



# Wind

## Developing the Wind Turbines of Tomorrow

NaREC offers the latest wind turbine blade testing and prototype development techniques to support wind turbine manufacturers and developers who are creating the next generation of wind turbine technology.

NaREC's confidential platform means developers can achieve new breakthroughs in turbine design, prove new materials and meet the challenges of connecting larger amounts of wind generated electricity into grid networks.

With complete electrical and turbine development facilities located on the same site, and with quayside delivery access, NaREC is an ideal partner for developing the turbines of tomorrow.

### Key Services

- Bespoke performance testing and analysis services: specialist fatigue testing 50m+
- Dual axis testing (under development from July 2007)
- Performance characteristics assessment of materials used for blade construction
- Electrical engineering consultancy support and testing facilities for high voltage performance analysis and low voltage testing to address turbine performance and grid connection issues
- Lightning strike testing and consultancy services
- Prototype development at small and full scale
- Power conversion and drive train development
- Dynamic testing methodology and technology licensing
- Composite materials analysis
- Blade and mould integrity inspection
- Research and development partnerships

# Blade Testing Facility Profile

NaREC has developed a world class facility for the testing of wind turbine blades based on previous industry and testing technical experiences. Our world leading facility is able to perform testing of turbine blades up to 70m in length.

## Specification

<b>Blade Length</b>	Facility will accommodate 70m blades for full destructive testing, extending to 87m dependent on test and specification
<b>Blade Displacement</b>	16m - maximum static test tip displacement 11m + peak-to-peak fatigue test tip displacement
<b>Overhead Cranes</b>	2 independent 15 tonne cranes, and mobile 25 tonne crane
<b>Load Capacity</b>	Maximum static bending moment: 50MNm
<b>Blade Mounting Height</b>	4.2m - from floor to blade root centre
<b>Mounting Plate</b>	Diameter: 4.2m, 2 plates at 11m centre separation
<b>Electric Winches</b>	7 available - capacities of 400kN, 300kN x 2, 200kN x 2, 50kN x 2
<b>Hydraulic Exciter</b>	In-house developed linear dynamic exciters depending on requirements
<b>Hydraulic System</b>	Oil flow rate of 600litres/min at 210 bar
<b>Dynamic Mass</b>	Maximum of 1800kg

## Testing Capability

<b>Static</b>	Full loading with 7 electrical winches for: Bending moment tracking Strain distribution Stiffness calibration Design tool calibration Ultimate failure 50MNm max static root bending moment
<b>Dynamic</b>	Hydraulic actuator and resonant mass system Reduced energy use 11m + tip-to-tip fatigue test tip displacement 24hr fully monitored fatigue testing

## Accreditations and Standards

Working towards ISO standards 17025 for testing facilities. Performs to IEC TS 61400-23, with witnessed accreditation available.

### Contact:

NaREC, Eddie Ferguson House, Ridley Street  
Blyth, Northumberland, NE24 3AG  
Tel: 01670 359 555  
Email: [wind@narec.co.uk](mailto:wind@narec.co.uk)