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WIRE: Weather Intelligence for Renewable Energies a COST Action

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Due to climate change and shrinking fossil resources we are under the transition to more and more renewable energy, RE, penetration. 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 needs to be balanced. Proper and specific forecasting of 'energy weather' is a key component for this. Therefore, it is timely 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.
The goals of the COST Action ES1002 WIRE www.wire1002.ch are 1) to contribute enhancing methodologies for forecasting wind and solar power production from minutes up to several days ahead combining NWP models with real-time surface and remote sensing measurements, 2) to promote the use of meteorological information to optimize the technical and economic integration of renewable energies in the electrical grids and 3) to establish an understanding between the scientific community and end users; this raises new challenges as it will require, from the energy producers and distributors, definitions of the requested forecast data and new technologies dedicated to the management of power plants and electricity grid communities.
Main Activities:
- Preparation of the Current State report on research and development related to measurement, modeling and forecasting technologies for renewable energy integration (available on Action website and under publication in spring 2013).
- Intercomparisons of solar instruments suitable for use in solar energy applications and traceable to World Radiometric Reference WRR (Launched in July 2012 and currently under analysis)
- Preparation of a benchmark exercise for evaluating forecasting models against given power plant power production, (Launched in April 2013)
- Preparation of position papers on "Dynamic Line Rating" for the efficient integration of RE in electrical grids.