

Tradable Wind Indices

Speedwell Weather Group

weatherXchange

Speedwell Weather
Data Services



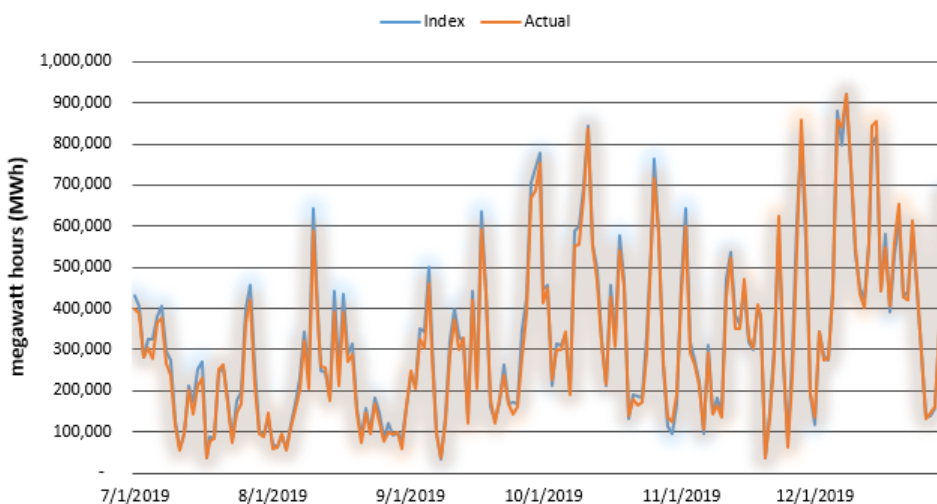
Speedwell Settlement Services

Speedwell Wind Power Production Indices (ERA5)

Speedwell offers a range of proprietary national and regional wind production indices. These benchmark regulated indices (EU Benchmark Regulation) are specifically designed to support weather risk transfer. In particular, the indices are designed to be used by conventional generators who wish to protect themselves against more wind energy than normal being delivered to the grid.

Each Wind Power Production Index represents an estimate of hourly / daily energy production (MWh) for a given national or regional area. For consistency as a hedging product, each index is frozen using a defined installed capacity at a specific date in order to maintain homogeneous time series data, both for risk pricing as well as for settlement.

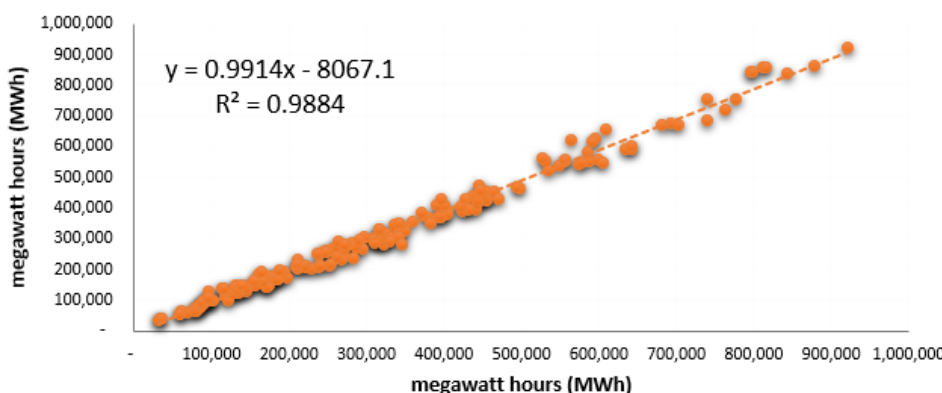
**German Wind Power Production
Speedwell Index vs Actual**



Available Indices

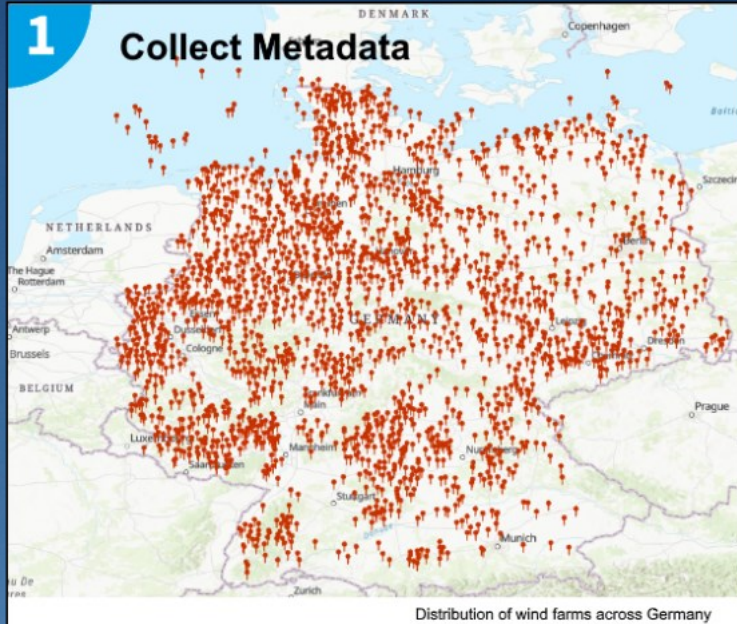
Australia
Belgium
Denmark
France
Germany
Ireland
Italy
Netherlands
Norway
Spain
Sweden
Turkey
United Kingdom
United States (ERCOT)

**German Wind Power Production
Speedwell Index vs Actual**



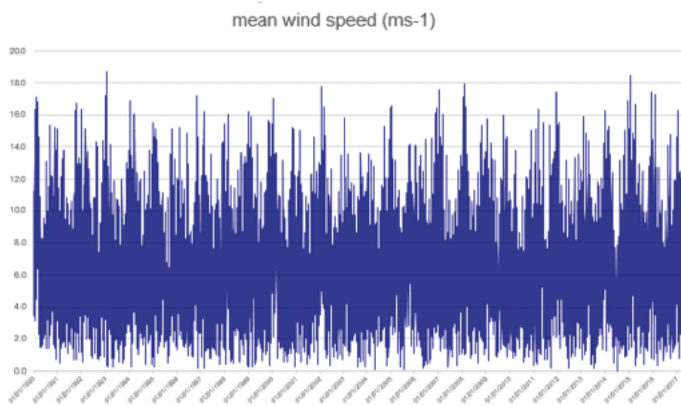
Creating Speedwell Wind Power Production Indices

1 Collect Metadata



The location and characteristic of wind farms in the region of interest are determined and validated. Required details include accurate location, number of turbines, rating, hub height, power curves, percentage ownership (where appropriate) and which grid the turbine is connected to.

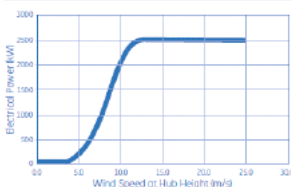
2 Wind Speed Calculation



Starting with the native $0.250^\circ \times 0.250^\circ$ resolution of the ERA5 data, wind speed time series are computed for each turbine location using bicubic horizontal interpolation.

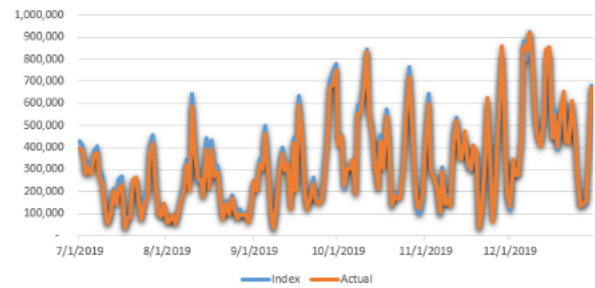
3 Apply Power Curves

2.5-103 Power Curve



Representative power curves are used for each wind turbine to derive theoretical hourly energy output. The resultant energy outputs are then aggregated for the required wind farm, region, or asset collection.

4 Validate Results



Each index is analyzed and compared against actual generation data. An optimization process run by a statistician (and possibly involving machine learning techniques) maps the theoretical energy output to observed official data. Scaling factors are introduced to the index to improve index accuracy.

5 Speedwell Settlement Services

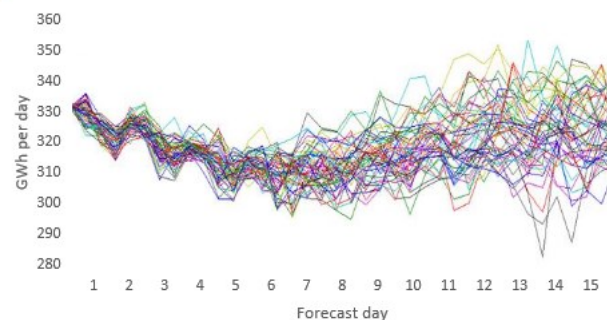
Initial Settlement (available soon)

Produced using ECMWF forecast data as processed by Speedwell. Initial data is designed to provide a high-quality estimate of what the ERA5 observations will be. Initial Settlement is available daily.

Final Settlement

ERA5 data is published with a seven-day lag. Rapid data processing and index calculation allows for settlement publication in as little as eight days.

6 Index Forecasts



Index forecasts are available for a 15-day period. Forecasts are based upon the ECMWF operational and ensemble prediction model, all model runs.

Additional Information

Custom Wind Power Production Indices

Using the same technology as our tradable national and regional wind indices, users can build custom indices to meet hedging needs. Indices are designed to model theoretical energy production for a given turbine, farm, or portfolio.

Product Highlights

- Production assets can be operational or in the planning stages
- Designed to support parametric weather risk transfer
 - Historical data (analysis and pricing)
 - Settlement Data (documentation and data)
 - Market access via weatherXchange
- Indices represent hourly / daily energy production

weatherXchange

Speedwell Wind Power Production Indices are listed on the weatherXchange® Platform.

weatherXchange links Hedgers, Broker-Advisors and Protection Sellers thereby helping businesses with weather risk to more easily access weather risk protection.

weatherXchange provides free access to thousands of worldwide quality weather data sets and a user-friendly tool to simplify the design of weather protection contracts. These can then be sent at a click of a button to multiple counterparties for pricing.

Speedwell Settlement Services

The leading provider of meteorological Settlement Data for index-based weather risk contracts worldwide.

Meteorological Settlement Data is the data used to settle an index-based weather transaction and is provided by the Settlement Data Provider as listed in the transaction term sheet. This data is unique in that it has been quality controlled by an independent third party to confirm the accuracy of the observations. The use of this data guards against problems due to missing observations, delayed reports, and moral hazard.

Speedwell Settlement Services Ltd is registered as a benchmark administrator under the EU benchmark regulation (Regulation (EU) 2016/1011)

For additional information

Speedwell Weather

Europe: +44 (0) 1582 465 551

USA: +1 (843) 737-4843

info@speedwellweather.com

Wind Power Generation Index Request

Location Details

Enter the latitude and longitude or select a location on the map

Latitude:

Longitude:

Show on Map

Map Satellite

Turbine Details

Turbine Count:

Turbine Diameter (m):

Hub Height (m):

Turbine Cut In Wind Speed (m.s⁻¹):

Turbine Cut Out Wind Speed (m.s⁻¹):

Air Density (kg/m³):

Data Source: ☒ ERAS ☐ MERRIAZ

Power Curve

Steady Speed (m/s)	Steady Power (kW)
Please enter data here	

Clear Add Row

Additional Details

Client Ref:

Message:

Attachments:

