



ECN

Your energy. Our passion.

World class test facilities

Comprehensive testing and data analysis optimise future output

The wind energy industry constantly incorporates innovations and new techniques. Prototyping, testing and certification play a vital role in an on-going process of optimisation and validation. As a wind energy expert, ECN is focused on lowering the cost of energy to the benefit of the entire supply chain.

ECN has several test sites in the Netherlands and is developing a new facility to accommodate bigger turbines and offshore testing. In addition to its dedicated test facilities, ECN supports industry partners in optimising wind farms that are already in operation.

ECN works closely with all the major turbine manufacturers. While maintaining strict confidentiality at all times, our test facilities assess the performance of various turbines and measurement systems side by side.

What can ECN offer you?

- Excellent turbine testing infrastructure: you provide the turbine, we can do the rest
- 40 years of experience in wind energy R&D, prototyping and testing
- Recognised expertise in the field
- Custom-designed measurement and monitoring programs
- Optimal decision-making support leading to lower energy costs

ECN develops new sensors and methods for measuring turbine and wind farm performance. Offering a potential alternative to dedicated met masts, multiple lidar systems from various manufacturers are currently being tested at a single ECN test site to ensure comparable performance, generating a more accurate wind map of the area.

Following from its own ISO/ISC certified test sites, ECN can also help customers set up their own test sites under almost any conditions, including offshore and extreme cold. ECN applies the same stringent standards of quality to third-party test sites as well.

As recognised experts in the wind energy field with a proven track record in prototyping and testing turbines, wind farm layouts and measurement systems, ECN can apply its vast experience on your behalf under a wide range of weather conditions.

ECN
P.O. Box 1, 1755 ZG Petten
The Netherlands

Contact:
Haico van der Heijden
T +31 88 515 43 18
vanderheijden@ecn.nl

ecn.nl



ECN services

Fully equipped test facilities

A turbine manufacturer looking for a test site only needs to supply the turbine itself. ECN handles all relevant permits and arranges the grid connections, measurement infrastructure, roads, access systems and crane site. The proven, reliable measurement infrastructure already in place is supplemented by a range of cutting-edge experimental technologies being prototyped and tested by various manufacturers.

Custom-designed measurement programs

ECN applies the knowledge gained from its extensive experience in designing, testing and validating measurement technology and programs to help customers design measurement programs tailored to their own specifications and needs. These services can be provided at the ECN test sites or implemented at other locations all over the world.

R&D collaboration

Companies seeking R&D and testing partners to develop measurement systems, aerodynamic models and control strategies will find that ECN is an industry-acclaimed, highly experienced partner. ECN has collaborated extensively on national and international R&D initiatives.

Expert data analysis

Relying on its 15 years of experience in data analysis for prototyping, R&D and testing, ECN goes beyond measurement and monitoring. Comprehensive, reliable methods are used to analyse every aspect of the turbines being tested, including:

- Drive line technology
- Blade behaviour
- Tower load, strain and movement under various load conditions
- Electrical output and power quality
- Noise production
- Wake effects and interactions

The resulting information can be used to optimise individual turbine performance, but is also integrated into an analysis of overall wind farm output in relation to weather conditions and other external factors.

Improved wind farm control

ECN facilitates improved wind farm control. Based on the measurement methods and technologies developed in R&D and testing, ECN is capable of conducting a total analysis of a wind farm. Total analysis provides in-depth insight into wind conditions, individual turbine behaviour and performance, and turbine behaviour within a wind farm. If output is not in line with expectations, this information makes it possible to identify the causes. ECN provides independent objective analysis as well as specific recommendations for measures to improve wind farm output.