



In order to attain robust wind flow modelling results that improve project energy generation certainty, it is important to combine the right technical tools with the right expertise and experience. Natural Power has high quality Computational Fluid Dynamics (CFD) models designed to produce optimal wind flow modeling results at affordable prices.

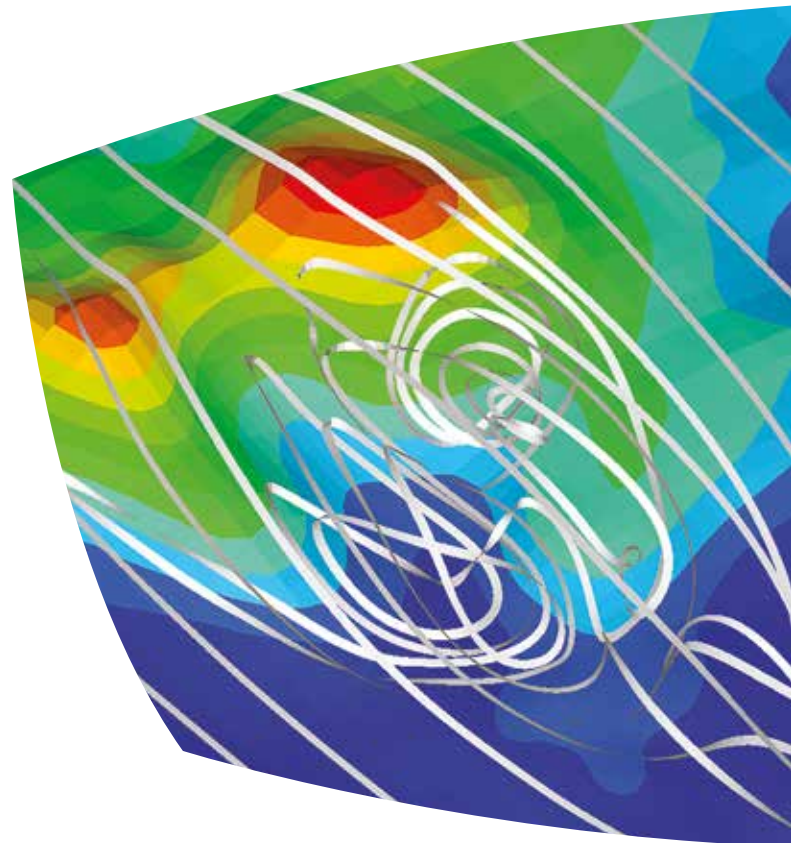
Our analysts use VENTOS*, scientifically-validated CFD codes, specifically designed to improve certainty of wind flow modeling. These outputs lead to improved certainty on energy yield predictions and feed into holistic operational performance analyses.

Main features

- Our cutting-edge coupled CFD model tackles thermally-driven flows and outputs time series of wind flow variables
- 2D maps of wind flow features for turbine optimisation
- Up to 40% more reliable results when compared with standard industry models in complex terrain
- Turbine suitability modelling

Our CFD services include:

- Site wind speed mapping and suitability assessments
- Resource assessment
- Wind farm layout design
- Turbine suitability verification
- Operational energy yields
- Investigation of impact of neighbouring wind farms on energy yield and turbine design life
- Energy reconciliation and budget re-forecasting
- Forensic operational asset analysis
- Operational optimisation



// our clients demand an accurate picture of the likely energy output of wind farms so they can make informed decisions. The more accurate that energy calculation is, the more easily wind power can be integrated into the overall energy mix //

Claude Abiven, Senior CFD Engineer



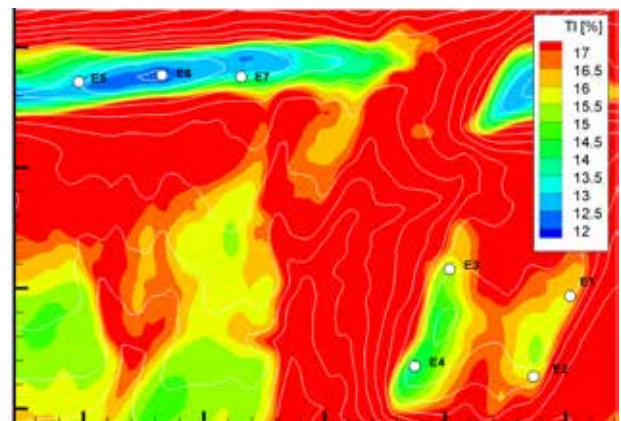
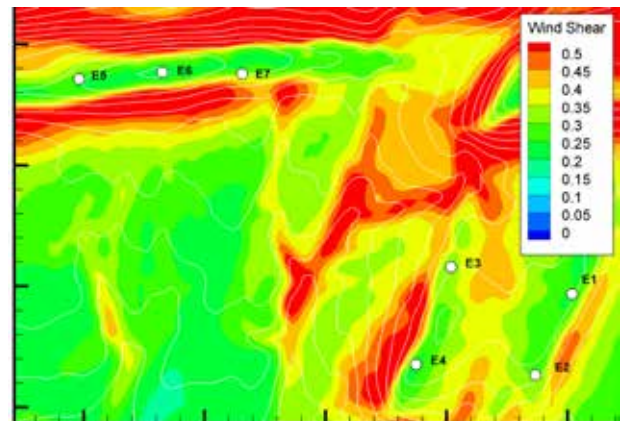
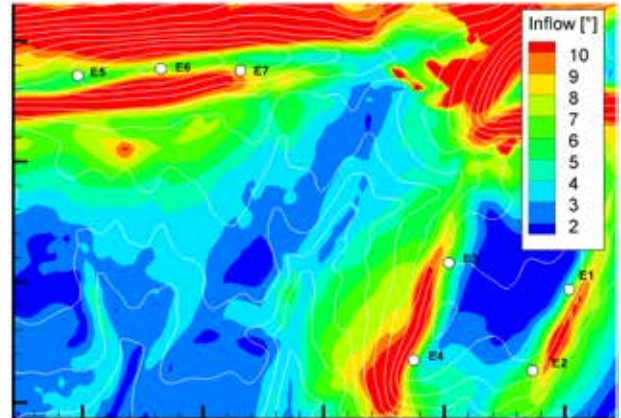
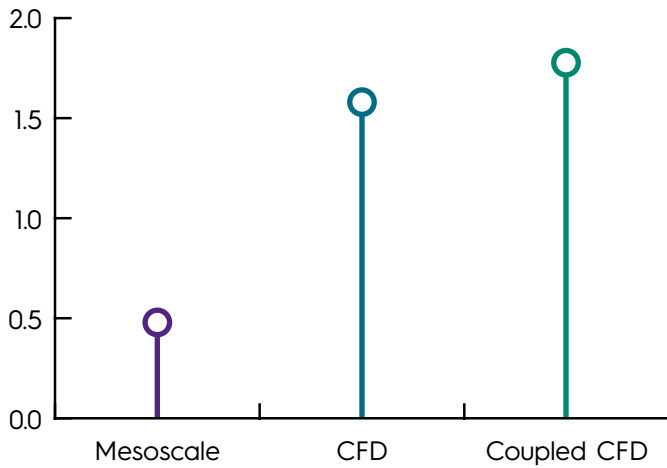


Practical added value

- Increased certainty of energy yield predictions at development stage allows informed decision making
- Enhanced calculation certainty improves project value
- Detailed wind flow understanding explaining reasons for turbine under-performance
- Our computer cluster allows us to run our most advanced wind flow models and deliver analysis in commercially advantageous time-frames

Turbulence and shear modelling ensure informed turbine choice and layout design during the development phase and efficient wind farm troubleshooting during operations

Added value over linear model (M US\$)



Sample turbulence, inflow angle and wind shear maps



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