

Energy plots explanation

Every year BP publishes a [statistical review of world energy](#) from the year before, based on government sources and published data. The complete dataset in Excel format from 1965 to 2020 can be downloaded [here](#).

The movies in [this site](#) were made using these data and the macOS program [DataGraph](#). Selected variables, e.g. Primary Energy Consumption and CO2 emissions, are plotted against each other, countries are coloured by region and scaled by population, and the time series is displayed as an animation. This is similar to the famous Hans Rosling's animated [bubble chart](#).

The regions by which the countries are coloured are as follows:

	Africa
	Asia Pacific
	CIS countries
	Europe
	Middle East
	North America
	South & Central America

Countries are also labeled by their codes (or geo-names) as in [this file](#) from Gapminder. For example, Norway's code is nor.

Units and conversion factors are important. Different energy sources (fossil, hydro, nuclear, renewable, etc.) are reported in Exajoules. 1 Exajoule is 10^{18} Joules and also ~278 Terawatt-hour. This is a very large energy unit. For more information about the conversion factors used by BP check this [link](#).

Axes scales are also important. In all movies, the axes are logarithmic, and the x and y axes may not encompass the same range. For example, when comparing oil to renewables consumption, the x axis for oil goes from 0.01 to 100 EJ, while the y axis for renewables goes from 0.01 to 10 EJ. So, please pay attention to the axes and be careful when reading values.

Finally, renewables in the BP dataset include wind, solar, geothermal, biomass and other non itemised renewable sources. Hydropower is not included as a renewable.

Feel free to use these movies in teaching and research. If you include them in a presentation, just reference them as: "Made by Nestor Cardozo using DataGraph, with data from the BP Statistical Review of World Energy".

Enjoy!

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