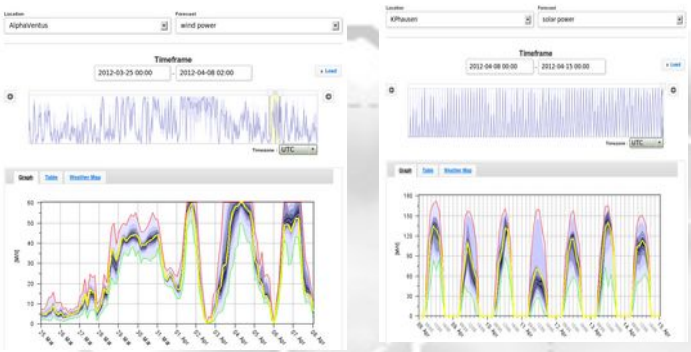
WEPROG's ELFI (Planning- and Decision-Tool)

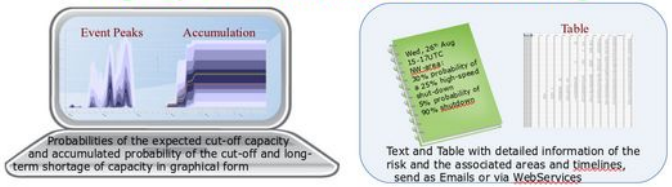
WEPROG's graphics Interface ELFI (ELectrical Forecast Interface) can be used as trading decision support tool by displaying performance forecasts on single plants and portfolios. It also provides an overview for local and large scale weather events including physical uncertainty forecasts.



Ensemble Ensemble forecasts offer a better forecasts offer a better understanding of existing uncertainties and thereby provide advanced possibilities for trading purposes and data handling.

(Picture: Wind- and solar forecasts computed into performance data)

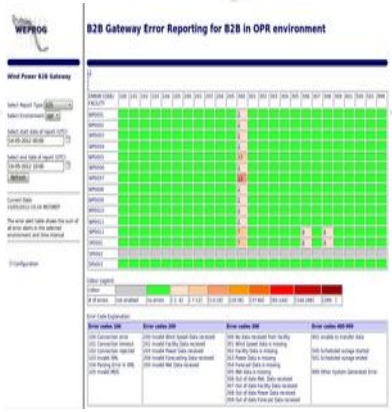
WEPROG's **HSSD (High-speed Shutdown Tool)**



WEPROG's HSSD tool generates high-spped shutdown risk forecasts with probabilities of occurrence for individual wind farms as well as large portfolios, control areas or countries. Warning indices are transmitted together with graphs, tables and weather reports.

WEPROG's **B2B (Plant-Monitoring-Tool)**

Without a data quality control system small errors can evolve into fatal errors. WEPROG evaluates with ensemble forecasts of power production and links them to error codes. Error codes can be located and analysed easily with the B2B Interface. A helpful add-on is a fully automated communication with the service division responsible for operation&maintenance of many power plant..



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Weather & Energy PROGnoses

WEPROG

inclusive physic. uncertainty from ensembles

Define uncertainties, improve planning

Product Information and Services

WEPROG
Weather & Energy PROGnoses

WEPROG - Weather and Energy PROGnoses - was established in early 2003 in Germany with the aim of developing a real-time ensemble prediction system for the electricity market and those companies that deal with weather sensitive goods or services.

The basic concept was the development of a unique operational short-range ensemble prediction system based on a multi-scheme ensemble prediction approach which provides information about a crucial parameter: physical uncertainty of the weather development.

Since 2006 daily weather forecasts (00/06/12/18) are generated in different horizontal solutions as so called regional models, which are running worldwide with a prediction horizon of up to 7 days.

This real-time data can today be used for many different operational applications on every continent.

In 2010 the implementation of a specifically developed Ensemble Kalman Filter approach was brought into operation to enable the data assimilation for short-term forecasts with measurement influence from many different sources.

WEPROG is now also in a position to transfer 75 weather forecasts directly into plant performance predictions.

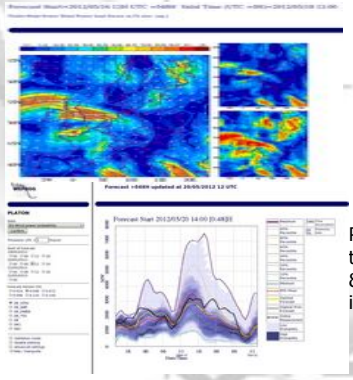
WEPROG's Services

1. Generation of own physical ensemble weather forecasts (75) for short and medium term areas up to 7 days worldwide
2. Supply for Wind/Solar performance predictions including physical uncertainty/probability at first hand
3. Possibility for improvements with individual adaptation to customer specifications, tuning algorithms for the energy market
4. Graphical interface directly integrable for weather-, production forecasts and probability distributions.
5. High security B2B Interface for plant monitoring, necessary for operation and maintenance of single plants as well as for portfolios of renewable energies
6. Flexible Portfolio Management System suitable for customers with growing numbers of facilities, changing locations e.g. in direct marketing
7. Decision support for optimized energy trading for wind- and solar plant/portfolios with exploitation of ensemble forecasts to reduce uncertainty
8. Delivery of long-term weather data for studies, research and resource assessment with time-series from WEPROG's historical Database
9. 24/7 Service with high level back-up redundancy and support with up to date communication methods
10. Support for applications using WEPROG's ensemble forecasting data based on operational experience of worldwide forecasting systems

Business Area:

	Service*
Forecast Service provision in Energy Area	
Energy Trading	1-9
Wind/Solar Power Trading	2,4,5,9
Wind/Solar Power Plant monitoring	2,4,5,9
Transmission System Operation	1-9
Operation & Maintenance for Wind	1-9
Distribution System Operation	1-9
Gas Distribution Planning	1,2,4,9
CHP Operation and Planing	1,2,4,9
Data quality system and management	1,4,8,9
Site construction	1,4,8,9
Ensemble Data delivery	
Basic Research	1
Energy Research	1,2
Development of smart grid applications	1,4
Ocean forecast models	1,9
Wave forecasting models	1,8,9
Storm surge forecasting models	1,8,9
Flood forecasting models	1,8,9
Offshore Engineering	1,4,8,9
Offshore platform risk management	1,4,8,9
Water management	1,8,9
Road condition prediction models	1,9
Forecasting Air Pollution forecasting	1,9
Icedrift forecasting models	1,9
Meterorological forecast service provision	
Local Weather forecasting services	1,4,8,9
Insurance risk- and damage analysis	1,4,8
Agricultural Planning services	1,4
Investment Risk Analysis	8
Ourdoor Event Planing	1,4
Adventure forecasting	1,4,9
Route planning for shipping industry	1,9

*Numbering according to left page



PLATON graphics Interface with Ensemble weather forecasts in horizontal plots as mean value (big picture) and min, max for all weather relevant parameters.

Picture.: Wind speed with colour layout and mean sea level pressure spreading with Isobars)

PLATON also provides on-demand time-series of production forecasts & uncertainty information for individual plant as well as areas

Picture: wind power time series with uncertainties)