



WindPRO 2.7 - selection of new features

Loss & Uncertainty - NEW module !

- 1 Load park result – clear handling of new vs. existing WTGs
 - 2 Time variation – necessary for some advanced calculations
 - 3 Model results – new result evaluation feature
 - 4 Input philosophy: Simple input or advanced calculator
 - 5 BIAS – correction for “known issues”, e.g. RIX
 - 6 LOSS – with advanced tools with link to e.g. Shadow calculation, for example
 - 7 Uncertainty – with more advanced calculation tools
 - 8 Variability - part of the uncertainty evaluation
- RESULT from module, ready to take to the BANK:**
- 9 Expected NET AEP at different Probability of exceedance levels, P50, P75, P90 etc.

Improvements to existing modules:

BASIS

- 10 Calculation window shows time, duration of calculations and software version
- 11 Auto save + recovery file
- 12 Save as 2.7, 2.6, 2.5 ..
- 13 History log
- 14 Activation/deactivation improvements

Maps & Objects:

- 15 Merge tool for .bmi files
- 16 Save map window view as a new .bmi background map
- 17 Zoom with a scroll-enabled mouse
- 18 Coordinate selection structure revised
- 19 Distance circle around all objects in a particular layer
- 20 Results as labels in object list/on map
- 21 Improved Google Earth export
- 22 Import of Google .kmz file
- 23 More import/export features
- 24 Improved WTG filler in WTG area object
- 25 User-defined legend setup for quick profile
- 26 Several speed improvements handling large data amounts – like e.g. WTG-areas with many exclusive zones, handling of many objects etc.

On-Line data:

- 27 General improvement: Much faster response time - adding new or improved data:
- 28 Wind: NARR (US only) – new long term wind data as NCAR, but more detailed (1° resolution)
- 29 Wind: QSCAT (wind data for Offshore based on satellite microwave scatterometer measurements)
- 30 Wind: METAR (wind data from Airports world wide)
- 31 WTGs: Danish WTGs with positions, actual AEP, WTG type etc. (more to come in future?)
- 32 Elevation data north of LAT 60° north latitude (and south of 60° south as well?)
- 33 Roughness data import with improved classifications and map legends



ENERGY Basis improvements

- 34 Displacement height for WTGs
- 35 Wind/Energy rose on map (Site data and Resource map)
- 36 Distances to map borders auto-checked in site data object
- 37 Utilization of multi-core processors/networked PC's in clusters for faster wind resource map calculation
- 38 Improved air density calculator, defaults from climate database
- 39 Air density adjustment of power curves improved
- 40 Negative power curve values handled flexibly
- 41 Access to WASP parameters from all calculations that require it
- 42 Roughness Areas used directly (no export to lines needed) – Note: EMD converter not fully compatible with WASP

PARK calculation

- 43 Improved user interface (simplified/ better structured)
- 44 Improved reports, better documentation
- 45 RIX calculation updated to most recent research work

Time variation calculation - NEW

- 46 Based on "raw" measurements (Meteo object) – transforming the data via WASP model to each WTG
- 47 Based on WTI (Wind Time variation) file – simply scaling wind speed variation to each WTG
- 48 Part of Meteo analyzer: WTI file generator

METEO object

- 49 Comments input in graphic view mode
- 50 General XY-plotting with graphic presentation – any signal vs. any other signal
- 51 Merger – simple way to remove tower shadow when two anemometers at one height, but also for more advanced purposes
- 52 Refresh On-Line data; downloads and add latest data in one process
- 53 Moving average option in time series graphic
- 54 Import from compressed file packages (.ZIP, .RAR...)
- 55 Export all data in flat text format, including filters

Meteo analyzer

- 56 WTI generator (for time varying calculation + loss)
- 57 RIX analyzer in cross predictor

MCP

- 58 Variability calculation for long term reference

OPTIMIZE

- 59 Improved filler, faster and more intelligent
- 60 Steepness with merged triangles in WTG area object
- 61 Noise constraint optimization



Photomontage/Animation

- 62 Panorama camera model
- 63 EXIF photo properties loaded automatically (focal length, date-time, Co-ordinates)
- 64 Horizon line as alternative to wire grid for model calibration
- 65 Auto erase (erase those turbine parts hidden behind hills)
- 66 Rendering on very large photos now possible
- 67 Improvement of Camera presentation on map (more clearly visible in report)
- 68 RAL color scheme for WTGs as alternative to present RGB
- 69 Aviation lights on WTGs
- 70 Animation: Screen resolution adjustment support

DECIBEL

- 71 Improved structure of calculation setup
- 72 Noise receptors separated by layers
- 73 Advanced noise map selection
- 74 Noise allowance map
- 75 Norwegian noise codes (L_{den} calculations now possible)

NORD2000 - upcoming detailed noise calculation model - to be released as Hotfix in early 2010

- 76 Point calculation
- 77 Direction/wind speed analysis calculation
- 78 Aggregated calculation

SHADOW

- 79 Improved structure of calculation setup
- 80 New distance default, include if >20% of sun covered by blade width (old: fixed 2000 m)
- 81 Shadow receptors separated by layers
- 82 Advanced shadow map selection
- 83 Real case based on sunshine statistics from new climate database
- 84 Real case optionally based on detailed time series data (experimental version)
- 85 Idle time can be included

WINDBANK

- 86 Free input of inflation on kWh price
- 87 DK MODEL: allow for three different depreciation modes

eGRID

- 88 Improved cross section calculation assistant