



World & Europe Onshore Wind Power Portfolio

Interannual variation of wind power production

A 15-year overview (2008-2023)



Worldwide energy indexes for asset management

Operating wind farms across the world are submitted to a large diversity of wind regimes, with a significant variability from one year to another within each region. In order to get a global overview of **the evolution of the wind resource on a global scale, portfolio indexes were set up**, based on the onshore wind power capacity operating worldwide and across Europe as of 2023.

PORTFOLIO ENERGY INDEX

The portfolio energy index reflects the evolution of the production expected from the variation of the wind resource for the global portfolio of wind farms operating across the world and a focus over Europe. This portfolio index results from a weighting average of the 300 predefined regions available for irec index covering the onshore power capacity installed as of 2023 (source www.thewindpower.net).

The portfolio index set up for the world covers over 400GW of operating wind farms (i.e. >50% of the total installed power and >80% of the total installed number of wind farms), whereas **the portfolio index set up for Europe covers 185 GW of operating wind farms** (i.e. >88% of the total installed power and >97% of the total installed number of wind farms).

ABOUT IREC INDEX

irec index is a wind energy index which quantifies the production expected on a given period compared to the long-term average within each region. This monthly indicator offers asset managers and wind farm owners **essential insights in an easy-to-use format to check the actual production capacity of their portfolio**, month after month or over elapsed periods.

irec indexes are used for the monitoring of hundreds of wind farms worldwide, in order to **get a portfolio overview** and to complement the in-depth analysis of SCADA data by the operator.

Further information and free cumulated indexes on predefined regions are available on www.irecindex.com.

Founded in 2002, Eoltech is an independent consultancy firm whose core business covers a wide range of services linked to wind and solar resource assessment throughout a project's lifecycle. With more than 20 years of recognized expertise, Eoltech is now firmly established as one of France's leading players in this market. For more than 10 years, Eoltech has developed expertise in the design of the wind energy indexes.





Onshore Wind Power World Portfolio

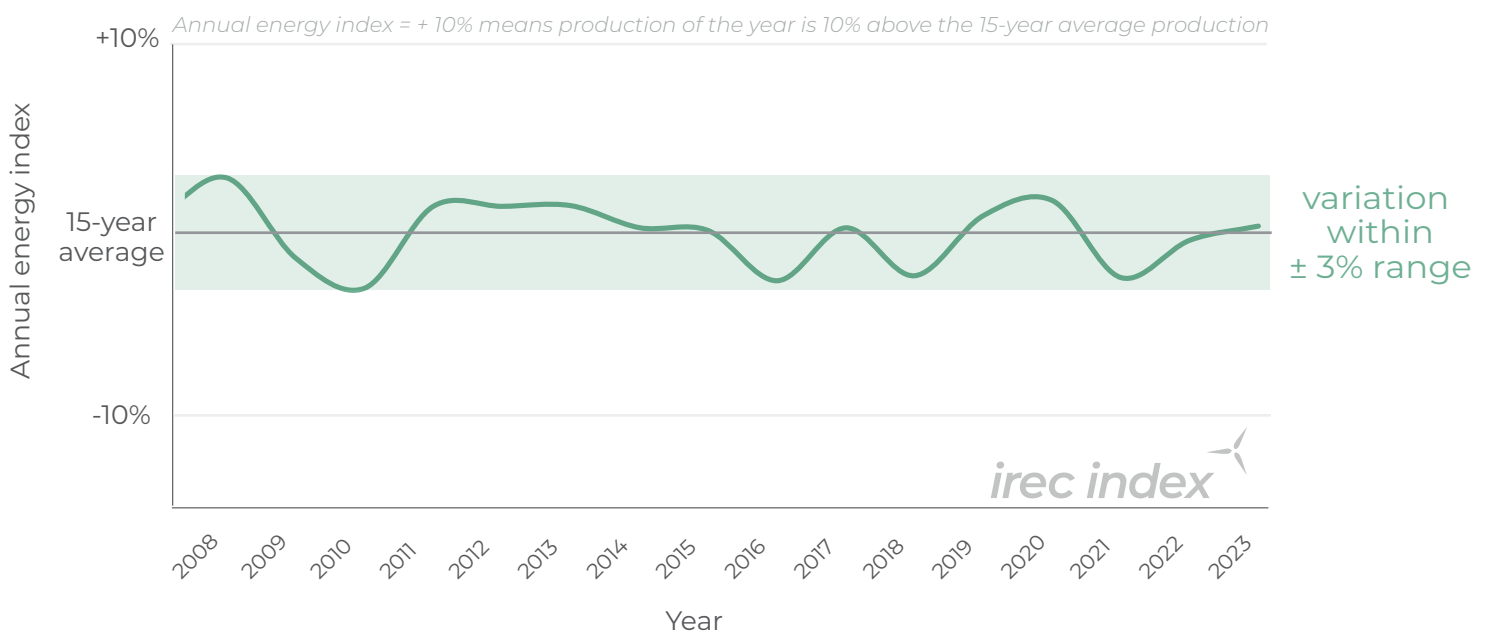


Number of predefined regions:	300 (over 40 countries)
Number of wind farms covered:	26 000+ (>80% of Worldwide onshore wind farms)
Total installed power covered:	400 GW+ (>50% of Worldwide onshore power)
Annual production variation of the portfolio:	< ±3 % (over the past 15 calendar years)

When considering the global onshore wind power portfolio across the world, **the annual wind energy index** (i.e., the annual production for the entire portfolio) **varies within a ±3 % range** over the past 15 calendar years. This observation illustrates that the wind resource is very stable from one year to another at a global scale whereas within a given area, the annual production can vary within a ±25 % range.

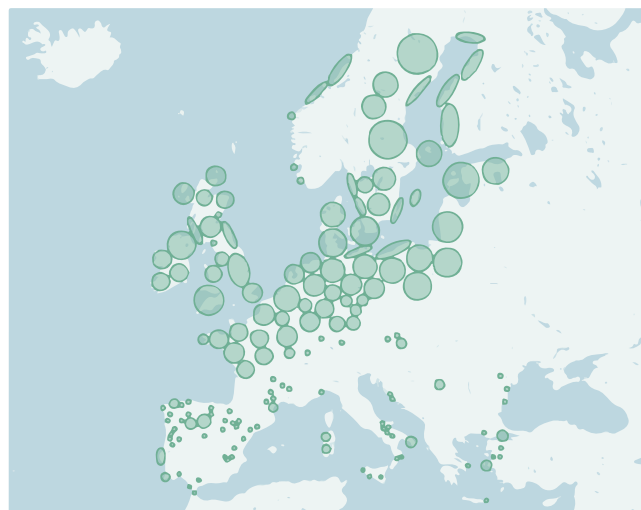
World Onshore Wind Power Portfolio

Evolution of annual wind energy indexes 2008-2023





Onshore Wind Power Europe Portfolio



Number of predefined regions:	163 (over 23 countries)
Number of wind farms covered:	22 000+ (>97% of European onshore wind farms)
Total installed power covered:	185 GW+ (>88% of European onshore power)
Annual production variation of the portfolio:	< ±7 % (over the past 15 calendar years)

When considering the global onshore wind power portfolio across Europe, **the annual wind energy index** (i.e., the annual production of the entire portfolio) **varies within a ±7 % range** over the past 15 calendar years. This observation illustrates that the wind resource is quite stable from one year to another on a global scale whereas within a given area, the annual production can vary within a ±25 % range.

Europe Onshore Wind Power Portfolio

Evolution of annual wind energy resource 2008-2023

