Methodology changes: Gas

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Introduction

This article explains methodological changes that we intend to make to gas balances in the July 2025 edition of the Digest of UK Energy Statistics (DUKES), to be published on Thursday 31st July 2025.

The 2025 edition of DUKES will include new data for 2024 and revisions to 2022 and 2023. Where methodology has been updated this has been rolled back to 2022 in the first instance; further revisions to the time series could be included in future editions of DUKES where there is user need. This break in the time series should be noted when undertaking any secondary analysis including data outside of this period.

Summary of changes

Losses

Alternate/ new data sources and updating legacy monthly gas methodology has enabled us to update our estimates of gas losses. Gas theft will now be estimated as 0.1 per cent of demand. Metering differences will be replaced with unaccounted for gas as published by National Gas[1]. This will result in revisions to total losses of between -23 and 5 per cent between 2022 and 2024 (a maximum of 0.2 per cent of demand).

Transport

Data on gas consumption by the transport sector was no longer available. However, new information published by the Department for Transport (DfT) has enabled us to model consumption in this sector which will now be included in the gas balance. This will result in revisions equivalent to a maximum of 0.1 per cent of demand.

Tables

In addition to methodological improvements changes have been made to the main DUKES tables to improve dissemination. These changes are largely cosmetic and based on user feedback.

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[1] Unaccounted for gas, National Gas

Losses

Losses includes gas 'lost' during transportation, distribution and storage as well as gas losses due to theft (Gas Methodology Note). Due to their nature gas losses are impossible to directly measure and difficult to estimate. We have become aware of alternate/ new data sources for losses. Additionally, we made substantial improvements to our monthly gas methodology in March 2024 (Energy Trends: March 2024, Updates to Energy Trends monthly gas tables) relevant to how we previously estimated losses. We have investigated whether changes to data sources and estimation can improve our estimate of gas losses compared to those which are currently used.

Theft

Theft is currently estimated at 0.2 per cent of throughput. Throughput is a measure of gas flowing through the transmission and distribution network similar to gas output from the transmission system. Throughput/ gas output from the transmission system were previously used in our monthly methodology however, this was updated in March 2024 (see Energy Trends: March 2024, Updates to Energy Trends monthly gas tables for more information about this change). As our monthly and annual methodology now considers demand as the ultimate measure of gas consumption, we will update theft methodology such that is also uses demand to measure gas theft. Furthermore, this enables us to utilise a newer estimate of theft published by the Retail Energy Code Company (RECCo). This report utilises a machine learning model based on Elexon, Xoserve and ONS data, estimating theft to be 636-1059 GWh per year, equivalent to approximately ~0.1 per cent of demand. This model is also used to estimate electricity theft in the electricity balances.

Theft	
Old	New
0.2 per cent of throughput	0.1 per cent of demand

Metering differences/ unaccounted for gas

The old monthly methodology published data on 'metering differences'. Metering differences relate to the difference between gas input to and output from transmission and were previously considered as losses. National Gas consider 'unaccounted for gas' which is defined as the remaining quantity of gas that is unallocated after considering all measured inputs and outputs from the system (Unaccounted for gas, National Gas); this is comparable to metering differences. As well as moving away from legacy methodology our analysis found unaccounted for gas, which is published by National Gas, to be higher quality than metering differences. For this reason, we will move to using unaccounted for gas rather than metering differences when estimating losses.

Unaccounted for gas	
Old	New
Metering differences	Unaccounted for gas

Leakage

Leakage is gas which leaks from the distribution network due to junction points between pumps and valves or because of damage. Leakage is reported by the distribution network operators annually. The operators estimate leakage based on measurements of various pipe materials and sizes in various conditions when operated at different pressures, which is then modelled according to the average pressures at which the

network is operated each year. This is a common and accepted approach across the industry. We currently use this data to estimate leakage and this will remain unchanged.

Revisions to losses

These updates will result in revisions to published losses of -23 to 5 per cent (a maximum of 1,500 GWh, or 0.2 per cent of demand) in 2022-2024, see table 1:

Revisions to losses		
Year	**Old**	**New**
2022	5,314	6,883
2023	4,921	2,709
2024	3,874	2,700

Transport

Some road transport vehicles can use natural gas as a fuel in the form of compressed natural gas (CNG) or liquified natural gas (LNG). Previously, data for gas consumption in the transport sector from 2018 to 2021 was sourced from trade associations. However, this data source is no longer available to us, and published data on gas for transport was held stable in DUKES between 2022 and 2023 whilst new data was sourced.

In 2022, the Department for Transport (DfT) added fuel type to their vehicle licensing statistics (df_VEH0120). This has enabled us to develop a model to estimate natural gas consumption in the transport sector. DfT consider natural gas and liquified petroleum gas (LPG) as the fuel type 'gas'. However, in Energy Statistics LPG is considered a petroleum product (Energy Statistics Manual, IEA, p.59). For this reason, we have only considered heavy goods vehicles (HGVs), buses and coaches as those likely using natural gas rather than LPG. The model uses DfT's Road Traffic Estimates (TRA01) and applies the total mileage of natural gas vehicles in the UK to an average gas consumption rate to estimate their total natural gas consumption. The average gas consumption rate has been sourced from Emissions Testing of Gas-Powered Commercial Vehicles, a 2017 study by Zemo Partnership (formerly the LowCVP), uplifting for lower heating value and assuming a high usage scenario. The outcomes of the model were benchmarked against HMRC duty payment data and discussed with the Renewable Transport Fuel Association (RTFA) to support accuracy and check assumptions. See RTFO Guidance for Biomethane for more information about how biomethane is used in the transport sector.

Revisions to transport

This update will result in revisions of a maximum of 830 GWh, or 0.1 per cent of demand in 2022-2024.

Tables

In addition to improving data quality, this year we have updated the main DUKES tables to improve readability and reduce duplication between the tables. These changes are largely cosmetic based on user feedback. Table 2 summarises the changes to the tables:

Old	New	Change
4.1 Natural gas: commodity balances	4.1 Natural gas: commodity balances	Colliery methane removed as duplicated (available in 4.2)
4.2 Supply and consumption of natural gas and colliery methane	4.2 Supply and consumption of colliery methane	Natural gas removed as duplicated (available in 4.1)
4.3 UK continental shelf and onshore natural gas production and supply	4.3 Natural gas losses	Outdated (historic monthly methodology) fields removed, now losses only
4.4 Gas storage sites and import/export facilities in the United Kingdom, November 2023	4.4a Natural gas stock, and 4.4b Natural gas storage sites	Gas storage sites information remains the same with inclusion of stock data previously published in 4.3. Import/ export facilities information moved to table 4.5.
4.5 Natural gas imports and exports	4.5a Natural gas imports and exports, and 4.5b Natural gas import and export facilities	Trade data largely unchanged with removal of duplicated/ redundant fields. Import/ export facilities information added.
4.6 Liquefied Natural Gas imports by terminal	4.6 Liquefied Natural Gas imports by terminal	No change

To provide feedback on the new tables or updated methodology please email gas.stats@energysecurity.gov.uk.

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