

## WIRE

### Weather Intelligence for Renewable Energies

Short-Term High Resolution Wind and Solar Energy  
Production Forecasts

### COST Action ES1002



#### General goals of the Action:

Due to climate change and shrinking fossil resources, the transition to more and more renewable energy shares is unavoidable. But, as wind and solar energy is strongly dependent on highly variable weather processes, increased penetration rates will also lead to strong fluctuations in the electricity grid which need to be balanced. Proper and specific **forecasting** of 'energy weather' is a key component for this.

The Action WIRE gathers members from 25 countries. Its aim is to scientifically address the requirements to provide the best possible specific weather information for forecasting the energy production of wind and solar power plants for the next minutes up to several days ahead. Towards such aims, the Action has two main lines of activity: first develop dedicated forecasting algorithms coupled with weather prediction models and measurement data especially remote sensing observations; second investigate the difficult relationship between the highly intermittent weather dependent power production and the energy distribution towards end users.

[www.wire1002.ch](http://www.wire1002.ch)

## BENCHMARKING EXERCISE ON SHORT-TERM FORECASTING MODELS FOR RENEWABLE GENERATION

### ANNOUNCEMENT

#### General Scope:

In the frame of the COST Action WIRE, a benchmarking exercise is organised with the scope of evaluating the performance of state-of-the-art models on the problem of short-term forecasting:

- the power output of a wind farm,
- the power output of a photovoltaic power (PV) plant.

The aim of this exercise is to bring together and evaluate the merits of forecasts based on different modelling approaches and input data. The exercise is expected to contribute to a better knowledge of the state of the art, in assessing the evolution of forecast performances with respect to benchmarking exercises that took place in the past, and finally, in identifying challenges in the field and areas for improving accuracy in the future.

#### The Benchmarking Exercise:

The proposed exercise considers the test cases of 2 wind farms and 2 PV plants in Europe (in Denmark and Italy). The available historical data sets include measurements of power output and meteorological variables from the installations as well as numerical weather predictions for the considered sites.

The data sets cover a period of 1.5-2 years depending on the case. The participants will have access to the data sets to train their prediction models. Part of the data will be retained by the organisers for evaluation of the submitted forecasts (the whole period covered by the data is divided in to a training period (1 year) and a test period (0.5-1 year). During the training period all the data will be available while during the test period the measured power data will be masked for the first 14 days of each month).

The participants are free to use any modelling approach as well as their own additional data and namely numerical weather forecasts (either generated by own models or by alternative weather services other than the ones provided by default here). The aim is to produce point forecasts for the next day with a hourly time step. Probabilistic forecasts should aim at providing the whole distribution at each time step with an increment of 10%.

The submission of the entries will include the forecast values of the power output, as well as a short description of the modelling approach and the additional inputs used.

The evaluation and analysis of results will be confidential. The evaluation will be based on the standardised protocol defined in the Anemos EU project. The communication of the results will be based on anonymous entries.

#### Participation & Important Dates:

The exercise is open and not limited to organisations involved in WIRE.

- For participation please submit the attached application by email until the 15<sup>th</sup> March 2013 to [wire\\_benchmark@mines-paristech.fr](mailto:wire_benchmark@mines-paristech.fr).
- Acknowledgment and access to the data (after signature of specific confidentiality agreement): 25<sup>th</sup> March 2013.
- Submission of forecast results and description of approach used by participants: 15<sup>th</sup> June 2013.

Following submission of the entries, the benchmarking organising committee will evaluate the results and announce the results in a dedicated workshop in Autumn 2013. Questions can be addressed at [wire\\_benchmark@mines-paristech.fr](mailto:wire_benchmark@mines-paristech.fr).

Additional information as well as answers to frequently asked questions will be made available at the web site of the action [www.wire1002.ch](http://www.wire1002.ch)

#### Organising Committee:

G. Kariniotakis (MINES ParisTech), P. Pinson (DTU), S. Alessandrini and D. Ronzio (RSE)