



Statistics Explained

Wind Energy Statistics Explained

Projects	The number of operational wind energy projects.
Turbines	The number of operational wind turbines.
Onshore Capacity (MW)	The total installed capacity of onshore wind farms.
Offshore Capacity (MW)	The total installed capacity of all offshore wind farms.
Energy Produced (MWh/p.a.)	Calculated by multiplying the installed capacity in MW by the number of hours in a year (8760) and then multiplying this by BEIS's long-term average load factor for (onshore + offshore) wind (31.14%) expressed as a fraction of 1 (e.g. 0.3114). Source for capacity factors is Digest of United Kingdom Energy Statistics (DUKES) published annually by BEIS.

Homes Powered Equivalent (p.a.) Calculated using the most recent statistics from the Department of Business, Energy and Industrial Strategy (BEIS) showing that annual UK [average domestic household consumption](#) is 3,618kWh (as of December 2019, updated annually).

RenewableUK calculates UK homes powered as: number of megawatts installed, multiplied by BEIS's "all wind" (onshore + offshore) load factor expressed as a fraction of 1, multiplied by number of hours in a year, divided by average annual domestic electricity consumption expressed in MWh.

As an example, using statistics available in August 2020:

$24,064.320\text{MW installed capacity} \times 0.3114 \text{ "all wind" load factor} \times 8,760 \text{ hours} / 3.618\text{MWh annual consumption} = 18,143,778 \text{ homes powered equivalent}$

CO2 Reductions (p.a.) in Tonnes RenewableUK uses BEIS's "all fossil fuels" emissions statistic of 446 tonnes of carbon dioxide per GWh of electricity supplied in the [Digest of UK Energy Statistics](#) (July 2020) p95 Table 5E ("Estimated carbon dioxide emissions per GWh of electricity supplied 2017 to 2019"). Carbon reduction is calculated by multiplying the total amount of electricity generated by wind per year by the number of tonnes of carbon which fossil fuels would have produced to generate the same amount of electricity.
E.G. UKWED stated (as of 04.08.20) "Energy produced (MWh p.a.): 64,927,461" - therefore $64,927.461\text{GWh} \times 446 \text{ tonnes} = 28,957,647 \text{ tonnes of carbon emissions saved.}$

Load Factors The load factor is the actual output of a turbine benchmarked against its theoretical maximum output in a year. The load factor is calculated by

RenewableUK as a rolling average of the past five years using data (on an *Unchanged Configuration Basis*) from the Digest of UK Energy Statistics published by the Department of Business, Energy and Industrial Strategy. Using stats 2015-2019 (released in July 2020):

- onshore wind: 26.62%
- offshore wind: 38.86%
- BEIS "all wind": (onshore + offshore): 31.14%

- NB BEIS also states that the load factor for new build offshore wind (2023/24/25) is 58.4% - see see [Contracts for Difference Scheme for Renewable Electricity Generation Allocation Round 3: Allocation Framework, 2019](#) (Appendix 3).

i

ⁱ © RenewableUK

This document copied directly from RenewableUK website at <https://www.renewableuk.com/page/UKWEExplained>.