Freight rail usage and performance

October to December 2022

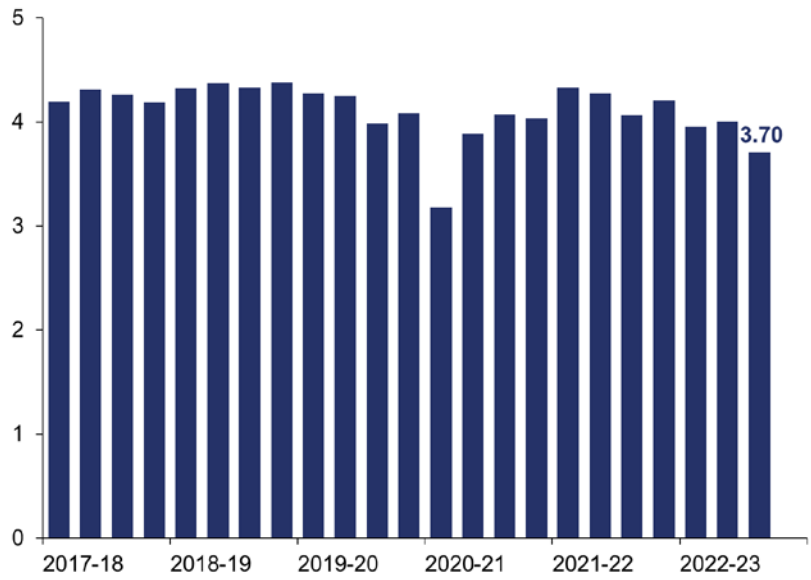
28 March 2023

Freight rail usage and performance levels in the latest quarter (1 October to 31 December 2022) have been affected by strike action. It has impacted all metrics presented in this release.

Total **freight moved** was **3.70 billion net tonne kilometres** in the latest quarter. It was down by 9% compared with the same quarter the previous year.

Figure 1 Freight moved was the lowest October to December quarter in the time series

Freight moved (billion net tonne kms), Great Britain, quarterly data, April 2017 to December 2022 (Table 1310)



Total **freight lifted** was **17.0 million tonnes** in the latest quarter, a reduction of 17% compared with a year ago.

The proportion of freight trains arriving within 15 minutes, as measured by the **Freight Delivery Metric**, was **80.0%**. This is the lowest level of freight performance since the time series began in 2013.

All data tables, a quality and methodology report and an interactive dashboard associated with this release are published on the Freight rail usage and performance page on the data portal. Key definitions are in Annex 1 of this release.

Background:

This quarterly statistical release contains information on the usage and performance of rail freight in Great Britain.

The statistics cover **freight moved** and **freight lifted (by commodity)**, **Freight Delivery Metric (FDM)**, **freight delays**, **freight train kilometres** and **freight vehicle kilometres (by operator)**.

Sources: Department for Transport, Network Rail, freight operators.

Latest quarter:

1 October to 31 December 2022

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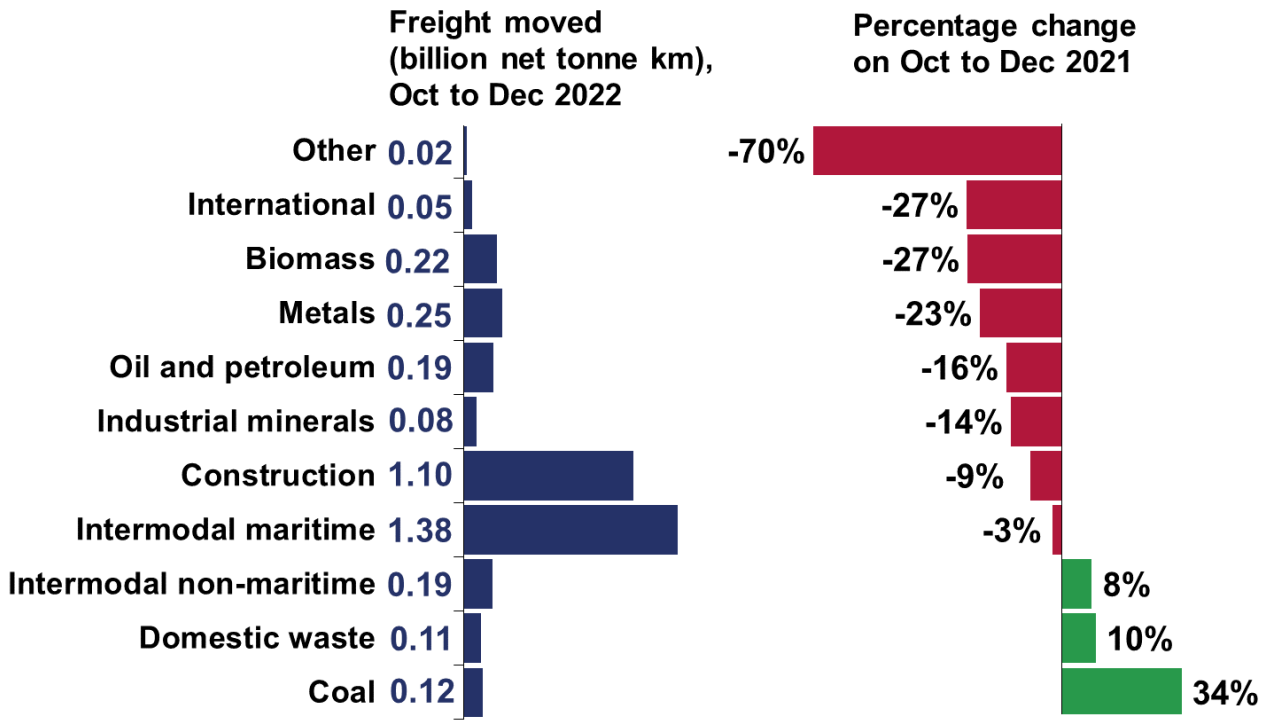
Next publication: 1 June 2023

1. Freight moved

Figure 1.1 Most commodities saw a reduction compared with a year ago

Freight moved (billion net tonne kilometres) by commodity, Great Britain, October to December 2022 and change compared with October to December 2021 (Table 1310)



The total volume of freight moved was 3.70 billion net tonne kilometres in the latest quarter (1 October to 31 December 2022). This was a 9% decrease on the same quarter the previous year (1 October to 31 December 2021). It was the lowest October to December quarter since the time series began in April 1998.

The quarter started during a period of economic uncertainty in the UK. Furthermore, there were fewer days available to transport freight due to strike action across the industry impacting each month in the quarter. Freight trains were unable to run for a full day (or at all) when the Network Rail signallers' strikes took place, exacerbated by strike dates that fell on consecutive days. Consequently, there was likely a modal shift to road.

Most commodity groups saw a fall in freight moved volumes compared with the same quarter the previous year.

Intermodal maritime, which accounted for over a third of all freight moved between October and December, saw volumes down by 3%. The extent of this reduction may have been lessened by the easing of congestion in Deep Sea container flows and the easing of COVID restrictions in China. Additionally, there have been new intermodal maritime

services introduced, such as the DP World service between London Gateway and Southampton.

Construction accounted for 30% of all freight moved in the quarter. Freight volumes in this sector fell by 9%. Some key freight routes were affected by strike action, such as routes carrying aggregates on the Hope Valley line and the Mendips line. This fall in volume may have been partially offset by increased freight movements related to the HS2 construction such as the removal of tunnelling spoil.

Volumes of metals fell by almost a quarter compared with the previous year. The low levels of automotive production and the flattening of construction output are likely factors in this downward trend. The total of 0.25 billion net tonne kilometres was the lowest volume reported since the beginning of 2009.

Biomass volumes also decreased, by just over a quarter. The generally mild weather and rising levels of renewable electricity generation resulted in lower levels of biomass being needed for bio-fuel production.

Intermodal non-maritime was one of the three commodities to show an increase with volumes, up by 8%. High levels of supermarket traffic may be a contributing factor with many UK supermarkets experiencing strong trading over Christmas.

Oil and petroleum volumes reduced by 16%. Demand for petroleum fell as a result of high fuel prices. Oil and petroleum volumes have fallen by around a third compared with a decade ago.

Coal recorded the largest percentage increase in freight moved, up over a third compared with the same quarter the previous year. Stocks of coal were accrued at the Ratcliffe, West Burton and Drax power stations as a contingency in the event of winter power shortages.

Domestic waste saw an increase of 10%. It recorded 0.11 billion net tonne kilometres, which was a return to the level seen in 2020.

Industrial mineral volumes fell by 14% compared with the previous year. This was the lowest quarterly volume since 2018 (not including the pandemic affected April to June 2020 quarter).

International volumes fell by just over a quarter. 0.05 billion net tonne kilometres were recorded between October and December 2022, which is the lowest value for International since the start of the time series in April 1998. Low levels of automotive production caused by electronic component shortages may be a contributing factor.

2. Freight lifted

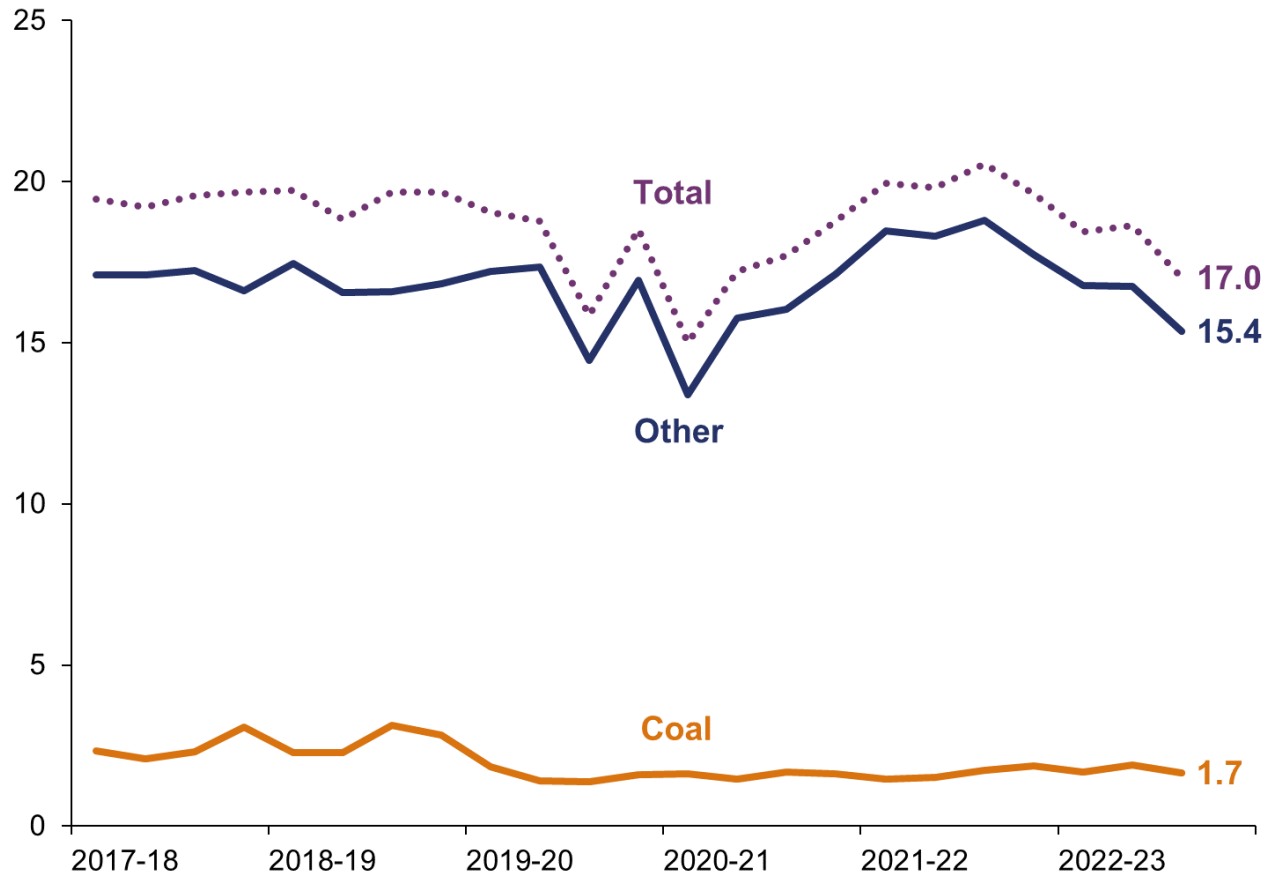
The total amount of freight lifted in the latest quarter was 17.0 million tonnes. It decreased by 17% compared with the same quarter the previous year.

Other freight lifted was 15.4 million tonnes, which was 18% lower compared with the previous year. It has fallen for four consecutive quarters since the peak of 18.8 million tonnes in October and December 2021.

The amount of coal lifted was 1.7 million tonnes. It has fallen by 4% compared with the same quarter the previous year.

Figure 2.1 Freight lifted in the latest quarter was lower than the equivalent quarter during the pandemic (October to December 2020)

Freight lifted (million tonnes) by commodity (coal and other), Great Britain, quarterly data, April 2017 to December 2022 (Table 1315)



3. Freight Delivery Metric (FDM)

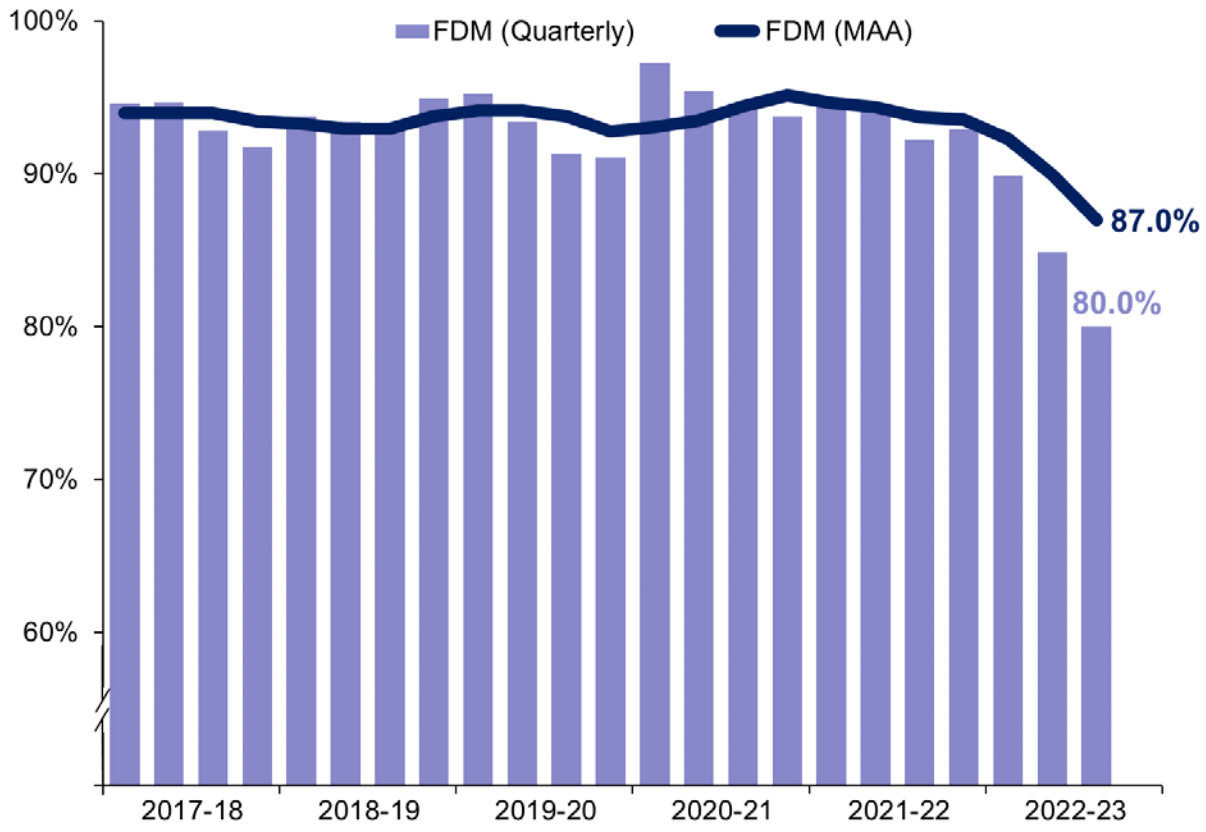
Freight punctuality, as measured by the Freight Delivery Metric (FDM), was 80.0% between October and December 2022, which is the lowest level since the time series began in January 2013. It was 12.2 percentage points lower than the same quarter the previous year.

To be able to calculate FDM during the strike action it was necessary to estimate the number of freight trains that should have run on each of the days. This was done by taking the average of trains run on the same day of the week in each of the previous four weeks. Public holidays were excluded from this calculation.

The FDM moving annual average (MAA) was 87.0%. It is the lowest value since the time series began and is the first time that the FDM MAA has dropped below 90%. The MAA has fallen in each of the last seven quarters.

Figure 3.1 Freight punctuality has deteriorated since the beginning of 2022

Freight Delivery Metric (quarterly and moving annual average), Great Britain, quarterly data, April 2017 to December 2022 (Table 1320)



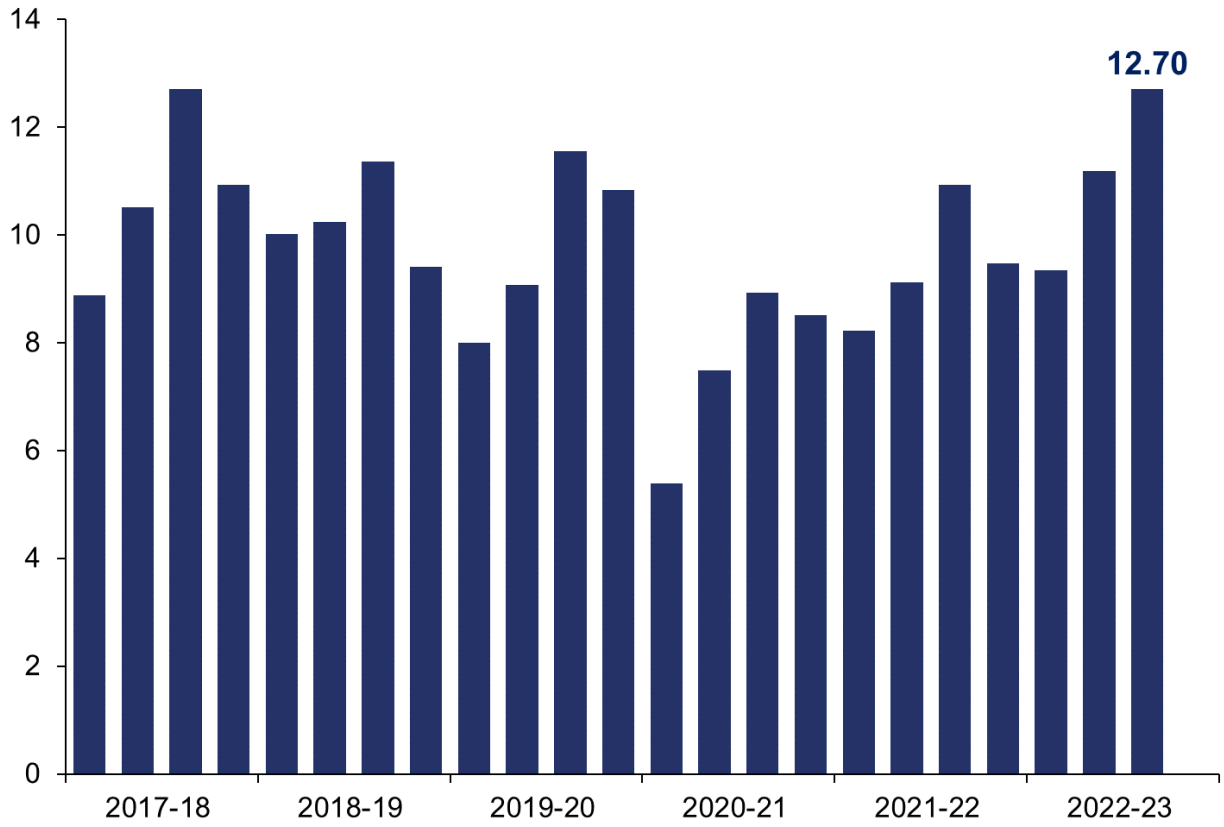
Data for the Freight Delivery Metric by Region (FDM-R) by railway period is available on the data portal in Table 1324.

4. Freight delay per 100 train kilometres

Freight operators experienced 12.70 minutes of delay per 100 train kilometres in the latest quarter. This was 16% higher (i.e. worse) than the same quarter the previous year. Freight delay in the latest quarter was the worst level of delay in any quarter since October to December 2017.

Figure 4.1 The latest quarter saw the highest level of freight delay for five years

Freight delay per 100 train kilometres, Great Britain, quarterly data, April 2017 to December 2022 (Table 1325)



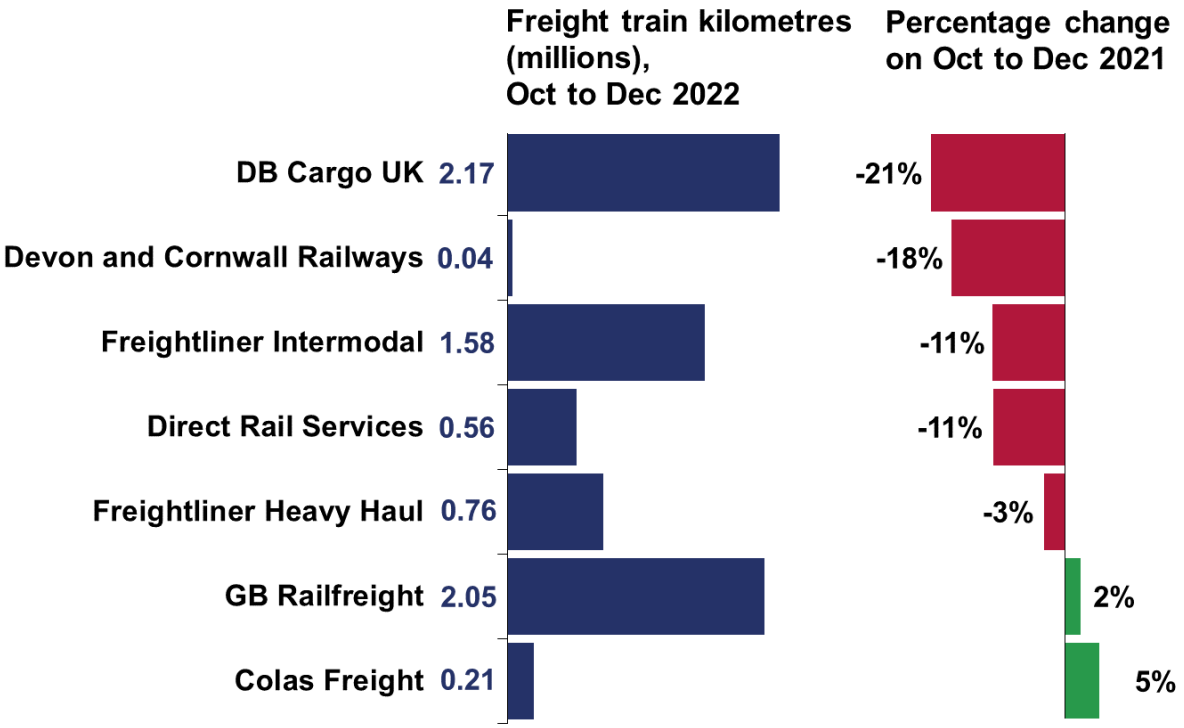
5. Freight train kilometres

In the latest quarter, 7.38 million freight train kilometres were recorded. This was 10% lower than the same quarter the previous year. Freight train kilometres in the latest quarter was the lowest quarterly value since the time series began in April 2010, aside from the April to June 2020 quarter which was impacted by the pandemic.

DB Cargo UK continued to run the highest number of freight train kilometres despite it having the largest percentage decrease compared with a year ago.

Figure 5.1 Freight train kilometres fell for most operators

Freight train kilometres (millions) by operator, Great Britain, October to December 2022 and change compared with October to December 2021 (Table 1333)



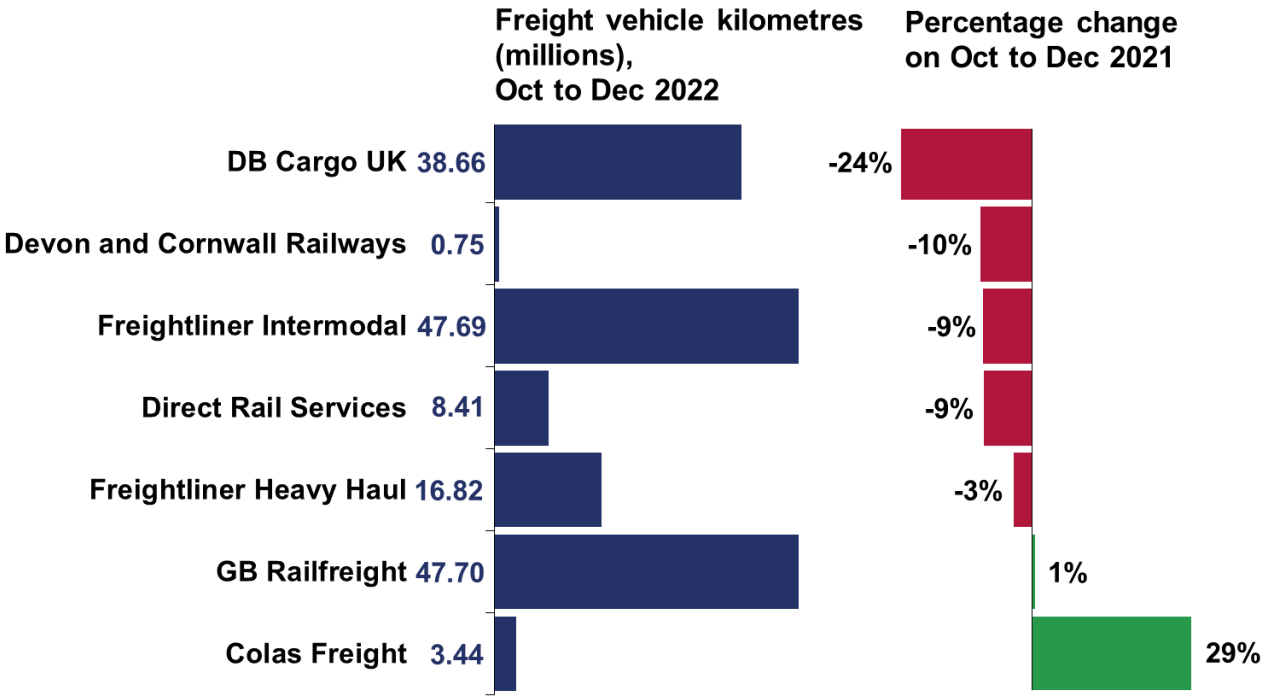
Data on the breakdown of freight train kilometres by traction type (electric or diesel) is available on the data portal in Table 1333.

6. Freight vehicle kilometres

Freight operators recorded 163.47 million freight vehicle kilometres in the latest quarter. It decreased by 10% compared with the same quarter the previous year. Of the seven operators, only GB Railfreight and Colas Freight recorded an increase.

Figure 6.1 GB Railfreight had the largest number of vehicle kilometres

Freight vehicle kilometres (millions) by operator, Great Britain, October to December 2022 and change compared with October to December 2021 (Table 1343)



Data on the breakdown of freight vehicle kilometres by traction type (electric or diesel) is available on the data portal in Table 1343.

7. Annexes

Annex 1 – Definitions

- **Freight moved** measures the amount of freight moved on the railway network, taking into account the weight of the load and the distance carried. It is measured in net tonne kilometres.
- **Freight lifted** is the mass of goods carried on the rail network measured in tonnes, excluding the weight of the locomotives and wagons. Unlike freight moved it takes no account of the distance travelled.
- **Freight Delivery Metric (FDM)** measures the percentage of commercial freight services that arrive at their planned destination within 15 minutes of their booked arrival time, or with less than 15 minutes of delay caused by Network Rail or another operator that is not a commercial freight operator. *A higher score indicates better performance.*
- **Freight Delivery Metric by Region (FDM-R)** is derived from FDM for each Network Rail Region.
- **Moving annual average (MAA)** reflects the proportion of trains that met FDM in the past 12 months. In the final quarter of the year (January to March), the MAA also represents the FDM for the financial year.
- **Freight delay per 100 train kilometres** is a normalised measure of delay experienced by freight operators. It is calculated from the total delay experienced by all GB freight operators divided by their train mileage. Freight train mileage can fluctuate depending on demand so a normalised measure allows for comparison over time regardless of changing levels of freight traffic on the network. *A lower score indicates better performance.*
- **Freight train kilometres** is the actual kilometres travelled by freight operators on all mainline infrastructure, terminals and yards**.** The data is sourced from Network Rail's Track Access Billing System (TABS). The data in the table covers electric, diesel and all traction. Competition between freight operators means we would expect a greater level of variation in mileage from year to year than in the passenger market.

- **Freight vehicle kilometres** is the actual vehicle kilometres travelled by freight operators on all mainline infrastructure, terminals and yards. This is calculated by multiplying the number of rail vehicles (e.g. coaches) by the distance travelled. A train with a locomotive and four carriages travelling one kilometre will generate one **train kilometre** and five **vehicle kilometres**. The data is sourced from Network Rail's Track Access Billing System (TABS). The data in the table covers electric, diesel and all traction. Competition between freight operators means we would expect a greater level of variation in mileage from year to year than in the passenger market.

- **Freight train movements** measures the number of freight trains run on the mainline rail network. The data is sourced from Network Rail annually and covers only trains that are chargeable. Each freight train is designated into a chargeable or non-chargeable category. Non-chargeable categories include empty trains to/from depots, operators moving equipment to/from site for Network Rail engineering work and unplanned train schedules (i.e. last minute).

- **Rail freight impact on road haulage** is measured using two metrics:

  - **Rail freight lorry kilometres equivalent** measures the distance that road vehicles (HGVs) would need to travel to move the volumes of freight carried on rail.

  - **Avoided lorry journeys** measures the number of road vehicle trips that would need to be made to move freight carried on rail.

- **Rail freight market share** compares the volumes of freight lifted (tonnes) and freight moved (net tonne kilometres) on road (HGVs), waterways and rail. These shares are calculated using Department for Transport's annual figures published in Transport Statistics Great Britain

Further information on each of these measures and other definitions can be found in the Freight quality and methodology report.

Annex 2 – Quality and methodology

Data sources and methodology

Most of the quarterly data, and annual data on freight train movements, is sourced from Network Rail, with the exception of freight lifted data. This data is sourced directly from the seven largest freight operators (DB Cargo UK, Freightliner Intermodal, Freightliner Heavy Haul, GB Railfreight, Direct Rail Services, Colas Freight, and Devon and Cornwall Railways).

Annual data used to calculate rail freight impact on road haulage and rail freight market share is sourced from Department for Transport. This is included in the final quarter of the financial year (January to March) releases only.

To provide more comprehensive coverage of the freight market, estimates of freight lifted have been calculated for Devon and Cornwall Railways (April 2011 onwards) and Colas Freight (April 2010 to March 2020). From April 2020, Colas Freight are providing actual freight lifted data, but Devon and Cornwall Railways will continue to be estimated in future releases. These estimates are based on calculating the number of freight train movements in a quarter for each operator (estimated from their actual train mileage data) and multiplying that by the average tonnes lifted per train for the latest full year, at a national level.

Network Rail provides data to ORR within 21 days of the end of each of the 13 railway reporting periods (each period lasts four weeks). The quarterly data in this release sourced from Network Rail are derived by splitting the periodic data according to the number of days of the period that fall within each quarter.

The latest freight train kilometres data, freight vehicle kilometres data and freight delay per 100 train kilometres data should be treated as provisional. Freight operators can provide Network Rail with additional data (e.g. cancellations) and Network Rail may re-attribute delays over time.

Further development of these statistics

Our freight lifted statistics are currently disaggregated between Coal and Other. Following the slowdown in Coal traffic, this split has limited value. We are investigating the possibility of providing a more disaggregated set of commodities in future.

Revisions

There have been revisions to previously published data:

- Table 1310: Errors were identified in the split of intermodal maritime and intermodal non-maritime from April 2017 to September 2019 and for October to December 2021, which affected both annual and quarterly data. These were based on freight operators being allocated to the wrong service code in the source data. The service codes have been corrected resulting in the revisions shown.
- Table 1325: The whole time series has been revised due to improved source data for the freight train kilometres, including changes to the corresponding operators in the delay minutes data.

Details of previous revisions can be found in the Revisions log.

Further information on data sources, quality, and the methodology used to calculate the data within the release can be found in the Freight quality and methodology report.

How these statistics can and cannot be used

- Measuring rail freight volumes and market share by commodity over time
- Comparing distances run by freight operators and over time
- Monitoring the impact of Network Rail and passenger operator caused delay on freight punctuality
- Comparing the size of the rail freight market relative to other modes

- Using freight trains ran as an indication of freight volumes due to train lengthening schemes and more efficient use of the network
- Using freight train kilometres by operator as a proxy for market share of volumes due to the variation in freight train distances
- Identifying origin and destination of freight flows
- Estimating freight revenues (refer to rail industry finance)
- Estimating freight emissions (refer to rail emissions)

Annex 3 – List of data tables associated with this release and other related statistics

Data tables

All data tables can be accessed on the data portal free of charge in OpenDocument Spreadsheet (.ods) format. We can also provide data in csv format on request.

All tables associated with this release can be found under the Data tables heading at the bottom of the Freight rail usage and performance page.

Freight usage

- Freight moved by commodity (quarterly) – Table 1310
- Freight moved by commodity (periodic) – Table 1314
- Freight lifted (quarterly) – Table 1315
- Rail freight impact on road haulage (annual) – Table 1340
- Rail freight market share (annual) – Table 1350

Freight performance

- Freight Delivery Metric (FDM) (quarterly) – Table 1320
- Freight Delivery Metric by Network Rail Region (FDM-R) (periodic) – Table 1324
- Freight delays per 100 train kilometres (quarterly) – Table 1325

Freight traffic

- Freight trains run (annual) – Table 1330
- Freight train kilometres by operator (quarterly) – Table 1333
- Freight vehicle kilometres by operator (quarterly) – Table 1343

Other related statistics

Passenger rail usage statistics are published on the Passenger rail usage page on the data portal.

Passenger rail performance statistics are published on the Passenger rail performance page on the data portal.

Estimates of passenger and freight energy consumption and carbon dioxide equivalent (CO2e) emissions are published on the Rail emissions page on the data portal.

The Department for Transport (DfT) also publishes some multimodal freight statistics as part of the Transport Statistics Great Britain publication.

European comparisons

Due to differences in how freight punctuality is measured in other countries, opportunities to make direct comparisons with statistics in this release are limited.

Data from other European countries is published in the IRG-Rail Tenth Annual Market Monitoring Report, including comparable traffic volume data based on freight train kilometres.

Annex 4 – ORR's statistical publications

Statistical Releases

This publication is part of ORR's National Statistics accredited releases, which consist of seven annual publications: **Estimates of station usage; Rail industry finance (UK); Rail fares index; Rail safety statistics; Rail infrastructure and assets; Rail emissions; Regional rail usage**; and four quarterly publications: **Passenger rail performance; Freight rail usage and performance; Passenger rail usage; Passenger rail service complaints.**

In addition, ORR also publishes a number of Official Statistics, which consist of five annual publications: **Common Safety Indicators; Passenger satisfaction with complaints handling; Train operating company key statistics; Occupational health**; **Rail statistics compendium;** and four quarterly publications: **Signals passed at danger (SPADS); Delay compensation claims; Disabled Persons Railcards (DPRC); Passenger assistance.**

All the above publications are available on the data portal along with a list of publication dates for the next 12 months.

National Statistics

The United Kingdom Statistics Authority designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics. National Statistics status means that official statistics meet the highest standards of **trustworthiness**, **quality** and public **value**.

The majority of our statistical releases were assessed in 2012 and hold National Statistics status. Since this assessment we have improved the content, presentation and quality of our statistical releases. In addition, in July 2019 we launched our new data portal. Therefore, in late 2019 we worked with the Office for Statistics Regulation (OSR) to conduct a compliance check to ensure we are still meeting the standards of the Code. On 4 November 2019, OSR published a letter confirming that ORR's statistics should continue to be designated as National Statistics. OSR found many positive aspects in the way that we produce and present our statistics and welcomed the range of improvements made since the statistics were last assessed. Estimates of Station Usage statistics were assessed in 2020.

For more information on how we adhere to the Code please see our compliance statements. For more details or to provide feedback, please contact the Statistics Head of Profession (Lyndsey Melbourne) at rail.stats@orr.gov.uk.

This publication is available at dataportal.orr.gov.uk

Any enquiries regarding this publication should be sent to us at orr.gov.uk/contact-us