Rail environment
April 2023 to March 2024

29 October 2024

Background:

This annual statistical release provides statistics on rail emissions, energy and water consumption, and waste generation for passenger and freight operators in Great Britain.

It covers: **traction energy consumption of electricity and diesel** (used to power train movements), and estimates of **CO_2e emissions**. It also covers **non-traction energy consumption**, **water consumption** and **waste generation**.

Source: Passenger and freight operators, and Network Rail.

Latest year: 1 April 2023 to 31 March 2024

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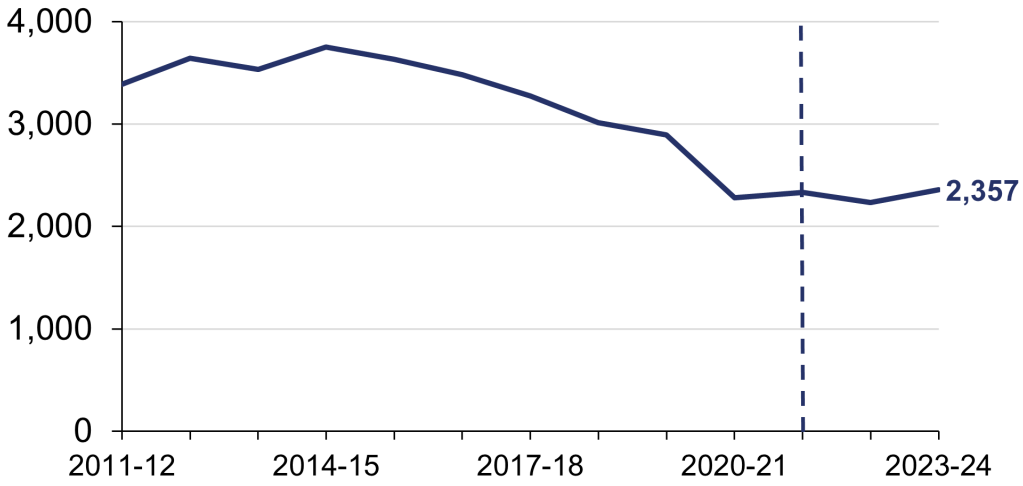
In the latest year, for all passenger and freight trains combined, total **traction electricity consumption was 3,894 million kilowatt hours**. This was up 2% compared with the previous year. Total **traction diesel consumption was 557 million litres**. This was up 4% compared with the previous year.

Total estimated **carbon dioxide equivalent (CO_2e) emissions** increased by 5% to **2,357 kilotonnes** in the latest year. Passenger trains accounted for 1,917 kilotonnes of this total, with the remaining 440 kilotonnes from freight trains.

Figure 1 Total emissions from traction energy are slightly higher than the previous year

Total passenger and freight train CO_2e emissions (kilotonnes), Great Britain, annual data, April 2011 to March 2024 (Tables 6105 and 6115)



Note: Vertical dashed line represents a break in the time series in 2021-22.

This **renamed release** (previously titled Rail emissions) includes **new official statistics in development** on non-traction energy consumption, water consumption and waste generation for passenger and freight operators. For feedback or questions, please email rail.stats@orr.gov.uk.

All data tables, a quality and methodology report and an interactive dashboard associated with this release are published on the Rail environment page of the data portal. Key definitions are in annex 1 of this release.

1. Passenger trains

The data in this section covers mainline passenger operators and Eurostar (UK side). The inclusion of Eurostar means that the usage totals used to normalise emissions data will differ from Great Britain totals published in our Passenger rail usage statistics.

Traction energy

Energy consumption

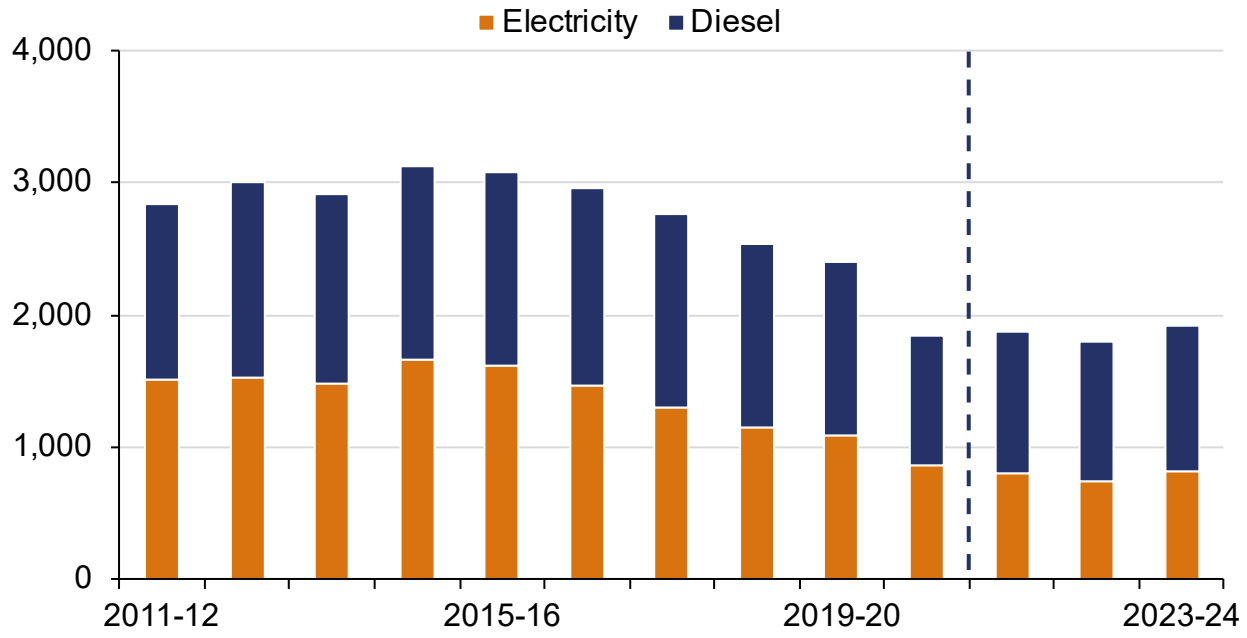
In the latest year (April 2023 to March 2024), total traction electricity consumption for passenger trains was 3,848 million kilowatt hours. This was up 2% compared with the previous year (April 2022 to March 2023). Total traction diesel consumption for passenger trains was 401 million litres, an increase of 5% compared with the previous year.

Emissions

Carbon dioxide equivalent (CO_2e) emissions are estimated from energy consumption data. In the latest year, total emissions from passenger trains were 1,917 kilotonnes. This was up 7% compared with the previous year, driven by an increase in energy consumption and the electricity conversion factor.

Figure 1.1 Passenger train emissions for electricity and diesel increased

Passenger train CO_2e emissions (kilotonnes), by electricity and diesel, Great Britain, annual data, April 2011 to March 2024 (Table 6105)



Note: Vertical dashed line represents a break in the time series in 2021-22.

Of the total, emissions from traction electricity consumption were 811 kilotonnes. This was up 10% compared with the previous year. Emissions from diesel consumption were 1,106 kilotonnes. This was up 4% compared with the previous year.

The increase in total electricity emissions was greater than the increase in total electricity consumption (up 2%) because of a 7% increase in the conversion factor. This shift was due to an increase in natural gas usage and a decrease in renewables usage compared with the previous year. The conversion factor for diesel remained very similar to the previous year (decreased by 0.1%). As a result, the increase in diesel emissions aligned closely with the rise in diesel consumption. Since the year April 2016 to March 2017, diesel emissions have exceeded electricity emissions each year. Prior to this, electricity emissions were greater than those from diesel.

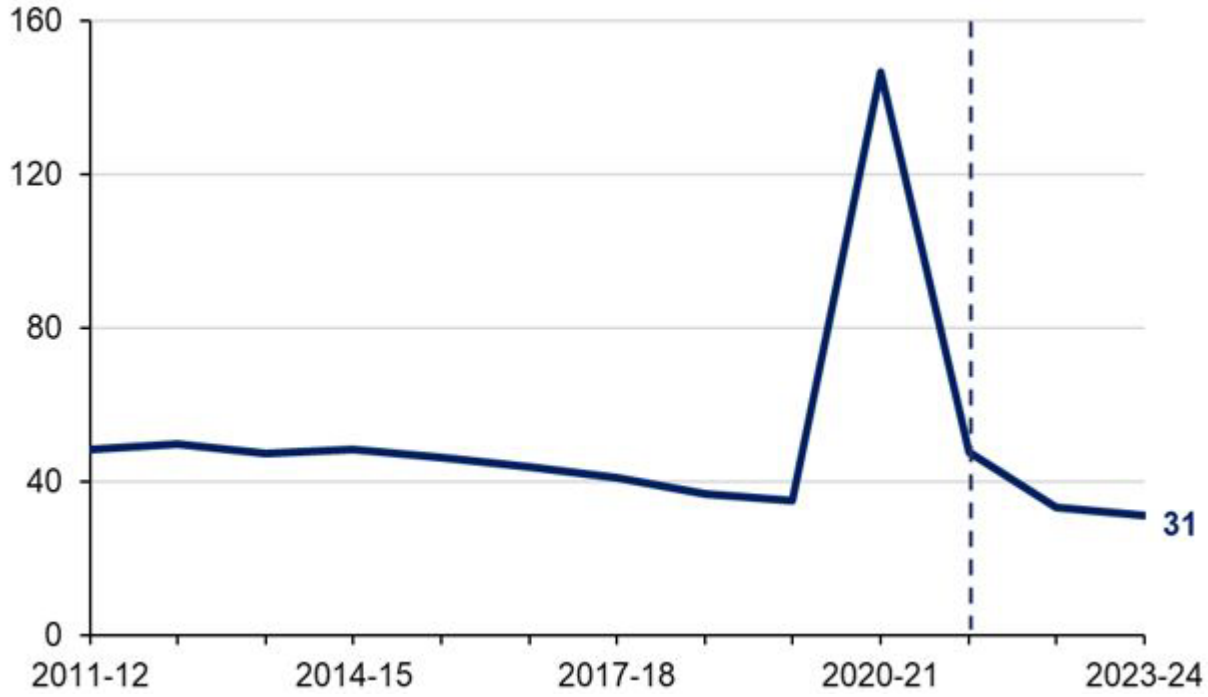
Emissions normalised by passenger kilometres

Comparisons of total emissions over time and between operators should be treated with caution because usage varies over time and between operators. Normalisation by usage (measured by passenger kilometres) presents data on a more comparable basis.

In the latest year, emissions per passenger kilometre was 31 grams of CO_2e. This was down 6% from the 33 grams of CO_2e per passenger kilometre in the previous year. Passenger kilometres increased 13% compared with the previous year, although they were still less than pre-pandemic levels.

Figure 1.2 Passenger train emissions per kilometre peaked during the pandemic

Passenger train CO_2e emissions (grams) per passenger kilometre, Great Britain, annual data, April 2005 to March 2024 (Table 6100)



Note: Vertical dashed line represents a break in the time series in 2021-22.

Emissions normalised by vehicle kilometres

In the latest year, emissions per vehicle kilometre for all traction types were 629 grams of CO_2e, up 1% from 622 grams in the previous year. Grams of CO_2e per electric vehicle kilometre increased by 4%, reflecting a 5% rise in electric vehicle kilometres and a 10% increase in electricity emissions due to the higher electricity conversion factor.

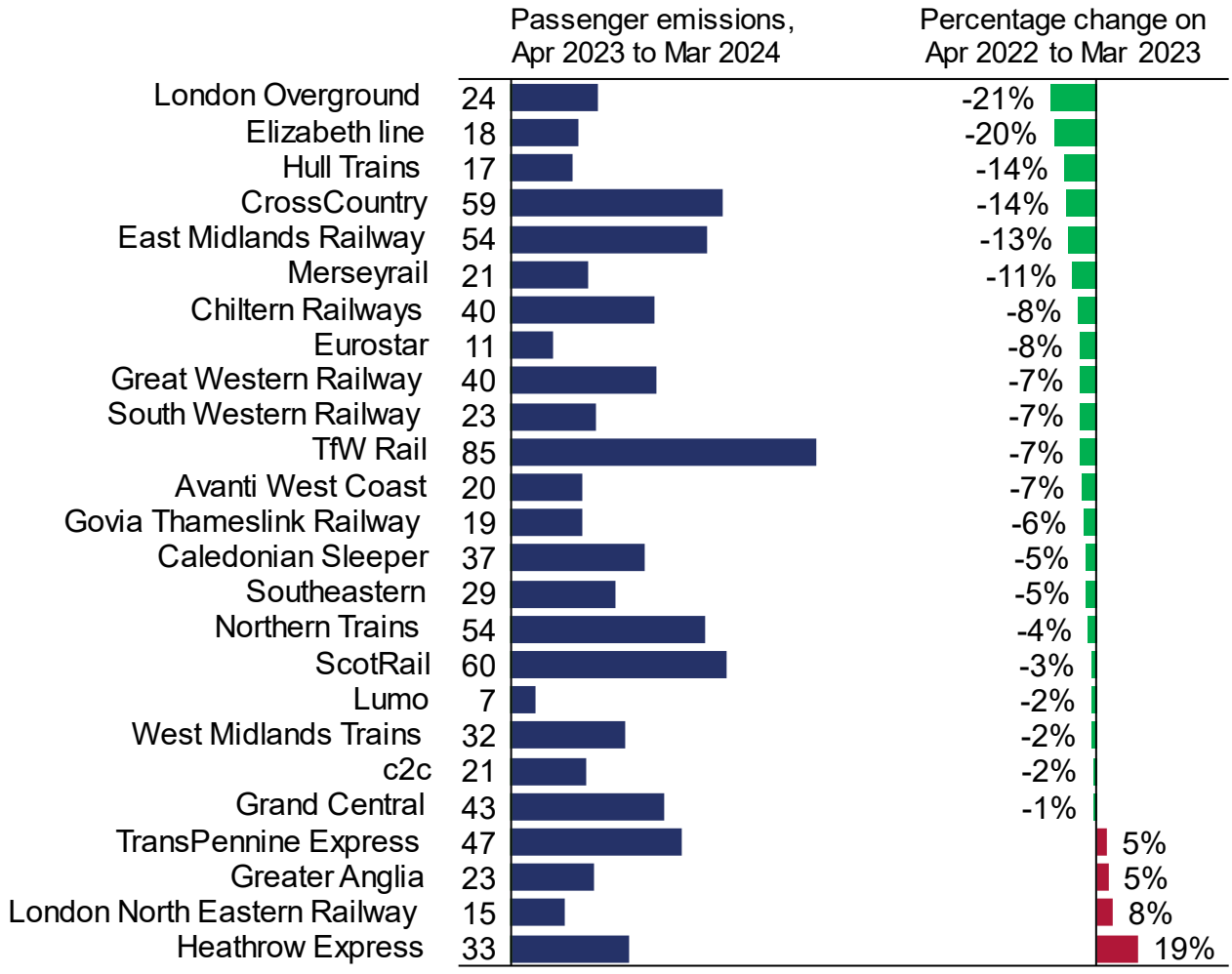
In contrast, diesel vehicle kilometres increased by 7%, while diesel emissions rose by 4%, leading to a 2% decrease in grams of CO_2e per diesel vehicle kilometre.

Emissions normalised by passenger kilometres by train operator

Carbon dioxide equivalent (CO_2e) emissions per passenger kilometre decreased for most operators compared with the previous year; however, four operators reported an increase. For these four operators, the increase in emissions was greater than the increase in passenger kilometres compared to the previous year.

Figure 1.3 Emissions per passenger kilometre decreased for most operators

Passenger train CO_2e emissions (grams) per passenger kilometre by operator, April 2023 to March 2024, and percentage change compared with April 2022 to March 2023 (Table 6103)



London Overground had the largest decrease in emissions per passenger kilometre compared with the previous year (down 21%). In contrast, Heathrow Express had the largest increase (up 19%) driven by increased emissions (up 14%) and a decrease in passenger kilometres (down 4%).

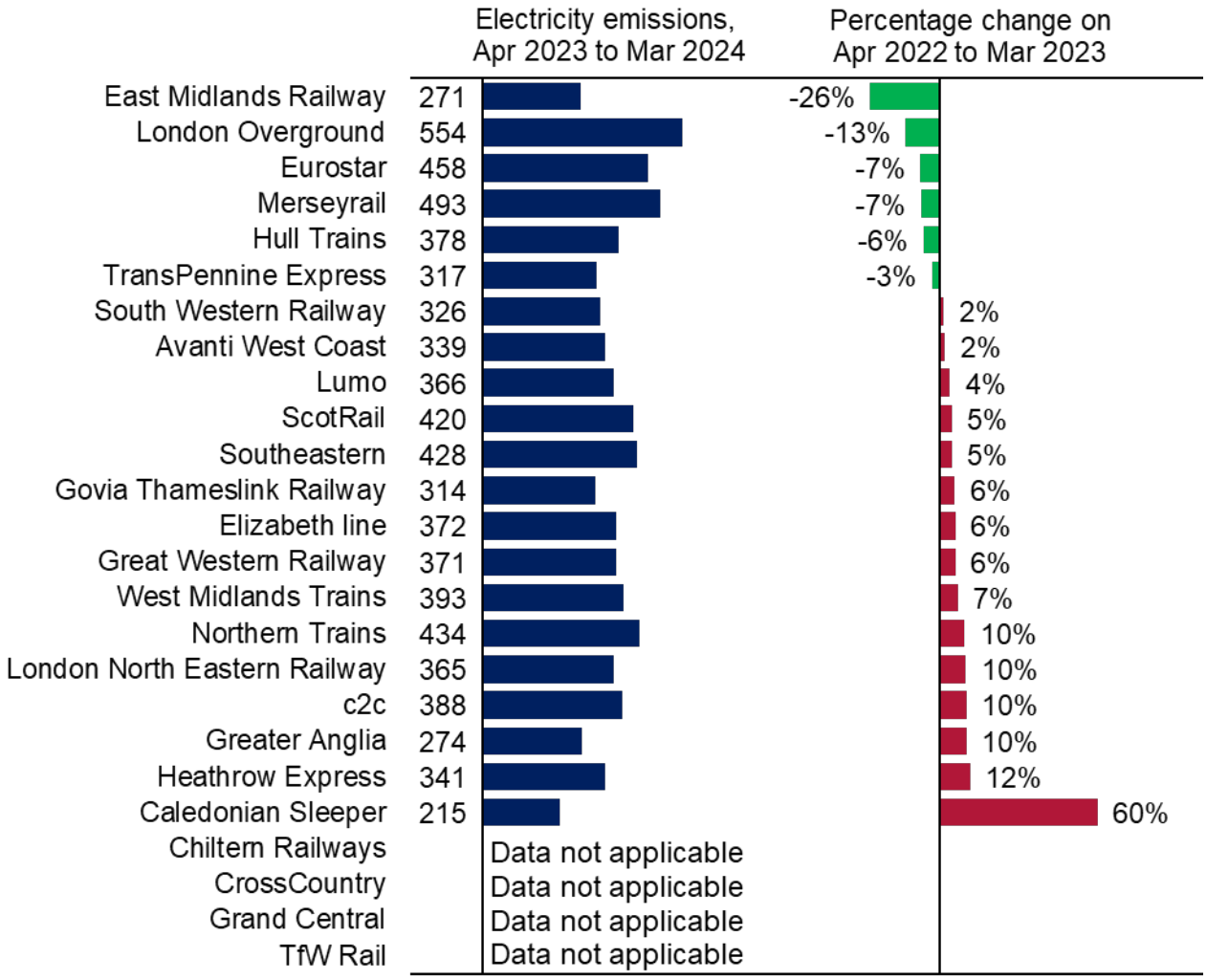
Emissions normalised by vehicle kilometres by train operator

Emissions normalised by electric vehicle kilometres

Only six operators reported a decrease in electricity emissions per electric vehicle kilometres compared with 16 in the previous year. For 15 operators, there was an increase in emissions per electric vehicle kilometres. Four operators did not operate any electric rolling stock.

Figure 1.4 Electricity emissions per electric vehicle kilometre increased for most operators

Passenger train CO_2e emissions (grams) from electricity consumption per electric vehicle kilometre by operator, April 2023 to March 2024, and percentage change compared with April 2022 to March 2023 (Table 6103)



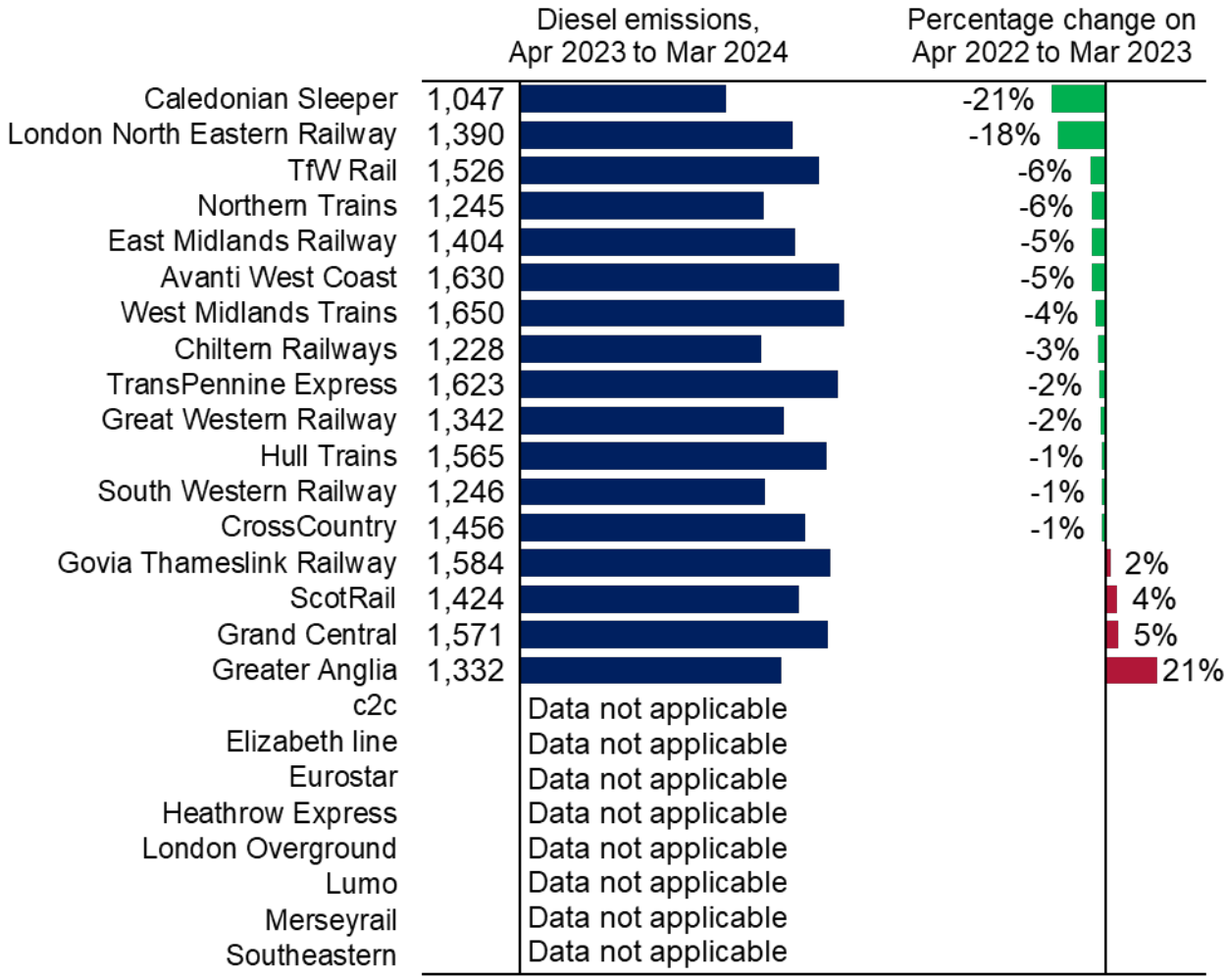
The general increase in electricity emissions per vehicle kilometre was mostly due to the higher electricity conversion factor. Caledonian Sleeper's electricity consumption increased by 43% compared with the previous year, leading to the largest increase in electricity emissions per electric vehicle kilometre.

Emissions normalised by diesel vehicle kilometres

For 13 operators, diesel emissions per diesel vehicle kilometre decreased compared with the previous year. For four operators, there was an increase. Eight operators did not run any diesel rolling stock.

Figure 1.5 Diesel emissions per diesel vehicle kilometre decreased for most operators

Passenger train CO_2e emissions (grams) from diesel consumption per diesel vehicle kilometre by operator, April 2023 to March 2024, and percentage change compared with April 2022 to March 2023 (Table 6103)



Caledonian Sleeper had the largest decrease in diesel emissions per diesel vehicle kilometre compared with the previous year (down 21%). This can be attributed to an increase in diesel vehicle kilometres (up 22%) combined with a 4% reduction in both diesel consumption and emissions. In contrast, Greater Anglia reported a 21% increase in diesel emissions per vehicle kilometre compared with the previous year. This increase may be related to a 25% increase in both diesel consumption and emissions, while diesel vehicles kilometres for the operator only increased by 4%.

Non-traction energy consumption

Non-traction energy includes energy consumption in stations, offices, workshops, depots, and service buildings, as well as maintenance activities.

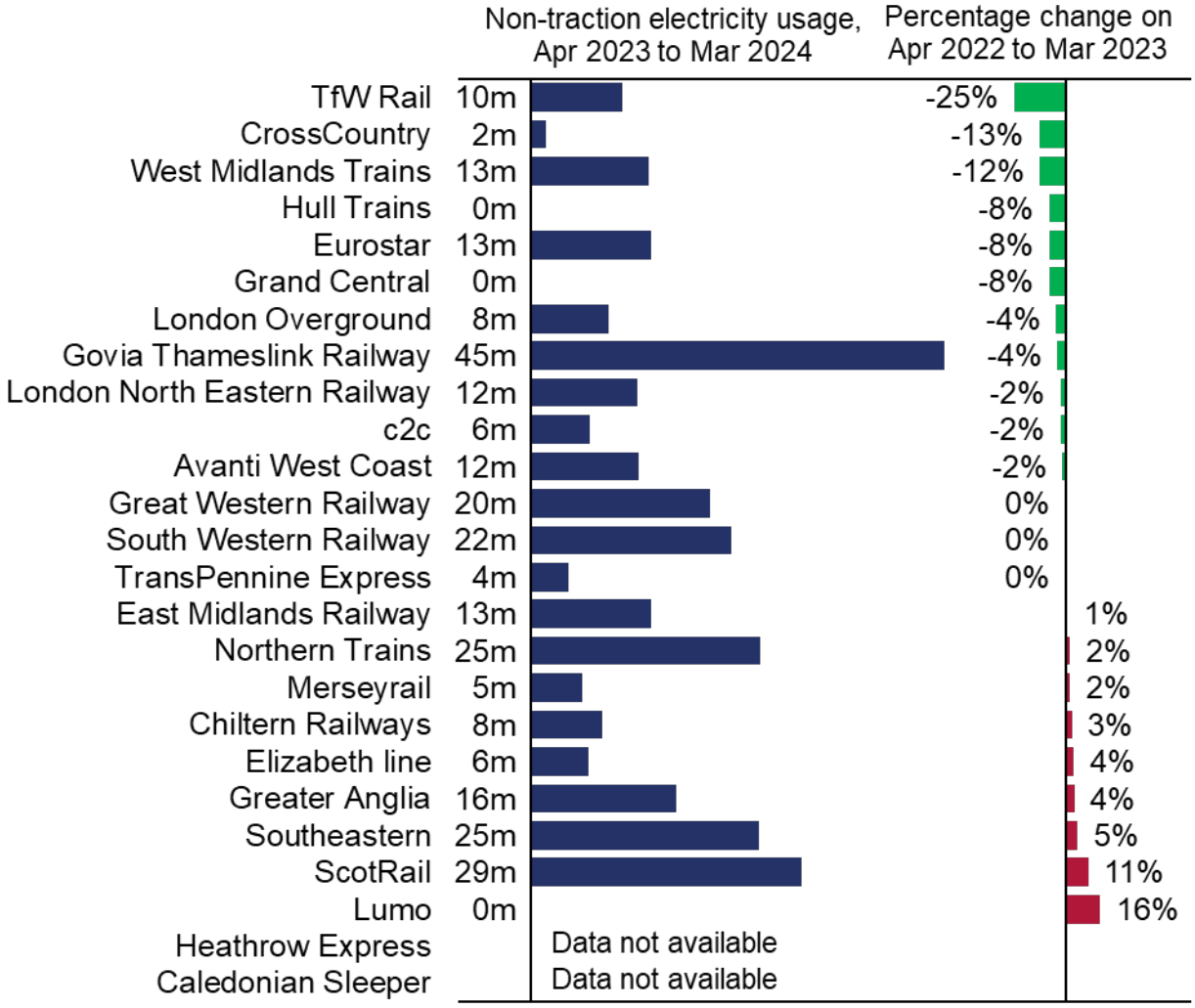
Comparisons of non-traction energy use between operators should be treated with caution due to differences between the facilities they manage. Some operators are responsible for additional infrastructure including varying numbers of stations and depots, which impacts their overall energy consumption.

Non-traction electricity consumption

In the latest year (April 2023 to March 2024), fourteen operators reported a decrease in non-traction electricity consumption. Nine operators reported an increase, with data unavailable for two operators.

Figure 1.6 Non-traction electricity consumption varied by operator, due to differences in the number of stations they managed

Passenger operators' non-traction electricity (kilowatt hours) usage, April 2023 to March 2024, and percentage change compared with April 2022 to March 2023 (Table 6123)



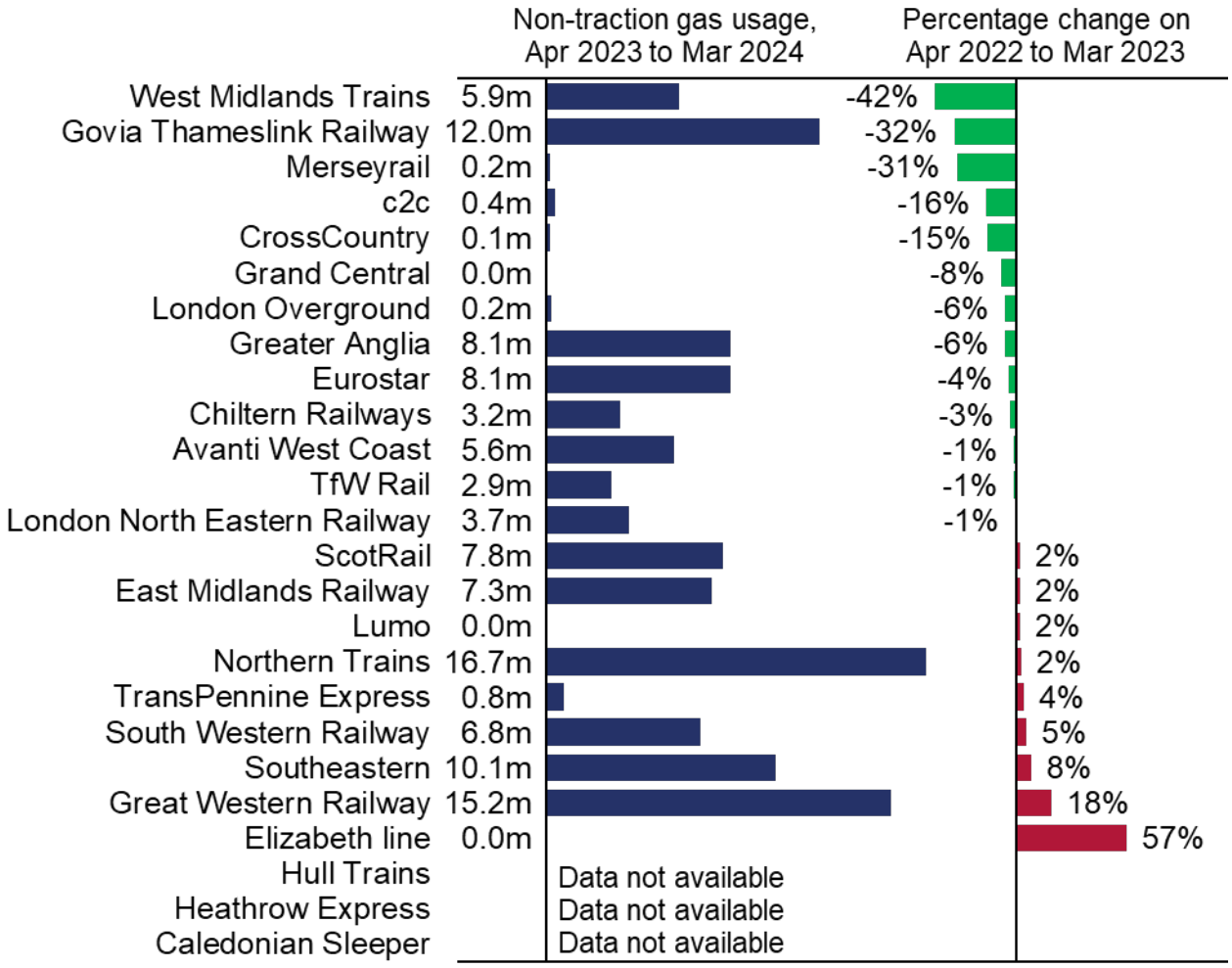
Note**:** Grand Central: 68,952 kWh, Hull Trains: 43,678 kWh, Lumo: 47,136 kWh.

Non-traction gas consumption

In the latest year (April 2023 to March 2024), thirteen operators reported a decrease in non-traction gas usage compared with the previous year. Nine operators reported an increase, with data unavailable for three operators.

Figure 1.7 Non-traction gas consumption varied by operator, due to differences in the number of stations and facilities they managed

Passenger operators' non-traction gas (kilowatt hours) usage, April 2023 to March 2024, and percentage change compared with April 2022 to March 2023 (Table 6123)



Note**:** Grand Central: 33,336 kWh, Lumo: 18,063 kWh, Elizabeth line: 4,233 kWh.

Other environmental measures

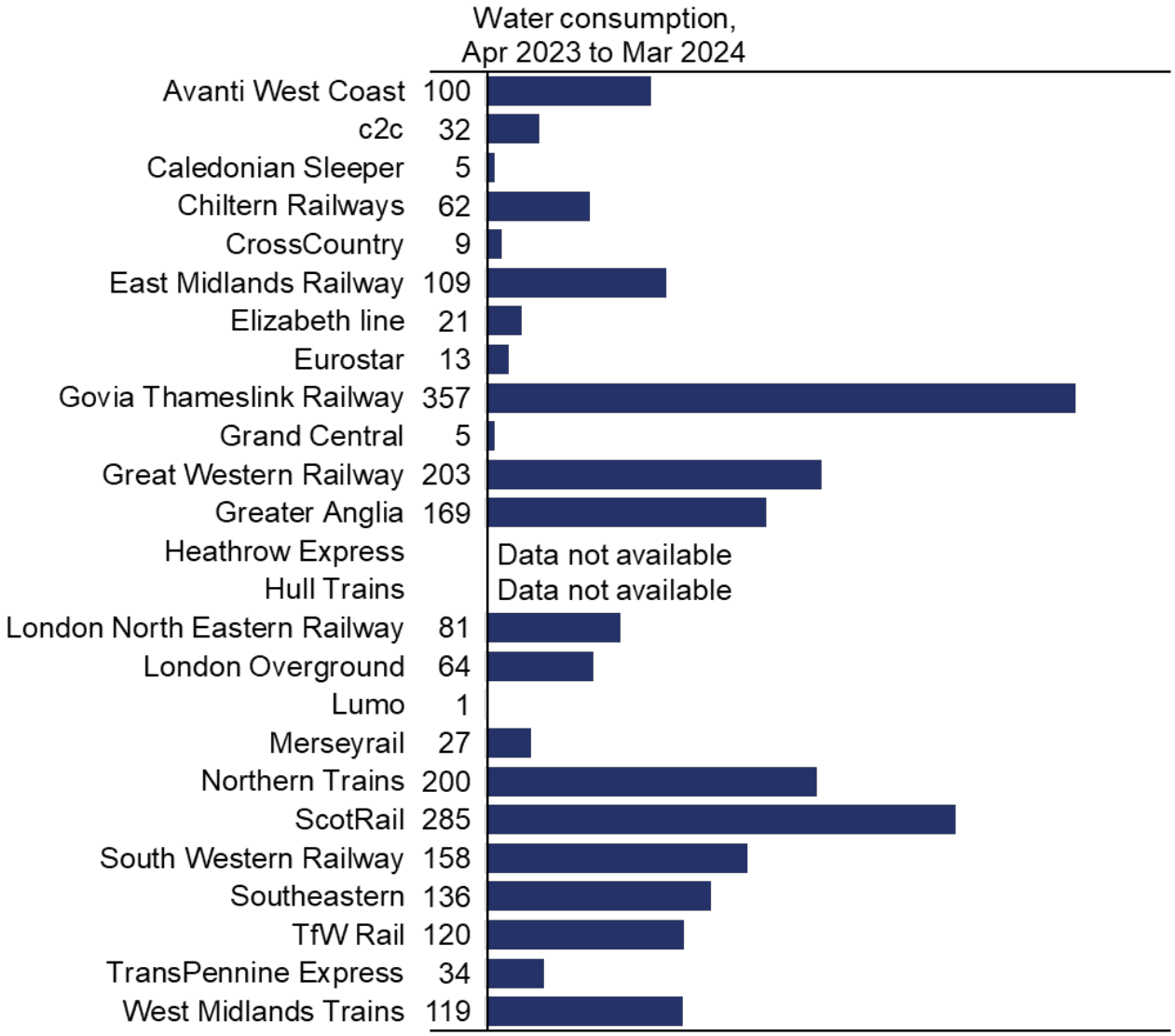
Comparisons of water consumption and waste generation between operators should be treated with caution due to differences between the facilities they manage. Some operators are responsible for additional infrastructure including varying numbers of stations and depots, which impacts their overall energy consumption. We have not included year-on-year comparisons due to changes in methodology for data reporting among some operators.

Water consumption

Water consumption includes all mains water used for activities such as domestic and sanitary use, washing fleet vehicles, and maintaining rolling stock.

Figure 1.8 Water consumption varied by operator, due to differences in the facilities they managed

Water (thousand cubic metres) consumption by passenger operator, April 2023 to March 2024 (Table 6143)

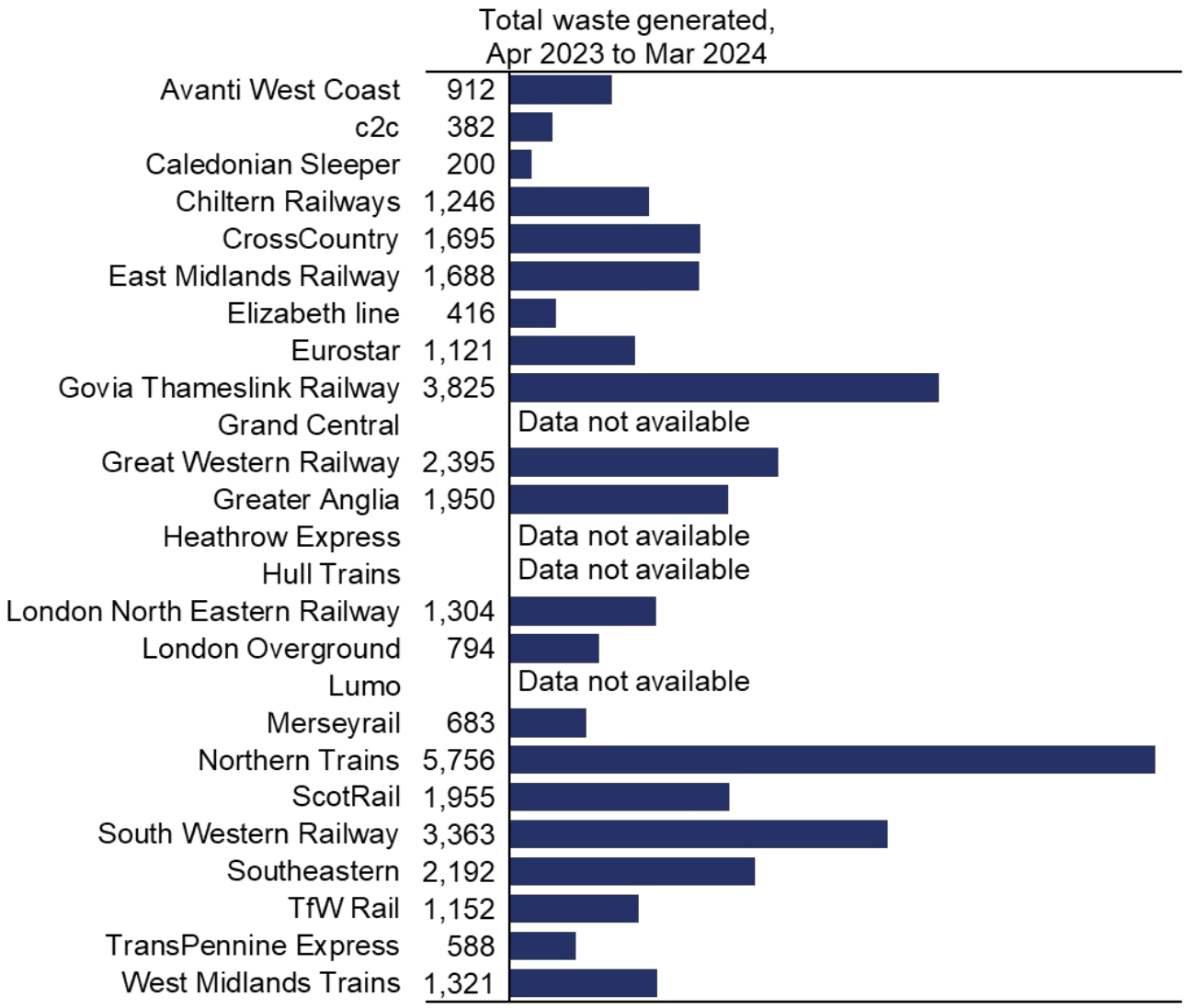


Waste generation

Total waste includes all waste generated, such as materials for disposal, recycling, transfer, or reuse. More disaggregated data on waste generation is available in Table 6163.

Figure 1.9 Total waste generated varied by operator, due to differences in the number of stations and facilities they managed

Total waste (tonnes) generated by passenger operator, April 2023 to March 2024 (Table 6163)



2. Freight trains

The data in this section covers the six largest freight operators and an estimate for the smaller freight operators. These include operators for the purpose of infrastructure maintenance and other rail-related activities (e.g. transport of rolling stock).

Traction energy

Energy consumption

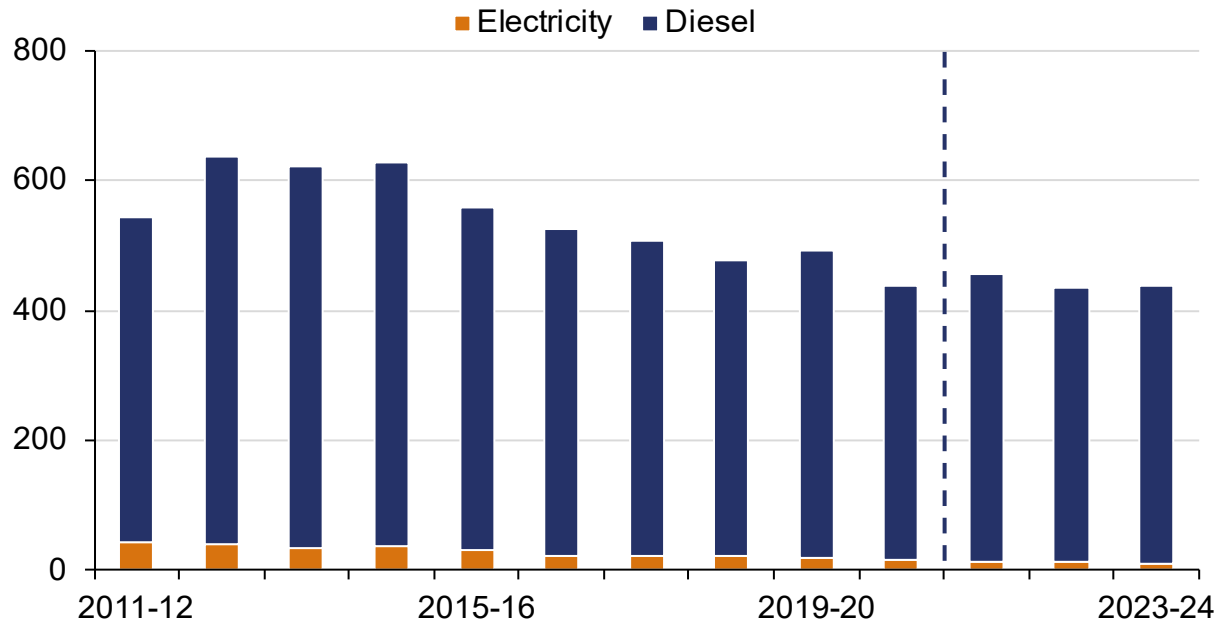
In the latest year (April 2023 to March 2024), total traction electricity consumption for freight trains was 46 million kilowatt hours. This was down 25% compared with the previous year (April 2022 to March 2023). Total traction diesel consumption for freight trains was 156 million litres. This was up 2% compared with the previous year.

Emissions

Carbon dioxide equivalent (CO_2e) emissions are estimated from energy consumption data. In the latest year, total emissions from freight trains were 440 kilotonnes. This was up 1% compared with the previous year**.**

Figure 2.1 Freight train emissions increased slightly, driven by higher diesel emissions

Freight train CO_2e emissions (kilotonnes), by electricity and diesel, Great Britain, annual data, April 2011 to March 2024 (Table 6115)



Note: Vertical dashed line represents a break in the time series in 2021-22.

Of the total, emissions from electricity consumption were 10 kilotonnes. This was down 20% compared with the previous year. Meanwhile, emissions from diesel consumption were 430 kilotonnes. This was up 2% compared with the previous year.

The decrease in electricity consumption (down 25%) exceeds the fall in electricity emissions. This difference is explained by an increase in the conversion factor, meaning the emissions per kilowatt hour of electricity are higher in the latest year than the previous year. Meanwhile, the increase in diesel emissions (up 2%) was closely aligned with the increase in diesel consumption (also up 2%).

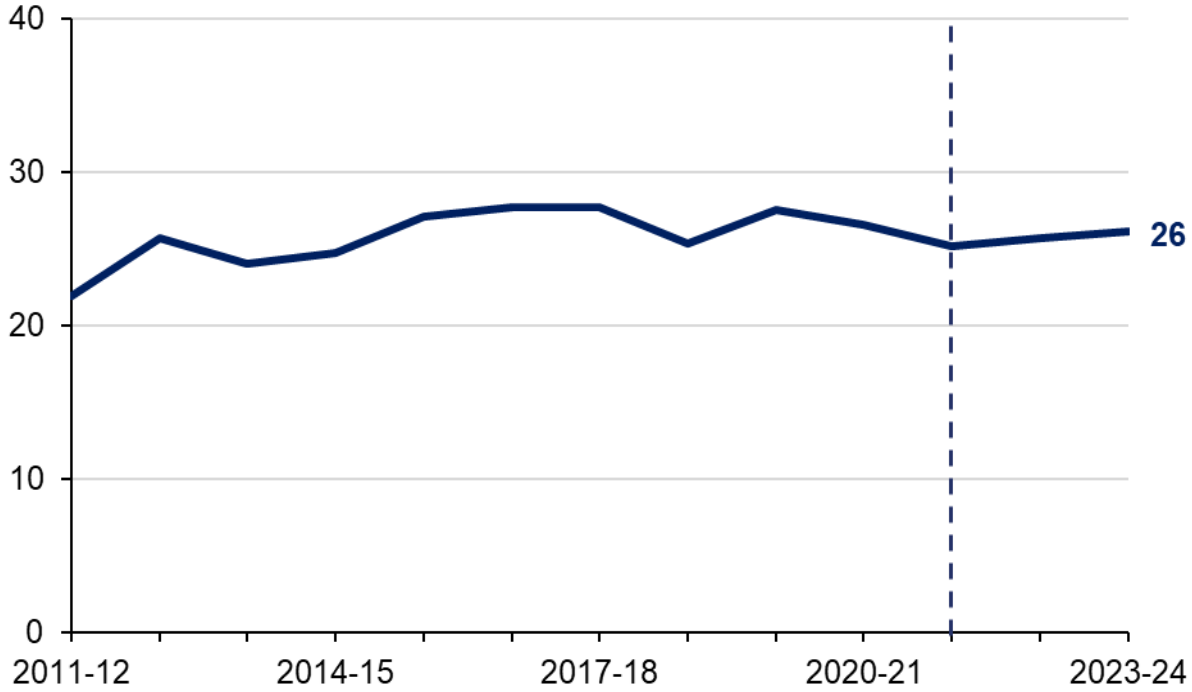
Emissions normalised by net tonne kilometres

Comparisons of emissions over time and between operators should be treated with caution because usage varies over time and between operators. Normalisation by usage (measured by net tonne kilometres) presents data on a more comparable basis.

In the latest year, emissions per net tonne kilometre were 26.1 grams of CO_2e, a 2% increase from the previous year's figure of 25.7 grams of CO_2e per net tonne kilometre.

Figure 2.2 Freight train emissions per net tonne kilometre have remained fairly constant over time

Freight train CO_2e emissions (grams) per net tonne kilometre, Great Britain, annual data, April 2005 to March 2024 (Table 6110)



Note: Vertical dashed line represents a break in the time series in 2021-22.

Emissions normalised by vehicle kilometres

In the latest year, emissions per vehicle kilometre for all traction types was 574 grams of CO_2e, a 1% increase from the previous year. There was an increase in the grams of CO_2e per electric vehicle kilometre in the latest year (up 4%), while the grams of CO_2e per diesel vehicle kilometre increased by 0.2%. As previously mentioned, the increase in emissions normalised by electric vehicle kilometres can be partly attributed to the change in the electricity conversion factor.

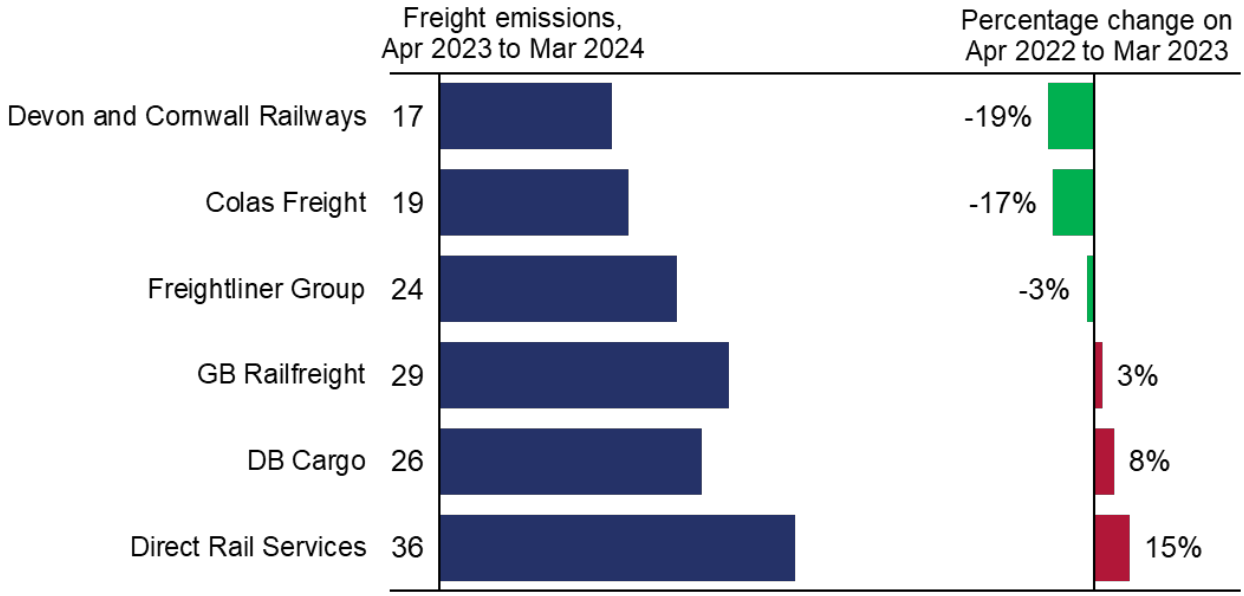
Emissions normalised by net tonne kilometres by freight operator

For half of the operators, carbon dioxide equivalent (CO_2e) emissions per net tonne kilometre decreased compared with the previous year. Devon and Cornwall Railways (down 19%) reported the largest decrease.

The remaining three operators all increased their emissions per net tonne kilometre. Direct Rail Services had the largest increase (up 15%). This is due to an increase in the operator's diesel consumption compared to the previous year, which increased by 12%.

Figure 2.3 Emissions per net tonne kilometre varied across operators

Freight train CO_2e emissions (grams) per net tonne kilometre by operator, April 2023 to March 2024, and percentage change compared with April 2022 to March 2023 (Table 6113)



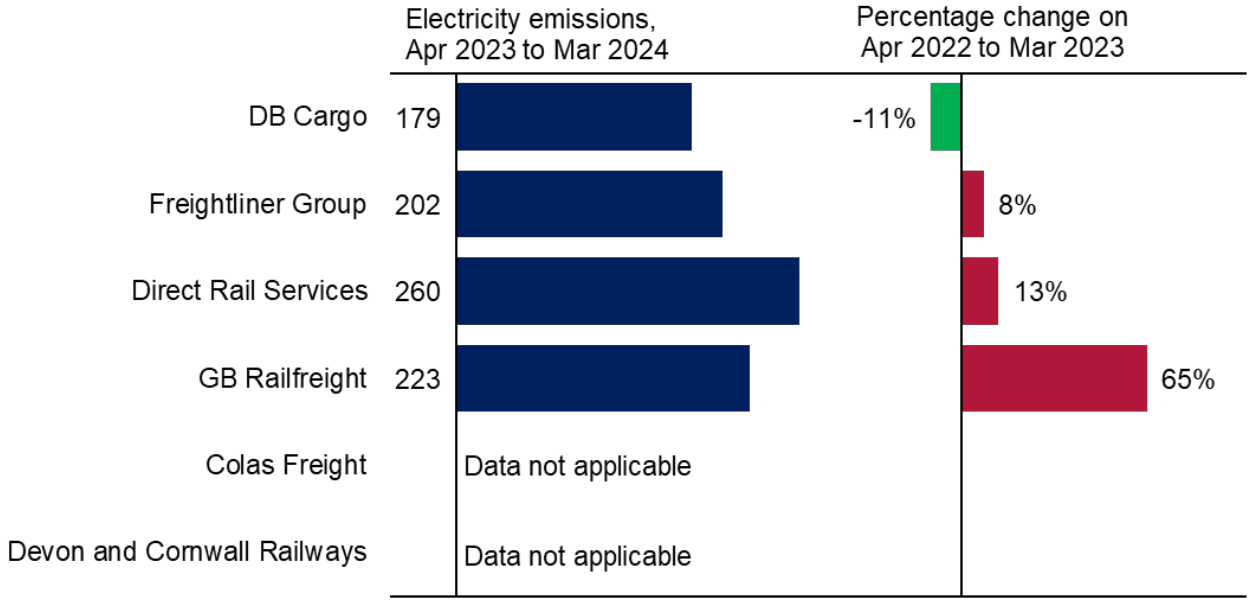
Emissions normalised by vehicle kilometres by freight operator

Emissions normalised by electric vehicle kilometres

For the four operators that run electric rolling stock, electricity emissions per electric vehicle kilometre increased compared with the previous year. GB Railfreight had the largest increase in electricity emissions per electric vehicle kilometre compared with the previous year (up 65%). As previously mentioned, the overall increase in electricity emissions was mostly due to higher conversion factors.

Figure 2.4 Electricity emissions per electric vehicle kilometre increased for three operators

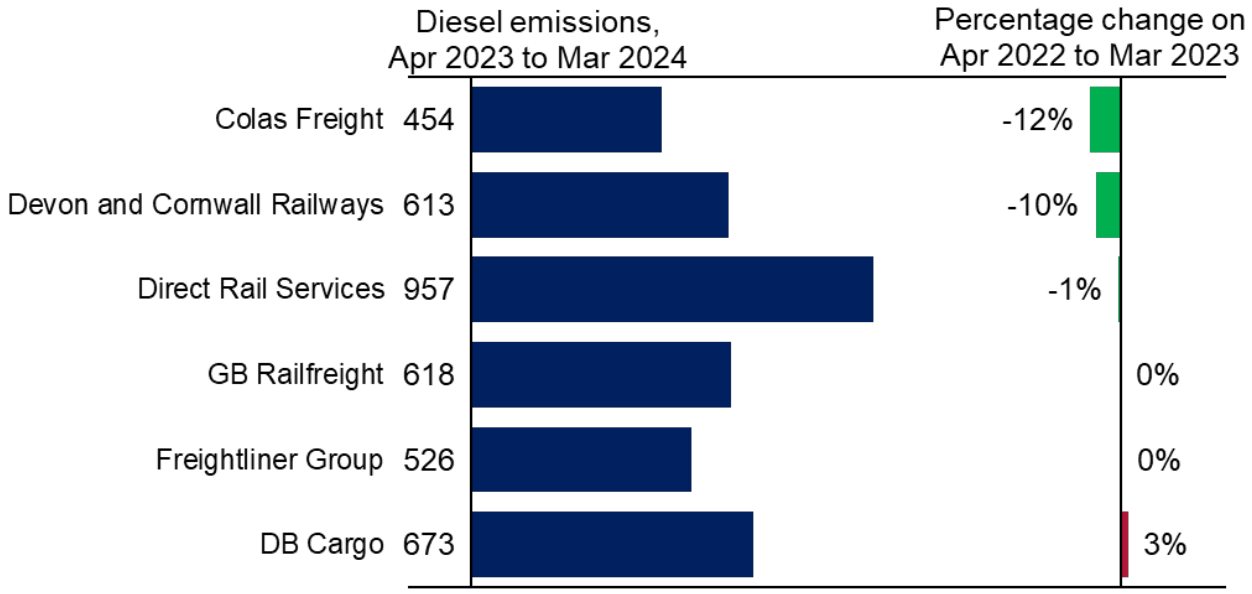
Freight train CO_2e emissions (grams) from electricity consumption per electric vehicle kilometre by operator, April 2023 to March 2024, and percentage change with April 2022 to March 2023 (Table 6113)



Emissions normalised by diesel vehicle kilometres

Figure 2.5 For three operators, diesel emissions per diesel vehicle kilometre decreased compared with the previous year.

Freight train CO_2e emissions (grams) from diesel consumption per diesel vehicle kilometre by operator, April 2023 to March 2024, and percentage change compared with April 2022 to March 2023 (Table 6113)



Note: GB Railfreight: 0.1%, Freightliner: 0.3%

Non-traction energy consumption

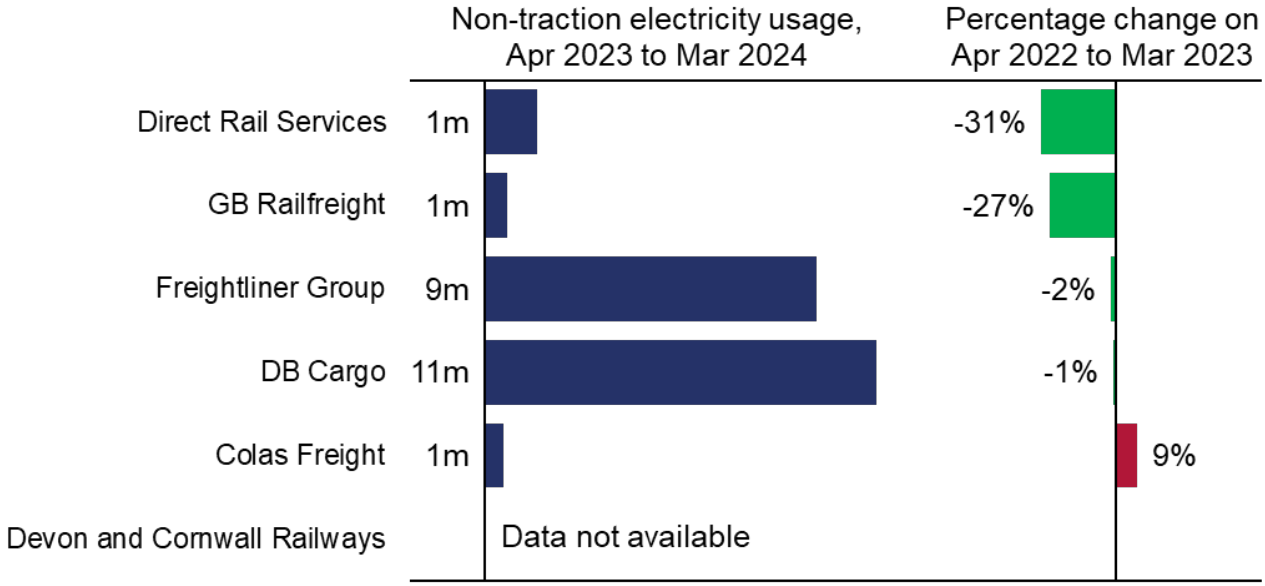
Non-traction energy includes energy consumption in stations, offices, workshops, depots, and service buildings, as well as maintenance activities. Comparisons of non-traction energy use between operators should be treated with caution due to differences between the facilities they manage. Some operators are responsible for additional infrastructure including varying numbers of stations and depots, which impacts their overall energy consumption.

Non-traction electricity consumption

In the latest year (April 2023 to March 2024), total non-traction electricity consumption for freight operators was 22 million kilowatt hours. This was down 5% compared with the previous year (April 2022 to March 2023). Among the operators, four reported a decrease in non-traction electricity consumption and one operator reported an increase.

Figure 2.6 Non-traction electricity consumption decreased for most operators

Freight operators' non-traction electricity (kilowatt hours) usage (Table 6133)

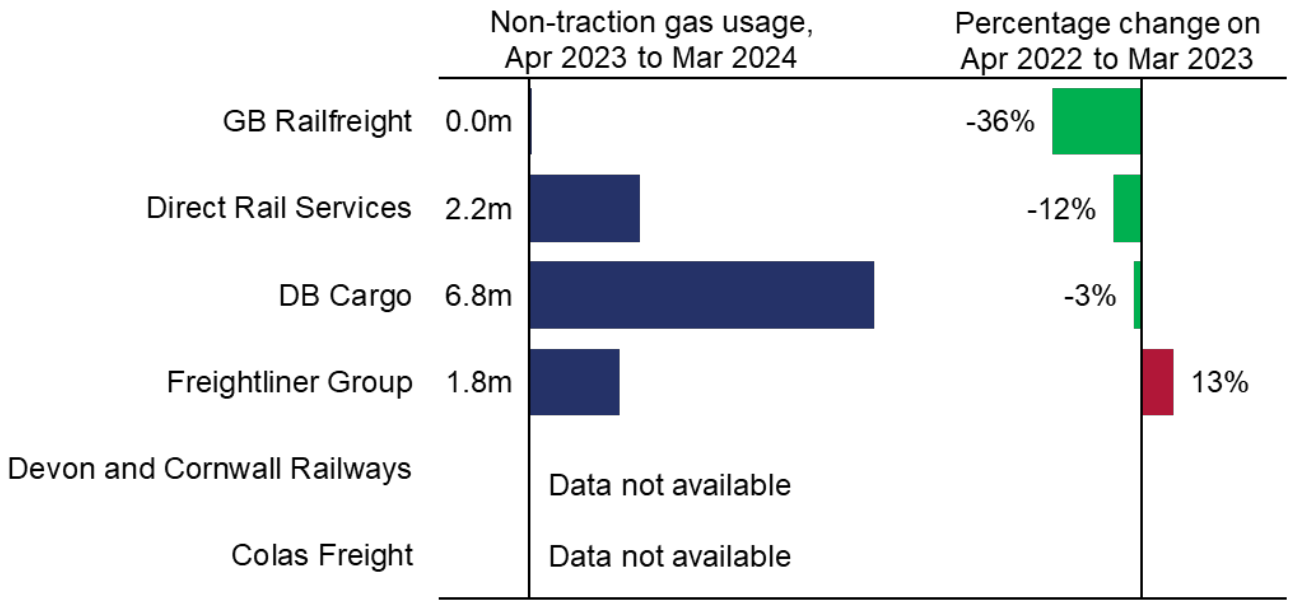


Non-traction gas consumption

In the latest year (April 2023 to March 2024), three operators reported a decrease in non-traction gas consumption compared to the previous year, one operator reported an increase, one operator reported zero usage.

Figure 2.7 Non-traction gas consumption varied by operator, due to differences in facilities

Freight operators' non-traction gas (kilowatt hours) usage, April 2023 to March 2024, and percentage change compared with April 2022 to March 2023 (Table 6133)



Note: GB Railfreight: 47,188 kWh

Other environmental measures

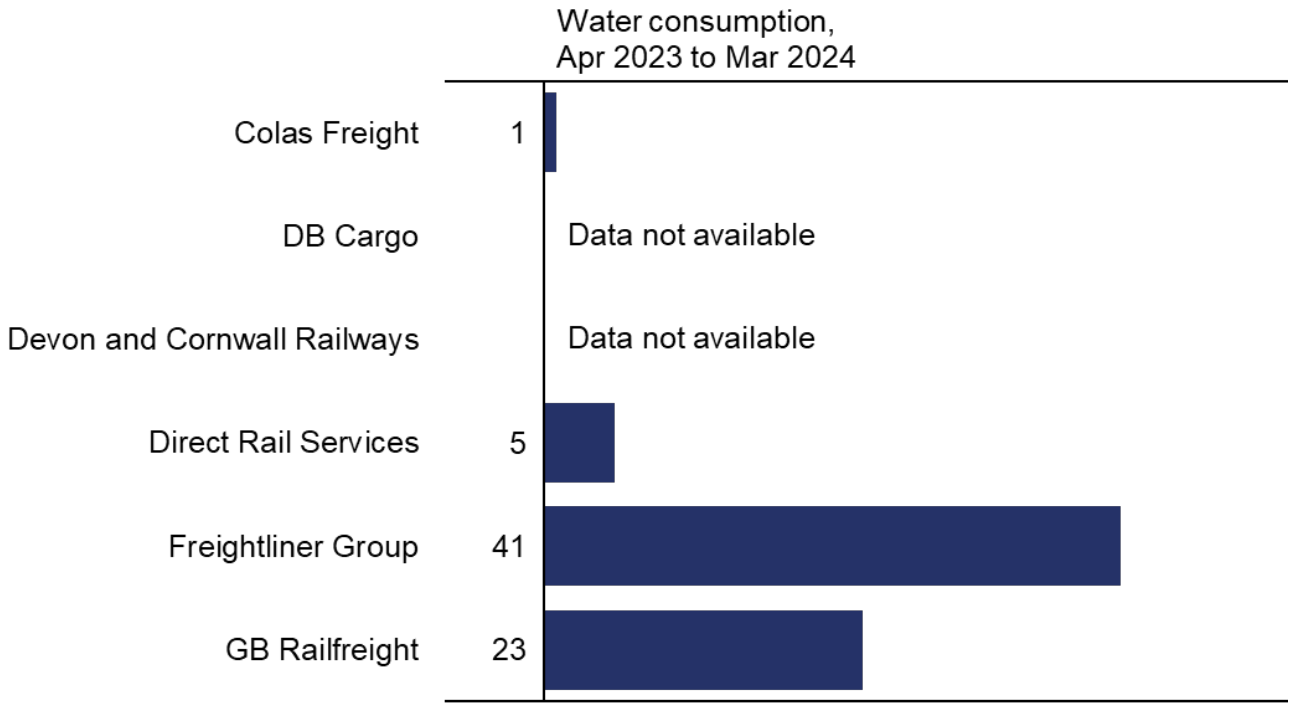
Comparisons of water consumption and waste generation between operators should be treated with caution due to differences between the facilities they manage. Some operators are responsible for additional infrastructure including varying numbers of stations and depots, which impacts their overall energy consumption. We have not included year-on-year comparisons due to changes in methodology for data reporting among some operators.

Water consumption

Water consumption includes all mains water used for activities such as domestic and sanitary use, washing fleet vehicles, and maintaining rolling stock.

Figure 2.8 Water consumption varied by operator, due to differences in the facilities they managed

Water (thousand cubic metres) consumption by freight operator, April 2023 to March 2024 (Table 6153)

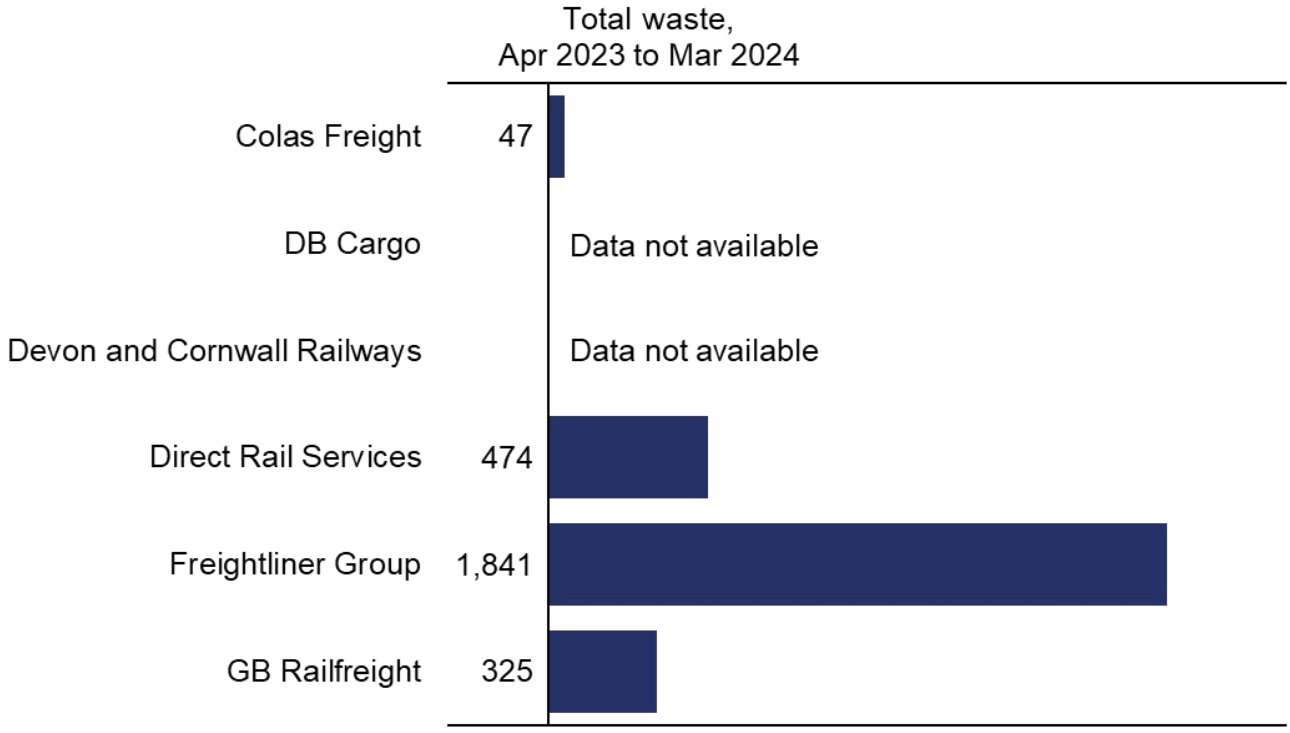


Waste generation

Total waste includes all waste generated, such as materials for disposal, recycling, transfer, or reuse. More disaggregated data on waste generation is available in Table 6173.

Figure 2.9 Total waste generated by operator varied, due to differences in the facilities they were responsible for

Total waste (tonnes) generated by freight operator, April 2023 to March 2024 (Table 6173)



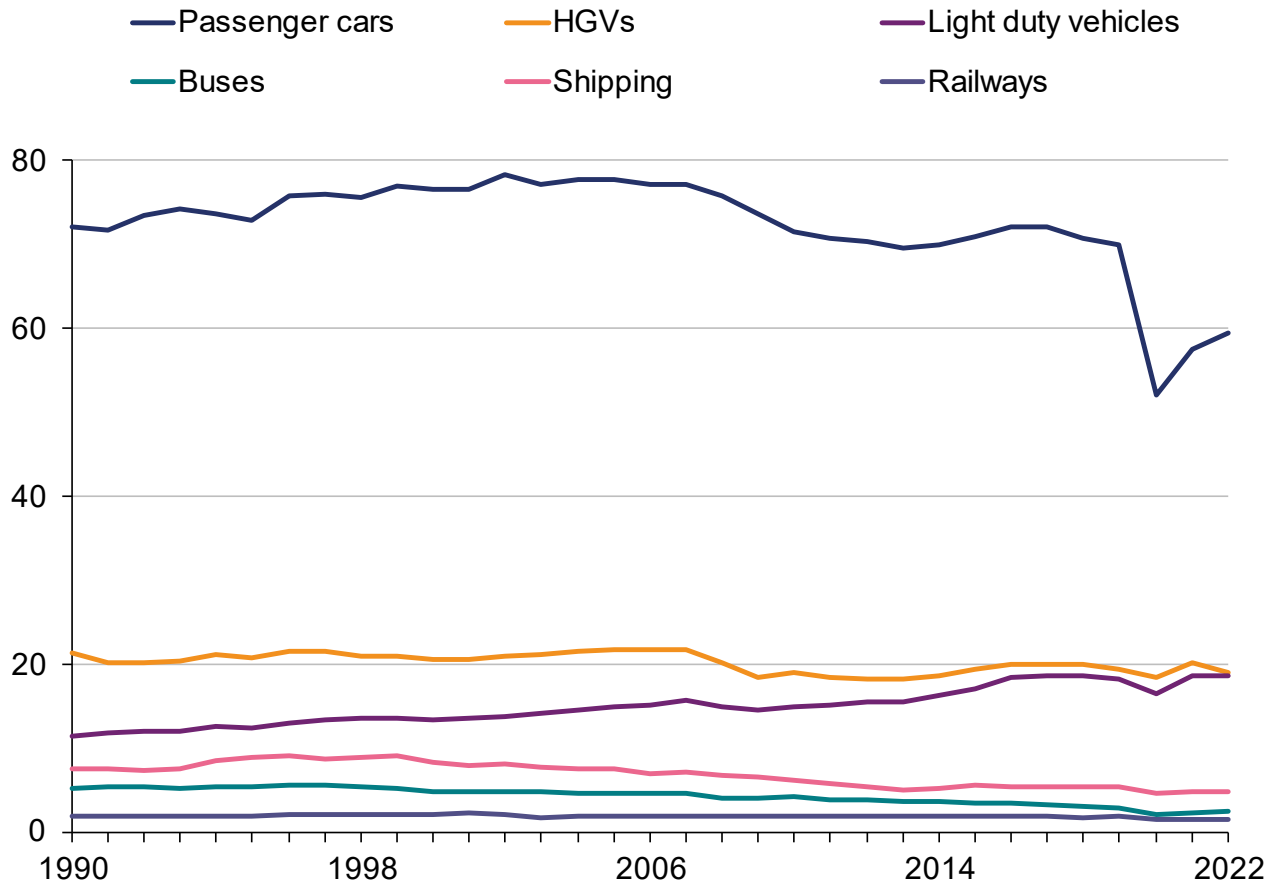
3. Transport emissions in context

This section presents emissions data for other modes of transport to show rail emissions in context. The Department for Energy Security and Net Zero publish statistics on greenhouse gas emissions by transport mode. These statistics cover the United Kingdom as a whole, while ORR's statistics only cover Great Britain's rail network.

In 2022, rail emissions made up 1.3% of the UK's total emissions from transport while accounting for 9% of all passenger kilometres travelled. Road transport remains the largest source of emissions, with 89% of all transport emissions.

Figure 3.1 Emissions from passenger cars represent the majority of all transport emissions

CO_2e emissions (million tonnes) by transport mode, United Kingdom, annual data, 1990 to 2022



Source: Final UK greenhouse gas emissions national statistics: 1990 to 2022

In 2022, UK emissions from the seven greenhouse gases covered by the Kyoto Protocol were estimated to be 406 million tonnes carbon dioxide equivalent. This is half the estimated levels recorded in 1990.

Transport remains the largest emitting sector, accounting for more than a quarter (28%) of all UK emissions.

Figure 3.2 Over a quarter of greenhouse gas emissions came from transport

Proportion of CO_2e greenhouse gas emissions by sector, United Kingdom, 2022

Note: LULUCF is Land Use, Land Use Change, and Forestry

Source: Final UK greenhouse gas emissions national statistics: 1990 to 2022

Network Rail environmental data

Network Rail report their annual energy consumption (electricity, gas and fuel) and the associated emissions. In the year April 2023 to March 2024, Network Rail reported a reduction of 28% in greenhouse gas emissions (excluding traction) against the baseline year April 2018 to March 2019. Network Rail use the environmental sustainability index (ESI) to monitor performance against four key environmental measures: percentage of waste recycled, percentage of waste diverted from landfill, percentage reduction in carbon emissions and percentage reduction in non-traction energy usage.

Network Rail also publish annual emissions and energy use, split by region and separately for 19 of its 20 managed stations. In the year April 2022 to March 2023, total emissions from these stations were 23,469 tonnes CO_2e from combined electricity and gas consumption. This was 11% lower compared with 26,236 tonnes CO_2e in April 2021 to March 2022.

Network Rail is expected to reduce carbon emissions by more than 20% during Control Period 7 (CP7). ORR's Periodic review 2023 (PR23) final determination set out the decisions on Network Rail's outputs and funding for CP7, which runs from 2024 to 2029.

4. Annexes

Annex 1 – Definitions

- **Traction energy** refers to rolling stock (railway vehicles, including both powered and unpowered vehicles, such as locomotives, carriages and freight wagons) on the rail network, and the energy used to power passenger and freight train movements.
- **Non-traction energy** is the electricity and gas used to power non-rolling stock on the network. This includes energy consumption in stations, offices, workshops, depots, and service buildings, as well as maintenance activities. It also covers heating of points and switches, along with energy needed for technical railway operations such as lighting, signalling, telecoms, traffic control, and data centres.
- **Water** is measured in total cubic metres (m^3) of mains water used for activities including domestic and sanitary use, washing fleet vehicles, and rolling stock.
- **Waste** is measured in total tonnes of all waste generated, including waste for disposal, recycling, transfer, or reuse.
- **Diesel** refers to gas, oil, diesel or biofuel volume (in litres) consumed in train movements.
- **Electricity** measures the amount of electricity consumed (in kWh) in train movements. **Kilowatt hour (kWh)** is a unit of energy by calculating electricity usage - one kWh is the electric energy converted by a one kW appliance used for one hour.
- **Passenger kilometres** are calculated by multiplying the number of passenger journeys on a particular flow by the number of corresponding train kilometres between stations.
- **Net tonne kilometres** measure the amount of freight moved on the railway network, taking into account the weight of the load and distance carried.
- **Vehicle kilometres** measure the distance travelled by an individual vehicle (locomotives, carriages, wagons, etc.) on the rail network. It includes vehicle kilometres travelled on Network Rail infrastructure and other railways such as HS1. For example, a ten vehicle train travelling one kilometre is measured as one train kilometre, but ten vehicle kilometres.
- **Greenhouse gases** are gases in the Earth's atmosphere which trap heat. They allow sunlight to pass through the atmosphere but prevent heat from sunlight leaving the atmosphere. This creates a 'greenhouse effect', where the Sun's energy is trapped,

which causes the Earth and in particular the oceans, to warm, the higher the amounts of greenhouse gases in the atmosphere, the warmer the Earth becomes. There are seven greenhouse gases covered under the Kyoto Protocol: carbon dioxide (CO2), methane (NH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF6) and nitrogen trifluoride (NF3). While the Kyoto Protocol laid the groundwork, the Paris Agreement is now the primary international framework for addressing climate change, aiming to limit global temperature rise by focusing on reducing emissions from these key gases across all countries.

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

Annex 2 – Quality and methodology

Data sources

Energy consumption data for traction and non-traction, water consumption and waste generation has been collected directly from train operators:

- Franchised passenger operators
- Non-franchised (open access) passenger operators
- Eurostar services (UK side)
- Freight operators

Passenger kilometre data is sourced from LENNON (Latest Earnings Networked Nationally Over Night) ticketing and revenue system and supplemented with data from operators who have passenger journeys/kilometres recorded outside of LENNON.

The net tonne kilometres data and vehicle kilometre data, used for the normalised measures, is sourced from Network Rail.

Vehicle kilometre data is sourced from the Track Access Billing System (TABS), which is used to bill train operators. As well as Network Rail infrastructure, it includes vehicle kilometres travelled on HS1, Core Valley Lines, London Underground, and the London Overground. Vehicle kilometres for bimodal trains are either classified as electric or diesel, depending on whether the train ran in diesel or electric mode.

Estimates for missing data

We produce estimates for smaller freight operators that we do not request data from. Further information on how these estimates are produced can be found in the quality and methodology report.

Methodology

Energy consumption data is converted into CO_2e using standard conversion factors from the Department for Energy Security and Net Zero. The emission conversion factors allow activity data (for example, litres of fuel used or kWh consumed) to be converted into grams of CO_2e.

Revisions

There have been revisions to previously published data:

- Tables 6100, 6105, 6110 and 6115: Some operators supplied revised energy consumption data. Additionally, the line loss was recalculated to align with the Department for Energy Security and Net Zero's transmission and distribution loss methodology. This resulted in small revisions to all measures for the years April 2021 to March 2024. Due to the change, there is a break in the time series between 31 March 2020 and 1 April 2021.

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

Further information on data sources, quality, methodology and the historical background, can be found in the quality and methodology report.

How these statistics can be used

- Monitoring traction electricity and diesel consumption by passenger and freight trains over time
- Monitoring estimated CO_2e emissions from traction energy by passenger and freight trains over time
- Monitoring and comparing normalised CO_2e emissions for passenger and freight trains over time
- Monitoring non-traction energy consumption, water consumption, and waste generation by passenger and freight train operators

How these statistics cannot be used

- Comparing emissions for a specific train type or route (refer to DfT journey emission comparisons data)
- Identifying emissions for heritage or other non-mainline operators
- Calculating emissions for non-traction energy such as stations, buildings or depots
- Identifying expenditure on diesel fuel for passenger operators (refer to rail industry finance)

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

Data tables

All data tables can be accessed on the ORR 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 Rail environment page.

- Estimates of normalised passenger carbon dioxide equivalent emissions – Table 6100
- Estimates of normalised passenger carbon dioxide equivalent emissions by operator – Table 6103
- Estimates of passenger energy consumption and carbon dioxide equivalent emissions – Table 6105
- Estimates of passenger energy consumption and carbon dioxide equivalent emissions by operator – Table 6108
- Estimates of normalised freight carbon dioxide equivalent emissions – Table 6110
- Estimates of normalised freight carbon dioxide equivalent emissions by operator – Table 6113
- Estimates of freight energy consumption and carbon dioxide equivalent emissions – Table 6115
- Estimates of freight energy consumption and carbon dioxide equivalent emissions by operator – Table 6118
- Estimates of non-traction energy consumption by passenger operator – Table 6123 **(New)**
- Estimates of non-traction energy consumption by freight operator – Table 6133 **(New)**
- Water consumption by passenger operator – Table 6143 **(New)**
- Water consumption by freight operator – Table 6153 **(New)**
- Waste generation by passenger operator – Table 6163 **(New)**
- Waste generation by freight operator– Table 6173 **(New)**

Other related ORR data

Passenger usage data is published on the Passenger rail usage page on the data portal. This includes passenger kilometres by operator and passenger vehicle kilometres by operator.

Freight usage data is published on the Freight rail usage and performance page on the data portal. This includes the freight vehicle kilometres by operator.

The Rail infrastructure and assets page on the data portal includes information on track and route length, including the proportion of the rail network which is electrified. It also includes detail on the passenger operators' rolling stock and the proportion of each traction time (electric, diesel, bi-mode or loco hauled).

Other related environmental statistics

The Department for Energy Security and Net Zero publish estimates of UK territorial greenhouse gas emissions.

The Department for Environmental, Food & Rural Affairs (Defra) publish data on emissions of air pollutants in the UK. This includes data for transport and railways.

The National Atmospheric Emissions Inventory (NAEI) publish the Greenhouse Gas Inventory. It covers the UK's greenhouse gas emission estimates since 1990, broken down by industry. Rail data is included in the inventory, split into emissions from coal, freight diesel, intercity diesel and regional diesel (gas oil). There is also an interactive map which shows CO_2e emissions by local authority with an option to filter for emissions from diesel railways.

The Office for National Statistics publish UK greenhouse gases and total emissions by industry, This covers the period 1990 to 2020. This data is used in UK Environmental Accounts, which measures the impact of economic activity on the environment.

There is a list of resources relating to historical UK greenhouse gas emissions.

Links to other data sources are available in our Rail emissions data catalogue.

European comparisons

The United Nations Framework Convention on Climate Change (UNFCCC) publishes national inventory submissions for greenhouse gas emissions.

The European Environment Agency (EEA) publishes data on greenhouse gas emissions for transport from the EU. Railway emissions (which only include emissions from diesel trains) have halved since 1990, but they constitute a small proportion of overall transport emissions.

Annex 4 – ORR's statistical publications

Our statistical practice is regulated by the Office for Statistics Regulation (OSR). OSR sets the standards of trustworthiness, quality and value in the Code of Practice for Statistics that all producers of official statistics should adhere to. You are welcome to contact us directly with any comments about how we meet these standards by emailing rail.stats@orr.gov.uk. Alternatively, you can contact OSR by emailing regulation@statistics.gov.uk or via the OSR website.

Statistical Releases

This publication is part of ORR's 'accredited official statistics', 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 environment; Regional rail usage**; one biannual publication: **Passenger rail service complaints**; and three quarterly publications: **Passenger rail performance; Freight rail usage and performance; Passenger rail usage.**

ORR also publishes a number of other 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.

Accredited official statistics

Accredited official statistics are called National Statistics in the Statistics and Registration Service Act 2007. They are official statistics that have been independently reviewed by the Office for Statistics Regulation and found to comply with the standards of trustworthiness, quality and value in the Code of Practice for Statistics.

The majority of our statistical releases were independently reviewed by the OSR in June 2012. They comply with the standards of trustworthiness, quality and value in the Code of Practice for Statistics and are labelled accredited official statistics.

Since our review 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 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 accredited official 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 independently reviewed by OSR in November 2020 and a their accreditation was confirmed on 1 December 2020.

For more information on how we adhere to the Code please see our compliance statements.

If you have any feedback or questions please email rail.stats@orr.gov.uk.

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