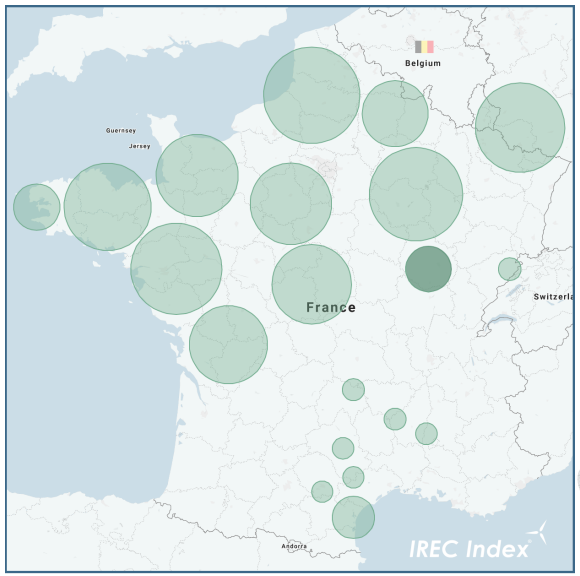


Monthly database – 10 years

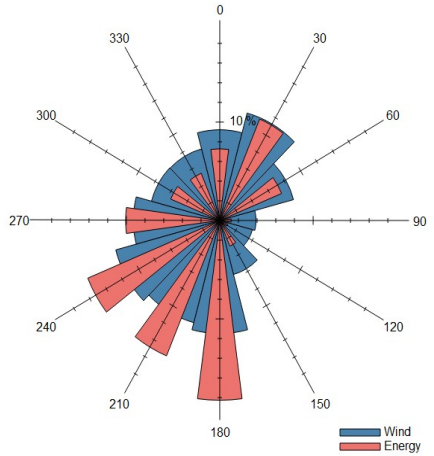
Long term reference period: 01/2011-12/2020

Region:	Côte d'Or
ID:	FR12
Country:	France
Issued in:	May 2021
Issued for:	Company
Contact:	client@company.com

Monthly energy indexes

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2011-2020
Jan.	11.2 %	12.5 %	7.2 %	12.5 %	11.2 %	11.6 %	8.5 %	16.7 %	10.2 %	11.6 %	**11.3 %**
Feb.	3.6 %	10.4 %	10.1 %	15.0 %	11.7 %	14.8 %	9.6 %	9.3 %	8.6 %	18.6 %	**11.2 %**
Mar.	8.9 %	8.8 %	7.2 %	6.5 %	10.3 %	13.4 %	10.1 %	10.6 %	16.9 %	13.2 %	**10.6 %**
Apr.	6.0 %	12.8 %	8.8 %	5.4 %	8.2 %	6.1 %	7.3 %	9.1 %	7.7 %	5.9 %	**7.7 %**
May	4.6 %	7.1 %	6.5 %	11.7 %	8.7 %	8.5 %	6.0 %	5.9 %	10.2 %	9.4 %	**7.9 %**
June	6.2 %	5.2 %	6.3 %	7.9 %	5.1 %	4.0 %	5.9 %	6.1 %	5.5 %	4.9 %	**5.7 %**
July	5.6 %	5.8 %	5.9 %	5.9 %	6.0 %	3.1 %	4.9 %	3.4 %	5.4 %	4.4 %	**5.0 %**
Aug.	4.3 %	4.7 %	3.6 %	3.9 %	5.1 %	2.7 %	2.8 %	4.8 %	3.1 %	3.9 %	**3.9 %**
Sep.	4.6 %	8.0 %	5.6 %	4.9 %	10.1 %	4.2 %	5.6 %	5.5 %	8.1 %	6.1 %	**6.3 %**
Oct.	5.9 %	10.4 %	11.4 %	5.9 %	5.2 %	7.2 %	6.4 %	9.4 %	10.3 %	13.3 %	**8.5 %**
Nov.	5.6 %	9.5 %	15.6 %	6.1 %	9.1 %	10.8 %	9.6 %	8.6 %	11.1 %	7.5 %	**9.4 %**
Dec.	17.7 %	17.7 %	12.0 %	9.3 %	7.6 %	3.7 %	13.9 %	12.7 %	17.3 %	13.6 %	**12.6 %**
Year	**84.0 %**	**113.0 %**	**100.5 %**	**95.0 %**	**98.5 %**	**90.0 %**	**90.5 %**	**102.0 %**	**114.5 %**	**112.0 %**	**100.0 %**

Long-term wind and energy roses



Before using IREC Index, did you make sure of the following?

- ✓ **Is your wind farm inside the predefined region?**
  Use the dedicated tool on IREC Index website to make sure and ask for a customized index if not.
- ✓ **Are your production data adjusted to 100% availability (Ideal production)?**
  Wind energy indexes reflect the wind resource that can be harnessed by a wind farm with no availability issues. That is why the production output should be corrected from production losses encountered by the wind farm before being compared to indexes. All causes of downtimes, except for lack of wind should be taken into account. Curtailment losses should also be accounted for.
- ✓ **Is your target reflecting the actual production capacity of your wind farm?**
  An operational P50 established post-construction should be considered as the target. A budget based on the pre-construction P50 (theoretical assessment) might not be representative of the actual production capacity of the wind farm.

How to interpret monthly indexes?

- ✓ **Monthly index current year** = Production expected for this month / Production expected on an average year
  Reflects the actual energy intake for the given month
- ✓ **Monthly index LT average** = Production expected on average for this month / Production expected on an average year
  Reflects the average energy intake for this month over the long term (average contribution)
- ✓ **Ratio** = Monthly index current year / Monthly index LT average
  A ratio of 110% for January 2021 means that the production expected for January 2021 should be 10% above the LT average production expected for the month of January (i.e., this January more energetic than the average of the months of January).

Why correlating IREC Index with production data?

Within a region considered homogeneous in terms of wind regime, the amplitude of variation of production can differ from one farm to another due to its specific characteristics (turbine type, exposure level…). Correlating the regional index with actual production data will allow to adjust the regional index on the actual amplitude of variation of a given wind farm inside the region.

What if the index does not correlate well with my production data?

Make sure that the actual production data compared to the indexes, are corrected from availability and curtailment losses. Indeed, the wind energy index reflects the resource that can be harnessed by the wind farm without downtimes or curtailment issues. Thus, the wind energy index should be compared to the actual production of the farm adjusted to 100% availability.

Once ruled out this cause, note that even if your farm is well inside the predefined area, all modelled data as ERA5 are subject to uncertainties, especially in complex areas and/or in areas with a very local wind regime. Such uncertainty on modelled data can lead to lower correlation levels in a few cases.

Considerations on the long-term reference period

Indexes are provided using a fixed long term reference period (2011-2020) in order to ensure the continuity of the database from one year to another. An adjustment of the values to consider another reference period can be done as follows:

$$Index\ January\ 2021_{new\ ref\ period} = Index\ January\ 2021_{ref2011\text{-}2020} \times Ratio\ (Energy\ Index\ 2011\text{-}2020 / Energy\ Index\ new\ ref\ period)$$

Learn more about how to make the best use of indexes by attending Windex training sessions.
More information about Windex at: https://www.eoltech.fr/en/trainings