

Training Course



windPRO

Day 1

- Basis and best practice on windPRO project development
- Maps - height contours (including online import)
- The WTG Catalogue (WindCat)
- Layout design facilities
- Measuring the wind - fundamentals and best practice
- Importing and analyzing measured wind data

Day 1: BASIC and Analysing Wind Data

The purpose of the first course day is for beginners to obtain a basic understanding of windPRO and for the more experienced users to refresh their skills and get an overview of the latest improvements in windPRO.

The BASIS module is the platform on which all windPRO modules operate. No matter which modules of windPRO you are using or intend to use, you will need to get familiar with the BASIS facilities.

A presentation of wind data measuring and analysis will also be a part of this first day. Instruction in the handling of the METEO object and its numerous data screening facilities will be given.

Day 2

- The Wind Atlas method (WAsP)
- Wind speed profiles
- Long-term correction of site wind data: MCP techniques
- Full energy calculation using WAsP and estimating the wake losses
- Best practice using WAsP: knowing the limitations
- Introduction to WAsP-CFD

Day 2: Energy Calculations

On day two starts with the introduction of WAsP, which is currently the best-documented and most used calculation engine for wind energy calculations. We will prepare the background data to be used in the windPRO/WAsP calculation, like roughness, obstacles and a height model. This will allow us to touch upon the topic of vertical extrapolation by WAsP and/or measurements making use of the wind shear matrix.

MCP techniques allow transforming a local, short-term time series in a robust, long-term representative data set. We will go through several online reference datasets and different methods.

This will lead us to the final energy calculation with the PARK module which includes the calculation and theory of the losses due to the wake effect between turbines.

The pitfalls and limitations of WAsP will also be reviewed, and a brief exercise introducing WAsP-CFD will be done.

Day 3

- Introduction to LOSS & UNCERTAINTY: the way to a bankable report
- Wind resource maps and micrositing
- Noise Impact
- Shadow flickering impact
- Zones of Visual Influence (ZVI)
- Photomontages

Day 3: Energy Calculations and Environmental Impact Assessment

We will close the topic of energy assessment by looking at other important tools like wind resource maps and layout optimizations.

Any energy yield assessment ends up with the estimation of losses & uncertainties and the calculations of P75, P90.

The rest of the third day is aimed at getting familiar with the environmental calculations needed to provide the documentation required by the local authorities (for environmental permission). The program will alternate between theoretical explanations of the various environmental impacts (noise, flicker, visualizations) and practical exercises on how to calculate and document them with windPRO.

