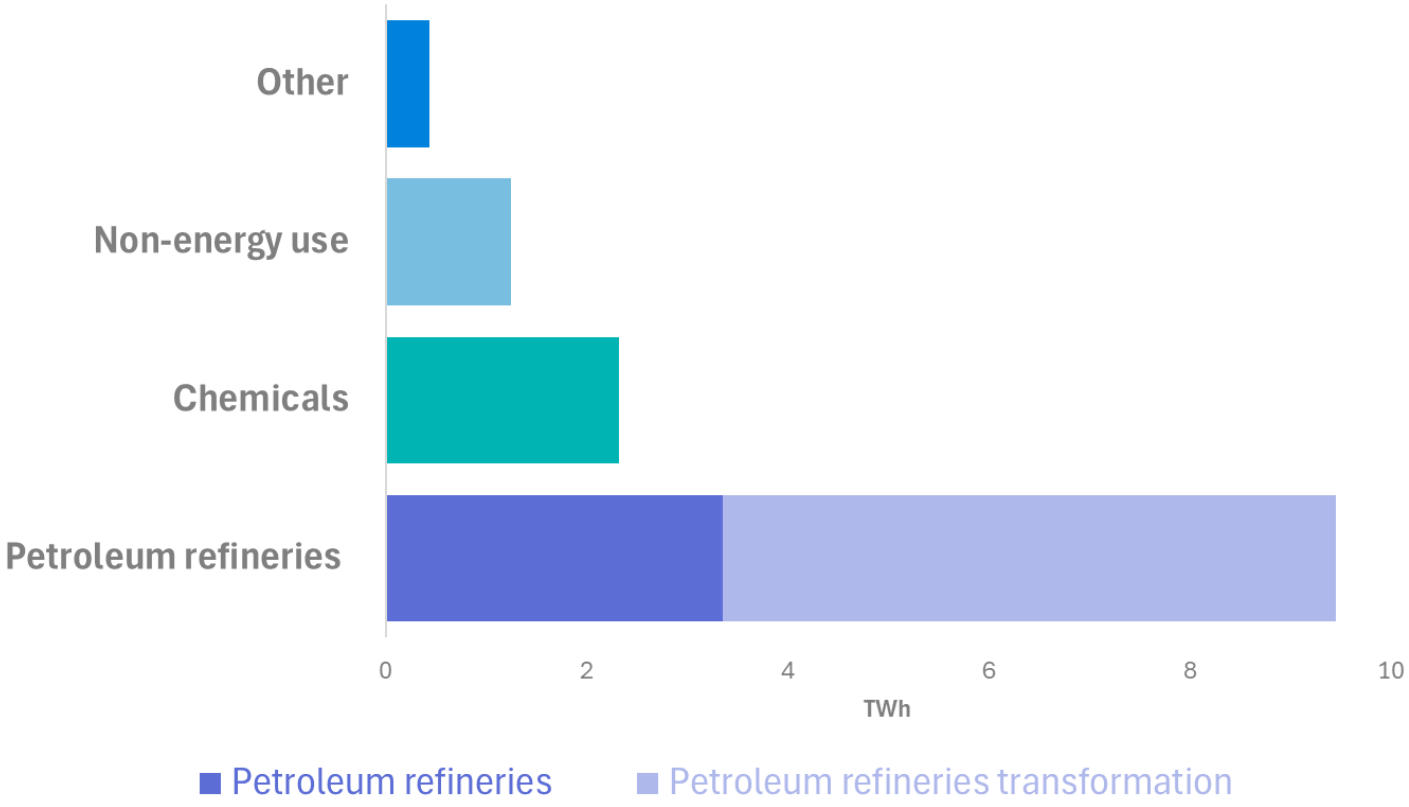
Like production, hydrogen demand in the UK is small relative to other fuels. Hydrogen demand was approximately 14 TWh on average between 2022 and 2024, equivalent to around 2 per cent of natural gas demand in the same period. It is common for hydrogen production to take place within the facility where it is consumed.

Whilst refineries produce hydrogen as a by-product of catalytic reforming, they also have high demand for hydrogen. Refinery demand was 70 per cent of total hydrogen demand in 2024. During refinery processes hydrogen can be incorporated into other fuels rather than being burnt as a fuel directly. In Energy Statistics this is known as transformation, where one type of energy is ‘transformed’ into another. The majority (>60 per cent) of refinery demand for hydrogen is for transformation; the remainder is used in support of other refinery processes.

Hydrogen is also used by the chemicals industry as a fuel for high temperature processes and as a feedstock to produce chemicals. Where hydrogen is incorporated into chemicals this is considered non-energy use. Together the chemicals sector and non-energy demand for hydrogen accounted for 27 per cent of total demand in 2024.

Hydrogen is used in other sectors including other industries, transport and by other final users. In these sectors hydrogen is likely used in fuel cells to power buildings or vehicles. Based on the data collected, each of these sectors made up less than 1 per cent of total hydrogen demand in 2024.

Hydrogen demand in the UK, 2024



Appendix 1: supporting information

1. Official Statistics in Development

These statistics were produced using a new data collection of existing hydrogen producers. They are in development, therefore carry a higher degree of uncertainty than Official Statistics. It is not currently possible to quantify this uncertainty precisely; however, information has been included to allow users to assess quality and judge whether fit for their intended use.

The data collection aimed for 100 per cent coverage of existing hydrogen producers. However, unlike other fuels, there is no centralised register of hydrogen suppliers in the UK. The department utilised relationships with industry, including trade associations, to gather information. Whilst we anticipate all substantial hydrogen producers have been included; it is possible that some are missing.

Once these statistics have been accessed to be of sufficient quality, the department are aiming to include them within our regular publications the Digest of UK Energy Statistics (DUKES) and Energy Trends. Whilst this is subject to data quality review, anticipated timelines are outlined below:

30th September 2025	International Energy Agency reporting deadline
30th September 2025	Hydrogen production and demand in the UK, 2022-2024 special feature article published in Energy Trends
2nd February 2026	Final date for user feedback which can be incorporated in publication cycle for 2025 data
25th June 2026	Energy Trends publication including annual data for 2025, anticipate inclusion of hydrogen data for the first time
30th July 2026	DUKES publication including annual data for 2025, anticipate inclusion of hydrogen data for the first time

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2. Disclosure Control

In line with guidance data may have been aggregated or omitted to ensure identifiable information has not been published.

3. Units and Conversions

Data were collected in mass units (kg) of pure hydrogen; this was converted to energy units using a gross calorific value of 141.8 megajoules per kilogram (MJ/kg).

This publication is available from: https://www.gov.uk/government/collections/energy-trends

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