Office for National Statistics

Article

Infrastructure in the UK, investment and net stocks: July 2024

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1 . Main points

- Total market sector investment in infrastructure in 2023 was £13.8 billion in constant prices, up 3.9% from 2022.
- Market sector net stocks of infrastructure were estimated at £350.2 billion in 2023 in constant prices, up 0.3% from 2022.
- Since 2020, annual total market sector net stocks of infrastructure have increased by 0.2% on average, in constant prices.
- Total general government investment in infrastructure rose by 9.6% to £26.0 billion in current prices in 2022, relative to 2021; data sources on general government investment in infrastructure are currently only available until 2022.

These are official statistics in development and we advise caution when using the data. The methods and definitions are currently under development. This means we are using a narrow definition of infrastructure, with methods that have not been reviewed for use within the core national accounts. Read more in the Data sources and quality section.

2 . Market sector

This article provides official statistics in development for estimates of market sector net stocks and investment in infrastructure between 1997 and 2023. It includes two additional years (2022 and 2023) of market sector investment and net stocks data, compared with our May 2023 edition of this article, following the publication of our Preliminary capital stocks and fixed capital consumption bulletin in June 2024.

For consistency, this article follows the methods, assumptions, and definitions used in the previous editions of this article. As there is no formal definition for infrastructure in the System of National Accounts 2008 framework (PDF, 9,299KB) or the European system of accounts 2010 framework, we follow a data-led, functional definition. We focus on making use of the data available for what is considered core economic infrastructure: transport, energy, water and waste handling assets, telecommunications, mining and quarrying, and "other" (which includes all industries not in these categories). More information about how we define infrastructure is available in Section 7: Data sources and quality.

Investment

Market sector investment in 2023 was £13.8 billion, a 3.9% increase compared with 2022, and an increase of £0.5 billion in 2021 constant prices. This increase represents the net effect of five industry groups increasing and two industry groups decreasing their investment. Industry groups with higher investment in 2023, when compared with 2022, were mining and quarrying, (up by £0.6 billion, a 19.6% increase), water supply (up by £0.2 billion, a 14.7% increase), support activities for transport (up by £0.01 billion, a 4.2% increase), telecommunications (up by £0.2 billion, a 21.8% increase) and "other" industries (up by £0.2 billion, a 9.7% increase).

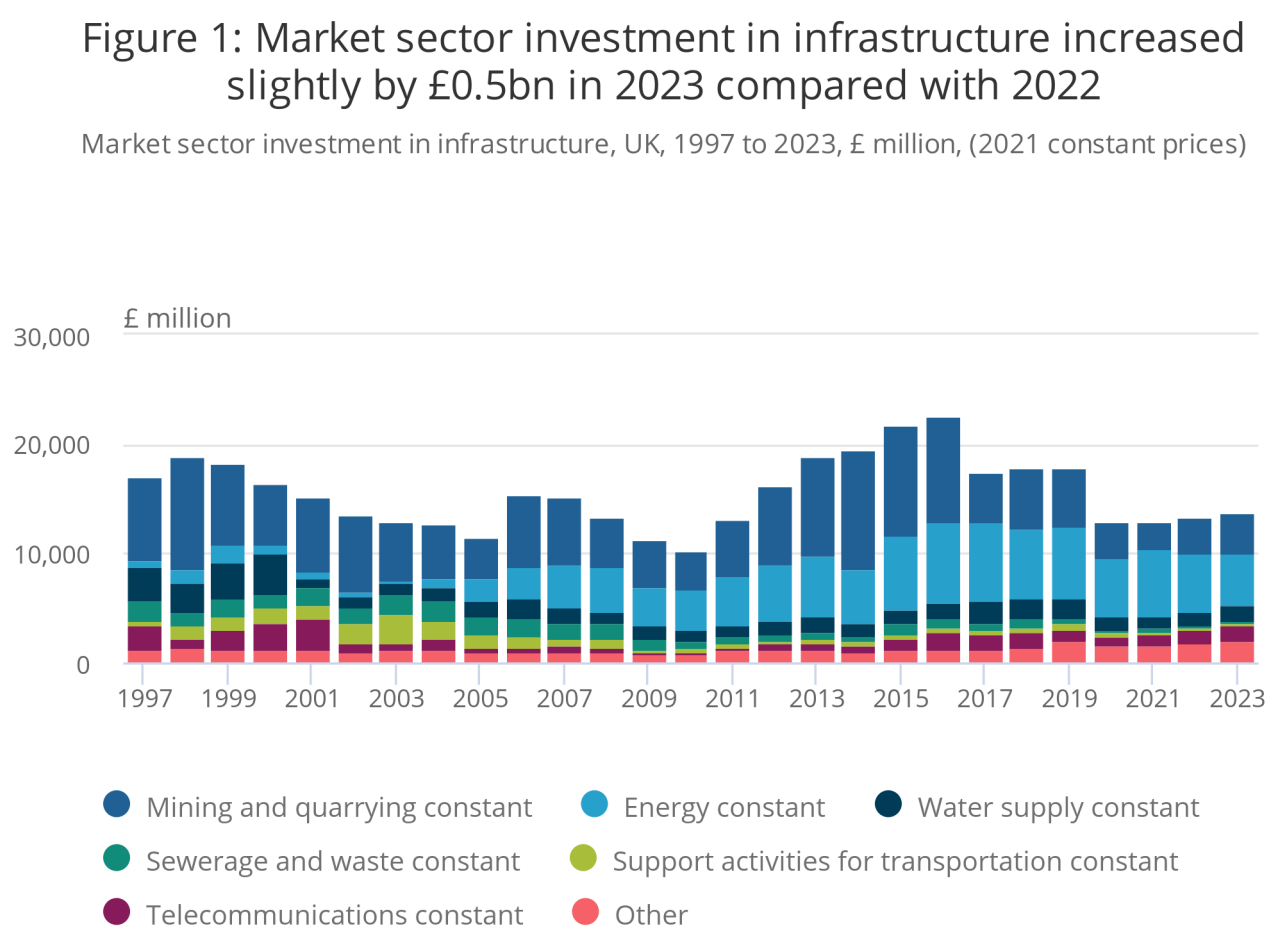
Industry groups with lower investment in 2023, when compared with 2022, were energy (down by £0.7 billion, a 13.1% reduction), and sewerage and waste (down by £0.04 billion, a 19.6% reduction).

Investment in the energy industry (in 2021 prices) was £4.6 billion in 2023, the lowest level since 2011 (£4.4 billion). Conversely, investment in "other" industries, which includes agriculture, manufacturing, and arts, entertainment, and recreation, reached £2.1 billion, exceeding the previous record investment of £2.0 billion seen in 2019.

Market sector investment in 2022 was £13.3 billion, a 2.7% increase compared with 2021, and an increase of £0.3 billion in 2021 constant prices. This increase represents the net effect of five industry groups increasing and two industry groups decreasing their investment. There was a notable increase in investment in mining and quarrying, (up by £0.7 billion, a 26.0% increase), and a notable decrease in investment in energy, (down by £0.7 billion, a 12.0% decrease).

Figure 1: Market sector investment in infrastructure increased slightly by £0.5bn in 2023 compared with 2022

Market sector investment in infrastructure, UK, 1997 to 2023, £ million, (2021 constant prices)



Source: Office for National Statistics

Notes:

1. Energy (division 35, UK Standard Industrial Classification); mining and quarrying (divisions 05 to 09); water supply (division 36); sewerage and waste (divisions 37 to 39); warehousing and support activities for transportation (division 52); telecommunications (division 61); Other (remaining divisions).

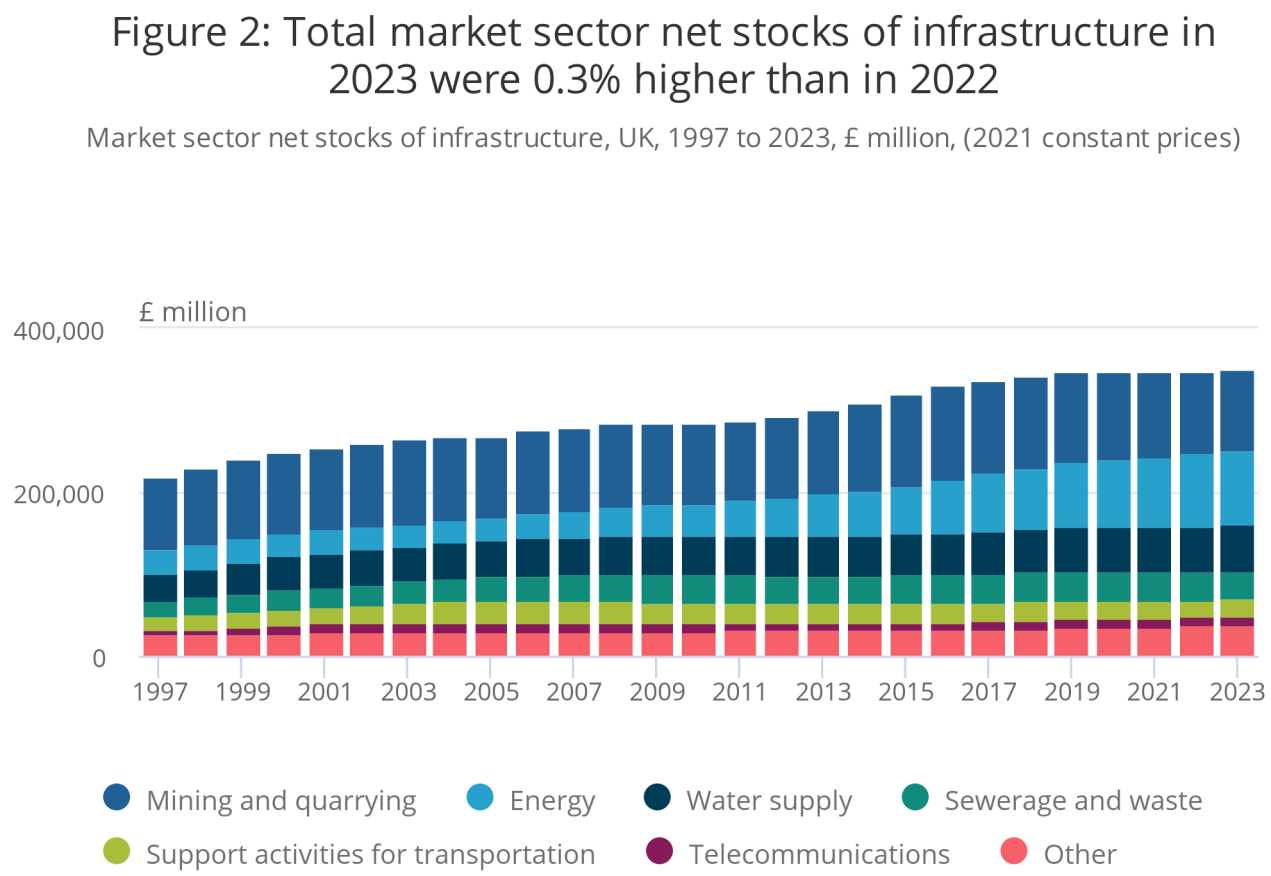
2. Data are presented in 2021 constant prices.

Net stocks

The 2023 total net stock of market sector infrastructure was £350.2 billion, 0.3% higher than in 2022 (in 2021 constant prices). The net stocks of infrastructure in the market sector in 2023 have increased for four of the seven industry groups, with rises in energy, water supply, telecommunications, and “other” industries

Figure 2: Total market sector net stocks of infrastructure in 2023 were 0.3% higher than in 2022

Market sector net stocks of infrastructure, UK, 1997 to 2023, £ million, (2021 constant prices)



Source: Office for National Statistics

Notes:

1. Energy (division 35, UK Standard Industrial Classification); mining and quarrying (divisions 05 to 09); water supply (division 36); sewerage and waste (divisions 37 to 39); warehousing and support activities for transportation (division 52); telecommunications (division 61); other (remaining divisions).

2. Data are presented in 2021 constant prices.

The mining and quarrying sector had the largest stock of infrastructure, despite decreasing by 2.2% to £98.7 billion in 2023. This was closely followed by stocks in energy and water, which were £91.1 billion and £55.4 billion, respectively (in 2021 prices).

In 2021 prices, the growth rate in net stocks of sewerage and waste infrastructure was positive from 1998 to 2018 but with a declining trend. The growth rate was negative from 2019 to 2023. The support activities for transport sector declined by 2.2% in 2023 and has had a negative growth rate since 2009. Net stocks of mining and quarrying infrastructure also saw a decrease of 2.2% in 2023.

Market sector infrastructure net stocks in 2022 were £349.0 billion, a 0.2% increase compared with 2021, and an increase of £0.7 billion in 2021 constant prices. This increase represents the net effect of four industry groups experiencing increases in the value of their net stocks and three industry groups experiencing decreases. There was a notable increase in the net stocks in energy, (up by £3.0 billion, a 3.4% increase), and a notable decrease in net stocks in the mining and quarrying industry (down by £2.9 billion, a 2.8% decrease).

3 . Government investment in infrastructure

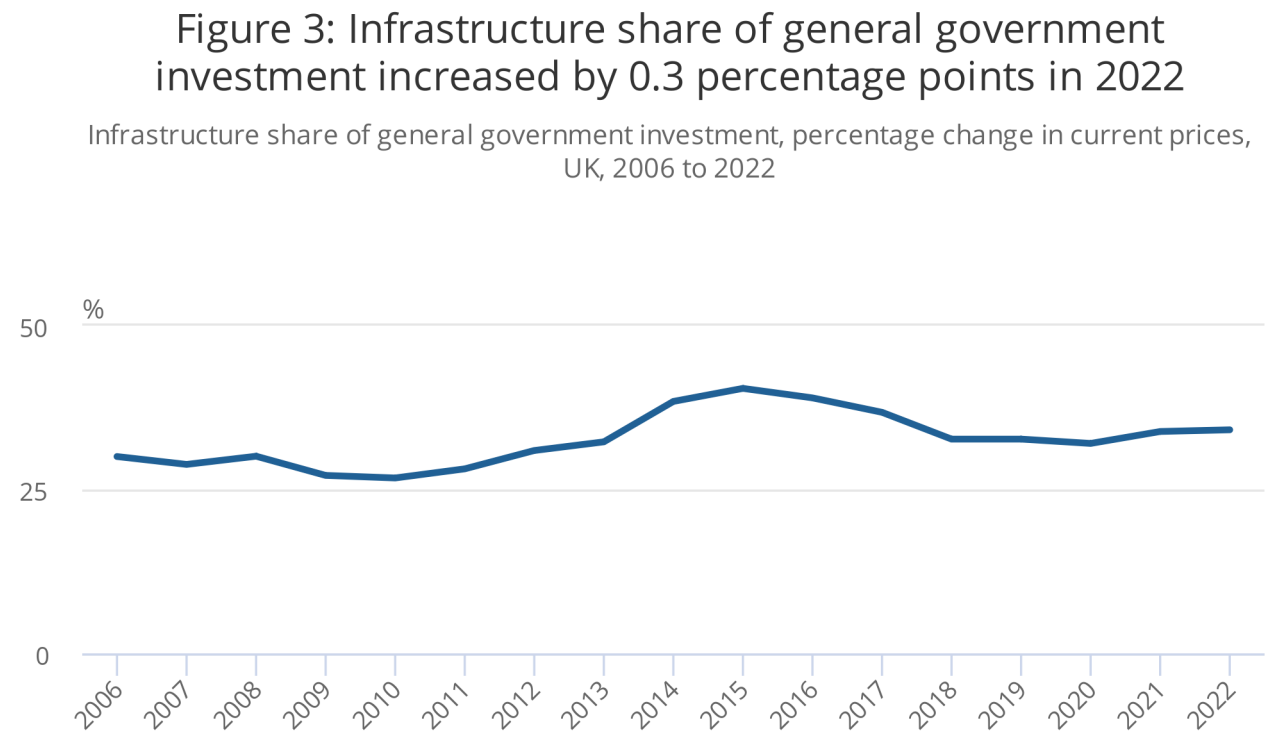
In this section we discuss infrastructure investment by the general government (GG), made up of totals for local government (LG) and central government (CG), from 2006 to 2022, for the UK, in current prices. Users should be aware that given the timetable for publication of the GG annual expenditure: ESA Table 11 dataset, 2023 data are not available in this section.

Total investment by GG in infrastructure grew 9.6% in 2022 compared with 2021. In 2022, total GG spending on infrastructure was £26.0 billion, with £19.3 billion of spending coming from CG, and the remaining £6.7 billion spent by LG. Much of this spending (£22.5 billion) was on transport, including roads, airports, harbours, and railways. In 2022, 74.2% of total investment by GG in infrastructure came from CG, representing a 1.1 percentage point increase from the 2021 share of total investment by CG in infrastructure.

By measuring infrastructure spending as a share of total government investment, users can understand the importance of public investment in economic infrastructure. More information and definitions of key terms on this topic are available in Section 6: Glossary.

Figure 3: Infrastructure share of general government investment increased by 0.3 percentage points in 2022

Infrastructure share of general government investment, percentage change in current prices, UK, 2006 to 2022

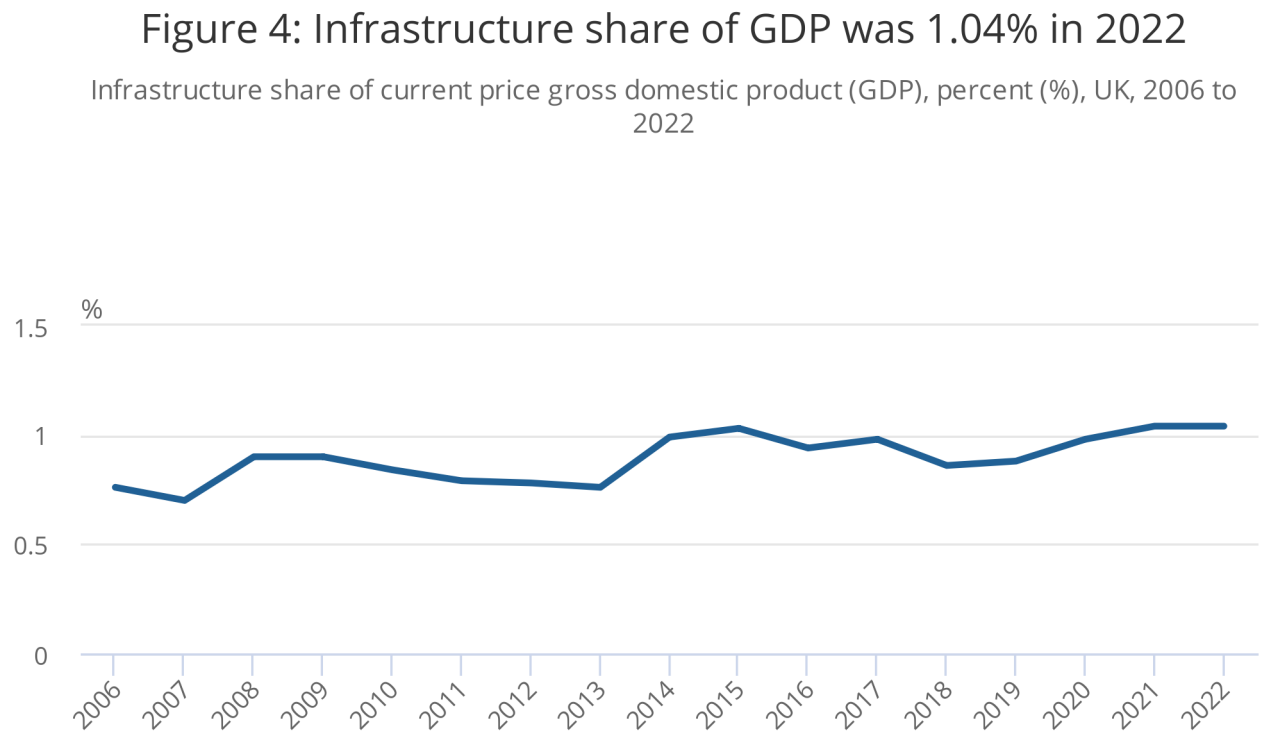


Source: Office for National Statistics

As seen in Figure 3, infrastructure investment as a share of GG investment grew to 34.1% in 2022 from 33.9% in 2021, recovering from a slight decline between 2018 and 2020, where investment peaked at 32.7%. However, this figure is lower than the share of investment in infrastructure in the post-financial crisis period between 2012 and 2017, where it averaged 36.3% each year. On the other hand, as shown in Figure 4, government infrastructure investment as a share of nominal gross domestic product (GDP) is currently 1.04%. Along with 2021, this is the highest level since 2006, when records began, with investment in 2015 showing a share of nominal GDP of 1.03%.

Figure 4: Infrastructure share of GDP was 1.04% in 2022

Infrastructure share of current price gross domestic product (GDP), percent (%), UK, 2006 to 2022



Source: Office for National Statistics

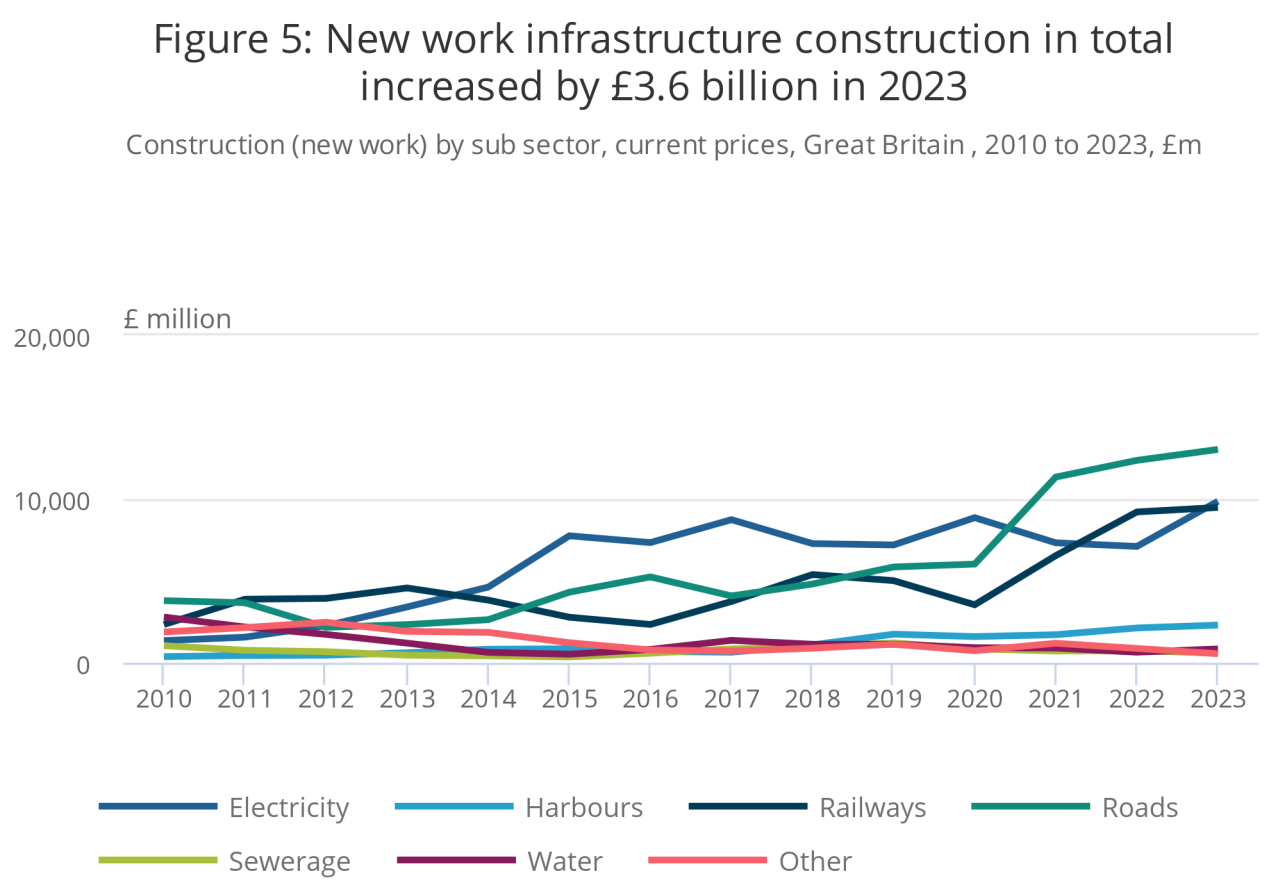
Notes:

1. Nominal GDP is gross domestic product at market prices: current price, seasonally adjusted, £ million (YBHA).

4 . Infrastructure construction

Figure 5: New work infrastructure construction in total increased by £3.6 billion in 2023

Construction (new work) by sub sector, current prices, Great Britain , 2010 to 2023, £m



Source: Office for National Statistics

Notes:

1. “Other” includes Gas, Communications and Air Transport.

2. Data are for Great Britain.

This article includes two additional years (2022 and 2023) of national and regional construction data, when compared with our May 2023 edition of this article, following the publication of our Construction output in Great Britain: February 2024 bulletin. Data for Northern Ireland are not available from this source.

These current price construction data support understanding of infrastructure investment by assessing the supply of new infrastructure, compared with our expenditure-based estimates presented elsewhere. In this section, we report the value of new infrastructure construction work and the value of repair and maintenance work to existing infrastructure assets over the period 2010 to 2023. Users should be aware that the data collected in the survey on repair and maintenance covers major and minor repairs. For this reason, only a small amount of these data will meet the threshold for being treated as investment; the rest will be treated as intermediate consumption.

In 2023, new work infrastructure construction had a total value of £36.6 billion, a 10.8% increase compared with 2022 (in current prices). Much of this increase was a result of construction in electricity and roads. Combined, construction work in these categories made up 62.5% of all new work and saw spending increases of 38.9% and 5.4%, respectively, in 2023. The water, railways, and harbours categories also saw higher expenditure on new work in 2023 than in 2022, increasing by 31.3%, 3.0%, and 8.2%, respectively. However, these categories were a smaller percentage of total infrastructure (2.3%, 25.9%, and 6.3%, respectively).

There was greatly reduced construction activity in sewerage infrastructure and "other" infrastructure (which includes gas, communications and air transport infrastructure) in 2023 compared with 2022. Construction activity for these categories decreased by 22.8% and 36.7%, respectively. However, they only make up 3.1% of total new work combined.

In 2022, new work infrastructure construction had a total value of £33.0 billion, an 11.2% increase compared with 2021 (in current prices). Much of this increase was because of construction in railways and roads, which saw respective spending increases of 40.8% and 9.0% in 2022.

The public sector accounted for 58% of all new infrastructure construction in 2023, the same as the public sector percentage in 2022, and up from 54% in 2021.

Regional breakdown

In this section we provide a regional breakdown of new work infrastructure construction in Great Britain from 2010 to 2023, based on our modelled estimates. All data are in current prices and drawn from our Output in the construction industry: sub-national and sub-sector dataset, published in May 2024. Data for Northern Ireland are not available from this source.

The largest spend on new work infrastructure construction was in London, in 2023 (£7.9 billion). The South East was the region with the second-largest spend, with a total of £3.8 billion. Wales, the South East and the East Midlands, saw the highest percentage increases in 2023, with annual percentage growth of 182.1%, 35.3% and 27.2%, respectively. Scotland, London, the West Midlands, and the North East were the only regions where infrastructure new work was less in 2023 than in 2022.

In 2023, the highest level of repair and maintenance construction was in the South East, at £2.5 billion, followed by the East, at £2.1 billion, in current prices.

In 2022, the greatest spend on new work infrastructure construction was in London at £8.8 billion. Scotland, the second largest spend region, had a total spend of £3.6 billion. Wales, the North East, and the East, saw the highest percentage increases in 2022, with annual percentage growth of 142.7%, 63.2% and 43.0%, respectively. The North West, East Midlands, West Midlands and Scotland were the only regions where infrastructure new work was less in 2022 than in 2021.

5 . Infrastructure data

Output in the construction industry
Dataset | Released 12 April 2024
Monthly construction output for Great Britain at current price and chained volume measures, seasonally adjusted by public and private sector. Quality measures, including response rates.

Output in the construction industry: sub-national and sub-sector
Dataset | Released 15 February 2024
Quarterly non-seasonally adjusted type of work and regional data at current prices, Great Britain.

Central government annual expenditure: ESA Table 11
Dataset | Released 21 March 2024
Annual UK government expenditure for central government only, broken down by function using the classification of functions of government.

Local government annual expenditure: ESA Table 11
Dataset | Released 23 April 2024
Annual UK government expenditure for local government only, broken down by function using the classification of functions of government.

General government annual expenditure: ESA Table 11
Dataset | Released 23 April 2024
Annual UK government expenditure for general government only, broken down by function using the classification of functions of government.

Preliminary capital stocks and fixed capital consumption
Dataset | 13 June 2024
Annual estimates of gross and net capital stocks and consumption of fixed capital in the UK, in current prices and chained volume measures.

Business investment by industry and asset
Dataset | Released on 28 June 2024
Detailed breakdown of business investment by industry and asset, in current prices and chained volume measures, non-seasonally adjusted and seasonally adjusted, UK, Quarter 1 (Jan to Mar) 1997 to Quarter 1 2024.

6 . Glossary

Infrastructure assets

Infrastructure assets are considered fixed capital assets, which have an economic life of at least one year. The asset stock is determined by the investments made in the current and previous periods.

Central and local government

Central government (CG) consists of all administrative departments of the state and other central agencies whose responsibilities cover the whole economic territory of a country, except for the administration of social security funds.

Local government (LG) consists of all types of public administration whose responsibility covers only a local part of the economic territory, apart from local agencies of social security funds.

General government

In paragraph 2.111 of the European System of Accounts (ESA) 2010 framework, the general government (GG) sector (S.13) is defined as consisting "of institutional units which are non-market producers whose output is intended for individual and collective consumption and are financed by compulsory payments made by units belonging to other sectors, and institutional units principally engaged in the redistribution of national income and wealth."

Net stocks

The net stock is the gross capital stock (defined as the value of all fixed assets still in use at a point in time), less the consumption of fixed capital accrued up to that point. Net stock considers the depreciation of assets over time because of physical deterioration, foreseeable obsolescence, or normal accidental damage.

Market sector

The market sector is defined as the whole economy, excluding all government and the non-profit institutions serving households (NPISH) sectors. It consists of seven industry divisions, in line with our 2018 Developing new statistics of infrastructure article.

These industry divisions are:

- energy (division 35, UK Standard Industrial Classification)
- mining and quarrying (divisions 05 to 09)
- water supply (division 36)
- sewerage and waste (divisions 37 to 39)
- warehousing and support activities for transportation (division 52)
- telecommunications (division 61)
- "other", representing the remaining divisions"

Infrastructure investment by the local, central, and general government

Government infrastructure investment is measured by using government expenditure broken down by function for the following functions of government:

- transport
- communication
- waste management
- waste water management
- water supply
- street lighting

7 . Data sources and quality

Data sources

- Investment (gross fixed capital formation) and capital stocks – definition by "asset (other structures) and industries".
- Government – definition by "Classification of the Functions of Government" (COFOG).
- Construction – definition by "type of work".

As of March 2019, sub-national and sub-sector construction output estimates are no longer badged as accredited official statistics.

Strengths

This article uses the same calculation methodology, functional definitions, and data categorisation as our previous articles in this series. This is in line with international developments on the measurement of infrastructure investment.

Leases have now been included in the central government investment time series and can explain the substantial changes we see in some categories. Similarly, data for local government infrastructure investment have been revised because of the availability of updated figures for Scotland and changes in the accounting of transport.

Investment (gross fixed capital formation) and capital stocks data used in this article, include source data updates and methodology improvements discussed in our Impact of Blue Book 2023 changes on gross domestic product article and introduced in our UK National Accounts, The Blue Book: 2023 compendium. Therefore, larger revisions are seen in recent years when compared with our Infrastructure in the UK, investment and net stocks: May 2023 bulletin.

Limitations

Measuring infrastructure comes with numerous challenges. The main issue is the lack of consensus on the definition of infrastructure. Neither the System of national accounts 2008 framework (PDF, 9,299KB) or the European system of accounts (ESA) 2010 framework contain a definition. Consequently, we focus on making use of the data available for what is considered core economic infrastructure: transport, energy, water and waste handling assets, telecommunications, mining and quarrying, and "other" (which includes all industries not in these categories). Housing and social infrastructure (such as education or health) is not included, although there may be scope to extend our definition in future editions.

Scarcity of available data is another challenge. Sourcing data for the private sector is especially difficult because of commercial sensitivity. An issue with government data is the lag between the latest data available and the current period. This prevents us from using data later than 2022 in this article.

The difficulty of identifying economic ownership of infrastructure assets prevents us from producing regional estimates. This is because the modelling used to determine economic ownership of the infrastructure asset (in the absence of available data at the level required) does not always yield realistic estimates.

A further challenge is identifying suitable price indices to produce the constant prices data time series for government investment and for infrastructure construction findings. This was a particular issue in recent publications, as the time series included years of market disruption because of the coronavirus (COVID-19) pandemic (particularly between 2020 and 2022). Constant prices for net stocks and investment are derived according to the methods outlined in our Chain-linking methods used within the UK National Accounts methodology.

A final limitation is the lack of mechanisms that monitor the performance of infrastructure (for better asset life estimates).

8 . Future developments

We intend to continue improving our conceptual approach, implementing technical improvements, and producing new case studies on relevant topics linked to infrastructure.

We also plan to produce international comparisons of infrastructure investment and net stocks, and we are actively contributing to the development of an internationally agreed definition of infrastructure.

On 31 July 2024, we will be publishing estimates of an expanded definition of digital infrastructure in the UK, to include selected intellectual property products and permits for the use of radio spectrum as a type of infrastructure asset. These will be official statistics in development. This expanded definition is in line with the Organisation for Economic Co-operation and Development's (OECD) Strategic Policies for Sustainable Infrastructure Horizontal Project (PDF, 44KB). The definition proposed in the OECD paper integrates the approaches taken by the four OECD members who currently produce statistics on infrastructure: the UK, the US, Canada, and the Netherlands.

There is currently a renewed focus on climate adaptive infrastructure. For example, infrastructure that minimizes harm done to the environment or is designed with the inevitable consequences of climate change or global warming in mind. Given the transformations ongoing in many of the infrastructure sectors with which we are concerned, there is an urgent need to develop methods to estimate investment in climate adaptive infrastructure.

9 . Related links

Infrastructure in the UK, investment and net stocks: May 2023
Article | Released 17 May 2023
Update of existing estimates of investment and net stocks of infrastructure in the UK economy.

Developing new statistics of infrastructure: August 2018
Article | Released 21 August 2018
The second in a series of articles on infrastructure statistics, updating measures of infrastructure investment and introducing measures of infrastructure stocks.

Developing new measures of infrastructure investment: July 2017
Article | Released 5 July 2017
The first in a series of articles on infrastructure statistics, focusing on definitional and data challenges in measuring infrastructure investment.

10 . Cite this article

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