

Long-term mean temperatures 1991-2020

Kevin Harris

0747 135 8194

energy.stats@beis.gov.uk

Key headlines

BEIS are planning to change the 30-year long-term mean period used to calculate temperature data comparisons from 1981-2010 to 1991-2020 with effect from the publication of the June 2022 edition of Energy Trends on 30 June 2022.

Background

Long-term mean averages are normally updated at the end of each decade, with thirty years selected as a period long enough to eliminate any year-to-year variations.

At present average mean air temperatures are calculated from the maximum and minimum daily temperature as recorded at 17 meteorological stations, selected as representative of fuel consumption in Great Britain, 2 in Scotland, 2 in Wales and 13 in England, 4 of which are double weighted. Data on temperatures recorded are provided by the Met Office. Temperature comparisons with previous months and the long-term mean are then published every month in the Energy Trends table 7.1 at: <https://www.gov.uk/government/statistics/energy-trends-section-7-weather>

Temperature data are then used in the compilation of Energy Trends tables 1.2, inland energy consumption: primary fuel input basis, seasonally adjusted and temperature corrected series, and table 1.3c seasonally adjusted and temperature corrected final energy consumption data by fuel and sector, at: <https://www.gov.uk/government/statistics/total-energy-section-1-energy-trends>

Impact

A summary of the average monthly and annual temperatures and the differences between the two 30-year periods are shown in Table 1. All months show an increase in average temperature, whilst annually there has been an increase of 0.37 degrees Celsius. This is higher than the increase noted between 1971-2000 and 1981-2010 (0.23 degrees Celsius). The BEIS numbers differ to those published on the Met Office website, due to the different number of weather stations and weightings used.

Table 1: Comparison of long-term mean temperatures

	Degrees Celsius												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
1981-2010	4.6	4.6	6.5	8.4	11.4	14.1	16.4	16.2	14.0	10.6	7.3	4.7	9.9
1991-2020	4.9	5.2	6.8	9.0	11.8	14.6	16.7	16.5	14.2	10.9	7.6	5.2	10.3
Difference	+0.3	+0.5	+0.3	+0.6	+0.4	+0.5	+0.2	+0.2	+0.3	+0.3	+0.3	+0.4	+0.4

Heating Degree Days

In BEIS's temperature and seasonal adjustment, the adjustments for temperature are based on heating degree days. These have also been re-estimated for the period 1991-2020. As we do not have detailed daily temperature data for each of the 17 stations for the full period, some estimation was required. A base temperature of 15.5 degrees Celsius is used when calculating the number of heating degree days in each calendar month; if the average daily temperature is below the base temperature, then that is considered a heating degree day.

The period 1991-2020 was warmer than the period 1981-2010 as previously mentioned. In the period 1981-2010, we estimated that on average there were 2,176 heating degree days. For the period 1991-2020 we estimate that there were on average 2,061 heating degree days, a fall of 5.3 per cent.

In general, the change in the base period is unlikely to have a significant effect on the messages being derived from the adjusted data, as the main inferences from the data are year on year changes as shown in Energy Trends table 1.2, where base data effects will cancel each other out. New regression factors will though be estimated, so some minor changes in growth rates published in June/July each year may occur.

Timing

BEIS plan to change Energy Trends tables 1.2, 1.3 and 7.1 on 30 June 2022 consistent with the new 30-year long-term mean period of 1991-2020. The annual DUKES weather tables 1.1.7 to 1.1.9, available at: <https://www.gov.uk/government/statistics/weather-digest-of-united-kingdom-energy-statistics-dukes>, will be similarly changed on publication of the 2022 edition of the Digest of United Kingdom Energy Statistics on 28 July 2022.



© Crown copyright 2022

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit nationalarchives.gov.uk/doc/open-government-licence/version/3 or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: psi@nationalarchives.gsi.gov.uk.

Where we have identified any third-party copyright information you will need to obtain permission from the copyright holders concerned.

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

If you need a version of this document in a more accessible format, please email energy.stats@beis.gov.uk

Please tell us what format you need. It will help us if you say what assistive technology you use.