Software
TRL 3

SINTEF

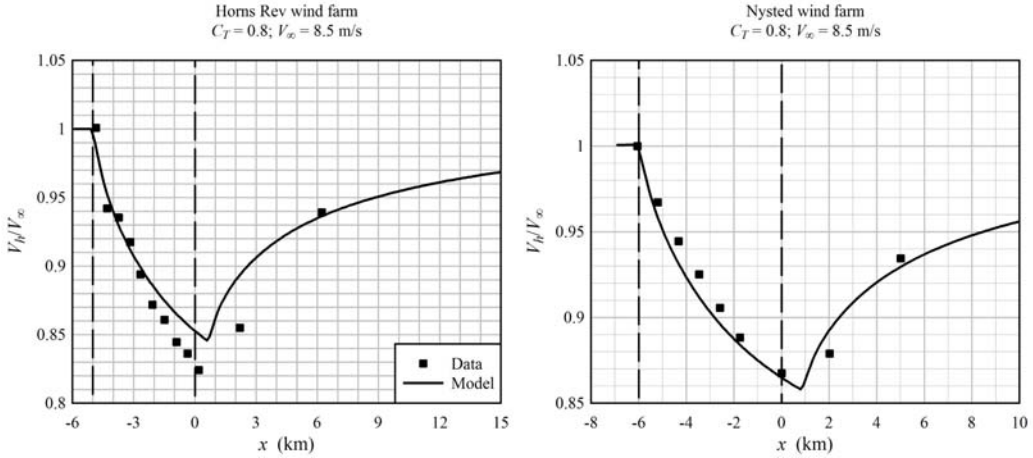
Viper – preliminary estimates of energy production from offshore wind power plants

Innovation description

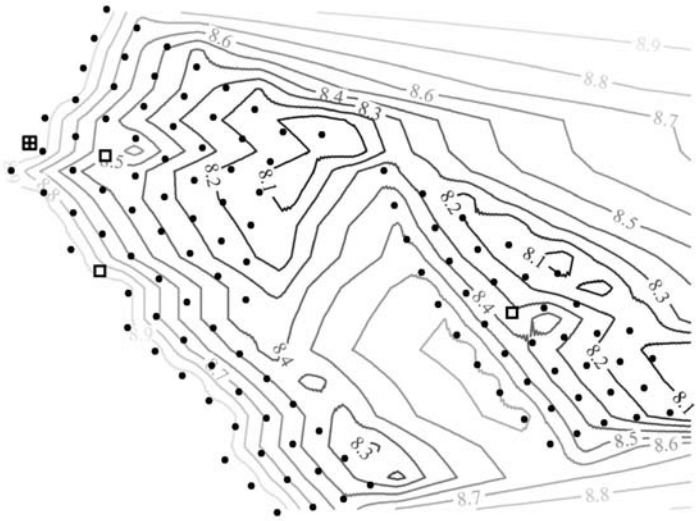
Viper employs a simple mixing-length method to compute the influence of a wind power plant on the atmospheric boundary layer, and the average windspeed seen by each turbine. The method is valid for computing a preliminary estimate of annual energy production of plant layouts consisting of clusters in which the spacing between wind turbines is relatively uniform. It can predict the recovery of windspeed over stretches of ocean in between clusters.

References

Merz KO. ***Viper: A tool for computing energy production of large offshore wind farms.*** **Report TR A7382, SINTEF Energy Research, 2014.**



Validation against data from the Horns Rev and Nysted wind power plants



An example of flow contours obtained for the Dogger Bank reference wind power plant