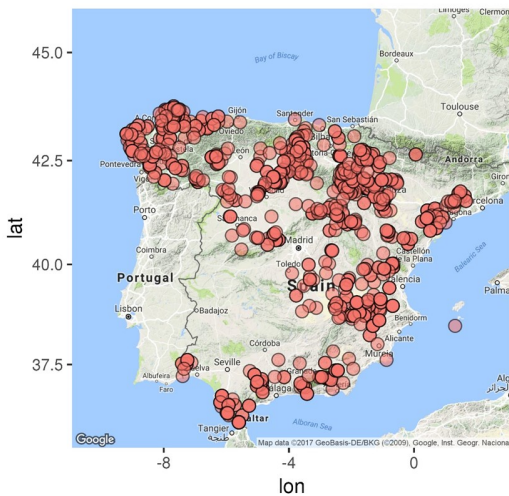




National and Regional Wind Power Indexes

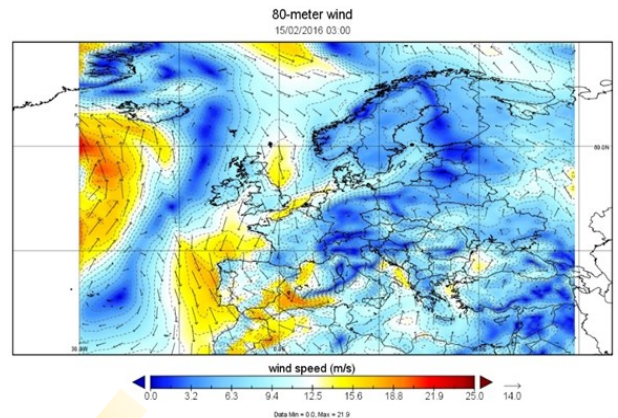
Speedwell is a leading supplier of high quality historical and real-time weather data and forecasts around the globe as well as supplying a large catalogue of reanalysis and gridded data products. We are the major provider of Settlement Data for index-based weather risk contracts through Speedwell Settlement Services.

Speedwell’s proprietary wind Indexes denominated in daily MWh replicate national wind production and provide homogenous historical data based upon a defined installed capacity allowing for risk-transfer. Daily forecasts are also available. This approach assists an energy company with managing their weather risk exposures, by providing historical series to analyse and price with. On-going data is also provided to settle weather risk contracts together with a an in-period forecast to monitor any open contract.



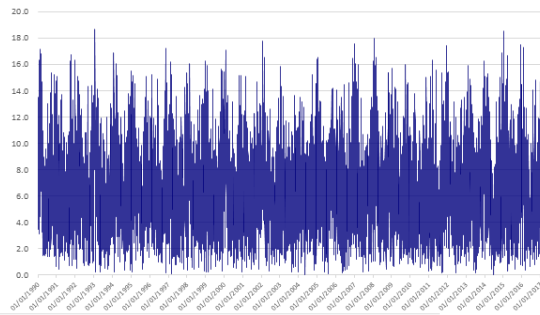
Left—Distribution of wind farms over Spain (2017)

Right—High - resolution (5km) hub height wind speed grids are generated from the MERRA 2 (historical Index series) and the GFS Hi-res Operational forecast models (real-time and forward curves)

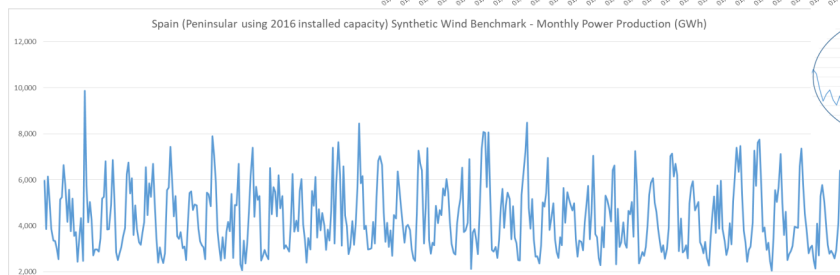
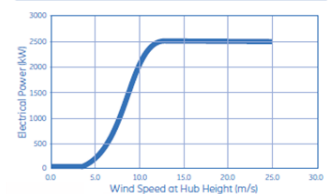


Hub height daily mean wind speed (ms-1)

Hub height wind speed data is fed in to each wind turbine’s power curve to calculate the daily power production



2.5-103 Power Curve



Homogenous historical series using “frozen” (2016 in this example) installed wind farm capacity. Forecasts using the same installed capacity and current power curves

Indexes currently available:

- Spain (Peninsular Region)
- UK all installed wind farms (2017 capacity)
- Italy Wind Power (“017 installed capacity)
- Germany Offshore (High voltage)
- US Regional: Texas. Wind Power Production Indexes are available for the following ERCOT regions : West, Panhandle, South, North and Coastal

Indexes coming soon:

- Germany all installed wind farms (2017 capacity)
- US regional—Texas
- Australia regional power networks
- Client specific—we are able to produce “Synthetic Wind Farm Benchmarks using the same methodology as national indexes on

About Speedwell Wind Power Indexes

Spain Peninsular National Wind Benchmark

- The Spain Wind Production Index 2017 is designed to closely fit the actual production Index as published by Spain's REE
- The Index calculates the total daily power production from the installed wind turbines as of December 2016 on mainland Spain that are connected to the national grid
- The Index will be replaced by a new series based upon the installed capacity frozen as of December 2017 during 2018
- Subsets for each Index can be built using client defined wind farm assets (installed capacity and turbine metadata)
- See more wind power Indexes on weatherXchange®

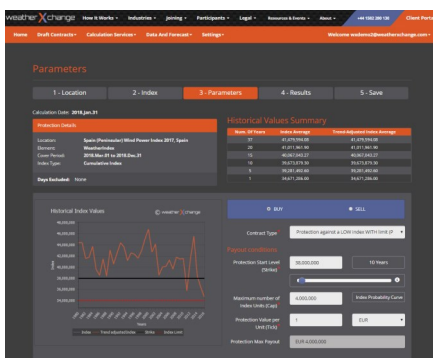
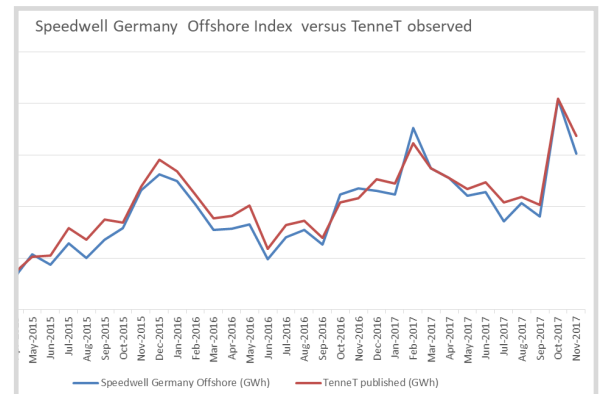


UK Wind Benchmark

- The UK Wind Production Index 2018 combines the turbines on the Balancing Mechanism (BM), those that are part of the Embedded (EM) scheme and also those that are part of the Feed in Tariff (FiT).
- The index is based on installed capacity frozen as of June 2017
- Component indexes for the three parts ie BM, EM and FiT are separately available
- Excludes Northern Ireland

Germany—Offshore

- The Germany Offshore Wind Production Index 2018 is designed to closely fit the actual production Index as published by TenneT
- The Index calculates the total daily power production from the installed wind turbines as of November 2017 for those offshore turbines that are connected to the National Grid (high voltage)



weatherXchange®

Speedwell Proprietary Wind Indexes are listed on the weatherXchange® Platform. The weatherXchange Platform helps companies access index-based weather risk protection. weatherXchange provides hedgers with free on-line structuring tools and access to weather data for no charge. At a click of a button it is possible to send pricing requests to multiple protection sellers.

Country wind indexes are available for Spain, Germany and the United Kingdom.

Listed Indices

Listed indices are a small subset of the supported indices on weatherXchange and are simply a shortcut for the most commonly used indices. If you cannot find your index here please simply use the [Wizard](#) or the [Historical Calculator](#) to create your index. If you would like a particular index to be listed here, please [contact us](#).

| Station | Wind Power 2018-01 | Wind Power 2018-03 | Wind Power 2018-04 | Wind Power 2018-05 | Wind Power 2018-06 | Wind Power 2018-07 | Wind Power 2018-08 | Wind Power 2018-09 | Wind Power 2018-10 | Wind Power 2018-11 | Wind Power 2018-12 |
|---|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Germany Wind Power Index (Offshore) 2018 | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] |
| Spain (Peninsular) Wind Power Index 2017 | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] |
| UK (Excl. NI.) Wind Power Index (BM) 2018 | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] | [Icon] |



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