

Long term mean temperatures 1981-2010

Introduction

DECC are planning on changing the 30 year long term mean period used to calculate temperature data comparisons be changed from 1971-2000 to 1981-2010 with effect from the publication of the June 2013 edition of Energy Trends on 27 June 2013.

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 Meteorological Office. Temperature comparisons with previous months and the long term mean are then published every month in the Energy Trends table 7.1 at: www.gov.uk/government/organisations/department-of-energy-climate-change/series/weather-statistics.

Temperature data are 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, available at: www.gov.uk/government/publications/total-energy-section-1-energy-trends. Articles in the June and September 2011 editions of Energy Trends provide more background to the methodology used in the compilation of these tables as well as the publication of heating degree day (HDD) data in Energy Trends table 7.1.

Impact

A summary of the average monthly and annual temperatures and the differences between the two 30 year periods is shown in Table 1. All months show a increase in average temperature, except December which shows a fall of 0.4 degrees Celsius, whilst annually there has been an increase of 0.23 degrees Celsius. This is similar to the increase noted between 1971-2000 and 1961-1990. The DECC numbers differ marginally than 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
1971-2000	4.3	4.5	6.2	7.9	11.0	13.7	16.2	16.0	13.6	10.3	7.0	5.1	9.7
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
Difference	+0.3	+0.1	+0.3	+0.5	+0.4	+0.4	+0.2	+0.2	+0.3	+0.3	+0.3	-0.4	+0.2

Heating Degree Days

In DECC's temperature and seasonal adjustment, the adjustments for temperature are based on heating degree days. These have also been re-estimated for the period 1981-2010. 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 was used, as detailed in an article in Energy Trends in June 2011, and the methodology note on energy balances available on the DECC website.

Special feature – Long term mean temperature

The period 1981-2010 was warmer than the period 1971-2000 as previously mentioned. In the period 1971-2000, we estimated that on average there were 2,244 heating degree days per year. For the period 1981-2010 we estimate that there were on average 2,176 heating degree days, a fall of 3.0 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 table 1.2 in this publication, where base data effects will cancel each other out. New regression factors will though be estimated, so some small changes in growth rates published in June/July may occur.

Timing

DECC plan to change all of the above tables in June 2013 consistent with the new 30 year long term mean period of 1981-2010. The annual DUKES temperature tables 1.1.7 to 1.1.9, available at:

www.gov.uk/government/organisations/department-of-energy-climate-change/series/weather-statistics, will be similarly changed on publication of the 2013 edition of the Digest of United Kingdom Energy Statistics on 25 July 2013.

User feedback

We welcome feedback from users, therefore if you have any comments or queries regarding the change in the long term mean temperature period, please contact Iain MacLeay or Kevin Harris using the contact details below.

Iain MacLeay

Energy Statistics

Tel: 0300 068 5048

E-mail: Iain.MacLeay@decc.gsi.gov.uk

Kevin Harris

Energy Statistics

Tel: 0300 068 5041

E-mail: Kevin.Harris@decc.gsi.gov.uk