

Test Organizations for Small Wind Turbines

This is a running list of test organizations that intend to test small wind turbines for the North American market. The list may not be all-inclusive. This is not an endorsement of any test organization, only an informative list. The list is broken into three groups:



- Organizations Accredited to Test Small Wind Turbines. These organizations have completed third-party accreditation by an accreditation body that has signed the International Laboratory Accreditation Cooperation (ILAC) Arrangement. The accreditation is in accordance with ISO/IEC 17025 with a scope that includes the applicable IEC standards.
- NREL Regional Test Centers. The National Renewable Energy Laboratory (NREL) has selected four independent testing organizations to support with funding and technical assistance in order to expand the testing capacity in North America. These organizations are non-accredited and operate independently (they are not a part of NREL).
- Non-Accredited Test Organizations. These test organizations do not have third-party accreditation to test small wind turbines. For this type of organization, the SWCC will perform a site evaluation where we work with the organization to document compliance with the AWEA Standard, the applicable parts of the IEC 61400 standards and ISO/IEC 17025.

Organizations Accredited to Test Small Wind Turbines

Global Energy Concepts, Inc. (GEC-DNV)

- a DNV company

Mail: 1809 7th Avenue, Suite 900, Seattle, WA 98101

Phone: (206) 387-4200

Contact: Luke Simmons

Email: Luke.Simmons@dnv.com

Web: www.globalenergyconcepts.com

Test site location: N/A

Turbines tested to date: Over 132; all turbines having a rated capacity of 100 kW or larger

Accreditation: Accredited by the American Association of Laboratory Accreditation (A2LA) in accordance with ISO/IEC 17025:2005 to conduct tests per IEC 61400-12-1, -12, -13 and the MEASNET Power Performance Measurement Procedure: 2000

Other Comments: While our expertise is in testing of utility scale turbines, we're happy to discuss testing of smaller turbines and can work with all involved parties to come up with a cost effective solution that meets the requirements of relevant standards.

National Renewable Energy Laboratory (NREL)

National Wind Technology Center (NWTC)

Mail: 1617 Cole Boulevard, Golden, CO 80401

Phone: (303) 384-6987

Contact: Arlinda Huskey

Email: Arlinda.Huskey@nrel.gov

Web: www.nrel.gov/wind

Test site location: NWTC, Boulder, CO

Turbines tested to date: > 20

Accreditation: Accredited by the American Association of Laboratory Accreditation (A2LA) in accordance with ISO/IEC 17025:2005 to conduct tests per IEC 61400-11, -12, -21, -23, -13, -1, and -2, MEASNET Acoustic Noise Measurement Procedure: 1997, MEASNET Power Performance Measurement: 2000, and MEASNET Power Quality Measurement Procedure: 2000.

TUV-NEL

Mail: TUV NEL Ltd, Napier Building, SETP, East Kilbride, Glasgow, G75 0QF

Phone: + 44 (0) 1355 593788

Contact: Alistair Mackinnon, amackinnon@tuvnel.com

Web: [www.tuvnel.com/tuvnel/wind turbine testing certification](http://www.tuvnel.com/tuvnel/wind_turbine_testing_certification)

Test site location: Myres Hill

Turbines tested to date: Testing complete on (5) turbines, certification complete on (1) turbine, will have (18) turbines under test in summer 2010

Accreditation: TUV NEL is accredited by UKAS to test wind turbines to ISO/IEC 17025: 2005 and then certify to EN45011: 1998.

Other Comments: The Myres Hill wind turbine test site offers high average winds speeds and complex terrain. The site has grid connections and can accommodate significant generated power levels. The site is available for measurement and testing of wind turbines

QPS Evaluation Services - Certification, Testing & Inspections

Mail: 81 Kelfield St., Unit 8 Toronto, ON M9W5A3

Phone: 877-746-4777

Contact: Brian Baker/ Tom Mah

Email: bbaker@qps.ca , tmah@qps.ca

Web: www.qps.ca

Test site location: QPS is presently working on potential locations and cooperative agreements.

Turbines tested to date: QPS Evaluation has conducted many evaluations globally on both large and small wind turbines from capacity of 1KW to Utility size of 100KW or larger. Current projects include 2.2 MW turbines. Clients range from small startup companies producing 1K, 5K and 10KW units to large clients such as large power companies installing large grid connected units.

Accreditation: QPS is IAS Accredited Product Certification Agency, IAS Field Evaluation and QPS is ISO/IEC Guide 65 (General Requirements for Bodies operating Product Certification Systems), ISO/IEC 17020 (Inspection Agency) and ISO/IEC 17025 (Testing Laboratory). We are also a Certification Body for the CB Scheme and IECEx

Certification Body for Explosion and Intrinsic Safety. QPS is active in standards writing and has been requested by SCC to take the lead in Canada for wind turbine requirements. Accredited to CSA standards C61400-1, -2, -11, -12-1 and -24.

Other Comments: QPS serves on the Standards Technical Panels for STP6171 (UL6171 - Wind Turbine Converters and Interconnection Systems Equipment), STP6142 (UL6142 - Wind Turbine Generating Systems – Small) and STP6141 - (UL6141 Wind Turbine Generating Systems – Large). QPS also offers other services such as Product Safety Testing, Medical, Vibration, Performance/ Comparison Testing, Flammability, Hazardous Locations and Intrinsic, Electrical Testing, CE Testing, Environmental Testing, Field Evaluations & Inspections.

WINDTEST Kaiser-Wilhelm-Koog GmbH

- A GL company

Mail: Sommerdeich 14b , 25709 Kaiser-Wilhelm-Koog , Germany

Phone: +49 4856 901-0

Email: sales@wtk.windtest.com

Web: www.windtest.com

Test site location: Germany (up to 50m hub height)

Turbines tested to date: over 500; all types from 2.3 kW to 6 MW

Accreditation: Accredited by DAP in accordance with ISO/IEC 17025:2005 to conduct power performance measurements, acoustic measurements, mechanical load measurements and other tests

NREL Regional Test Centers

High Plains Small Wind Test Center

- an NREL Regional Test Center

Mail: Barry Kaaz, Colby Community College, 1255 South Range, Colby, KS 67701

Contact: Barry Kaaz, Mobile 785-462-0411, Office 785-460-5429

Contact: Ruth Douglas Miller, Office 785-532-4596

Email: rdmiller@ksu.edu, barry.kaaz@colbycc.edu

Web: www.ece.ksu.edu/psg/wac

Test site location: KSU Agricultural Research property just south of Colby, KS, at 39.38 N, 101.08 W.

Turbines tested to date: None; the High Plains Test Center is just starting up under a grant from NREL. However our Engineering team has twenty years' experience testing and evaluating manufacturing processes and products across many industries

Accreditation: N/A

Other Comments: Mean average wind speed is 6.5 to 7m/s at 30m, and strong directional winds, prevailing N-S are common in all months of the year, so we anticipate rapid durability testing.

Intertek

- a Nationally Recognized Testing Laboratory (NRTL)

- an NREL Regional Test Center

Mail: 3933 US Route 11, Cortland, NY 13045

Phone: (607) 758-6245

Contact: Joseph Spossey

Email: Joseph.Spossey@intertek.com

Web: www.intertek.com/energy/wind/small-turbine

Test site location: Intertek is currently testing wind turbines at customer sites to CSA C61400-12-1 and -11 and -21. We are currently finalizing our own test site in NY.

Turbines tested to date: Intertek has done design reviews and field evaluations of over 1.6 GW of large wind turbines for GE Wind, Gamesa, Vestas, Acciona, REPower and Aaer. Intertek has tested small wind turbine components – generators on a test stand and inverters – and is testing our first full small wind turbine.

Accreditation: Accredited by OSHA to test all components of a wind turbine in the US and SCC in Canada. We are pursuing certification accreditation now that Canada has adopted CSA C61400-2. Intertek is currently in the process of achieving accreditation for wind turbine testing by A2LA.

West Texas A&M University

The Alternative Energy Institute, Wind Test Center
- an NREL Regional Test Center

Mail: P.O. Box 60248 W.T, Canyon, Texas 79016

Phone: (806) 651-2295

Contact: David Carr, dcarr@wtamu.edu

Email: aeimail@wtamu.edu

Web: www.windtestcenter.org

Test site location: Canyon, TX

Turbines tested to date: AEI has had a cooperative agreement with USDA since 1976. Between AEI and USDA we have installed over 70 wind turbines (50 W to 100 kW), most of them prototypes or first production units. Turbines have been installed at AEI Wind Test Center (Canyon, TX); USDA location (Bushland, TX) and others at field locations, primarily in Texas. Presently at the Wind Test Center, we are testing 8 turbines, and another one is used for electricity for the Renewable Energy Demonstration Building; Bergey 10 kW, installed in 1994. We also have 2 kW PV, so we are a net energy producer.

Accreditation: N/A

Other Comments: We also have a test stand for small blades. In the past we have tested 10 blades.

Windward Engineering

- an NREL Regional Test Center

Mail: 10768 S. Covered Bridge Canyon, Spanish Fork, UT 84660

Phone: (801) 798-8784

Email: info@windwardengineering.com

Web: www.windwardengineering.com

Test site location: Spanish Fork, UT

Turbines tested to date: >9. Not all for the purpose of collecting IEC test data.

Accreditation: N/A

Comments: We are limited for space and resources with 6 existing or proposed installed turbines already. Client willing to do their own installation and testing will get quicker results. The test site wind is excellent for producing performance and duration test data rapidly. It should be noted that we are involved with producing small wind turbines with Endurance Wind Power as well as running the test facility for Windward Engineering.

Non-Accredited Test Organizations

Appalachian State University

Beech Mountain Small Wind Research & Demonstration Facility

Mail: ASU Energy Center, 20 Kerr Scott Hall, Boone, NC 28608

Phone: (828) 262-7333

Contact: Dr. Dennis Scanlin

Email: wind@appstate.edu, scanlindm@appstate.edu

Web: wind.appstate.edu

Test site location: Beech Mountain, NC

Turbines tested to date: 12; 200W to 20kW

Accreditation: N/A

Other Comments: Energetic class 5 ridge top research and demonstration site. Open to the public.

Architectural Testing

Mail: 849 Western Avenue North, St. Paul, MN 55117-5245

Phone: (651) 636-3835

Contact: Dan Braun

Mobile: (612) 805-0033

Email: dbraun@archtest.com

Web: www.archtest.com

Test site location: Currently Architectural Testing has the ability to generate wind using various wind machines. (Fresno, CA, Wausau, WI and York, PA) We anticipate these devices may be used in research and development efforts. We are also in the process of identifying a site where natural wind conditions are conducive to natural wind testing.

Turbines tested to date: Architectural Testing has evaluated some wind turbine components to various performance attributes but not in accordance with the AWEA standard.

Accreditation: Accredited by the International Accreditation Service (IAS) in accordance with ISO/IEC 17025:2005 to conduct architectural tests per a variety of ASTM standards.

Channel Islands Acoustics

Mail: 676 West Highland Drive, Camarillo, CA 93010

Phone: (805) 484-8000

Contact: Bruce Walker

Email: bwalker@channelislandsacoustics.com, noiseybw@aol.com

Web: www.channelislandsacoustics.com

Test site location: Nationwide, western states preferred

Turbines tested to date: Bonus, Nordtank, Micon, Mitsubishi, GE, Tacke, Zond, Jacobs, Windmatic, Polenko, Clipper, Vestas, Aeromann, Carter, ESI, FlowWind, Danwin, Floda, NedWind, Vawtpower, etc. Sizes ranging from 10 KW to 2+ MW.

Accreditation: INCE Board Certified

Other Comments: Bruce Walker, Ph.D., INCE Bd. Cert. is principal consultant and has been providing acoustical testing and consulting services to the wind energy industry for over 25 years. We offer targeted diagnostic sound and vibration testing and acoustic noise emissions testing according to IEC 61400-11. We maintain a full complement of acoustical test and analysis equipment, with current NBS-traceable certifications.

DynaTech Engineering, Inc.

Mail: 1830 Sierra Gardens Drive, Suite 30, Roseville, CA 95661

Phone: (916) 783-2400

Contact: Lyn Greenhill, PE

Email: lyng@dynatechgr.com

Web: www.dynatechgr.com

Test site location: Northern California

Turbines tested to date: 4

Accreditation: N/A

Other Comments: Authorized by California Energy Commission for IEC 61400-2 testing and analysis. DynaTech is a mechanical engineering consulting firm specializing in rotating machinery.

GENIVAR

Mail: 1600 Rene-Levesque West, Montreal, QC, H3H 1P9

Phone: (514) 340-0046 5471

Contact: Frederic Tremblay, eng. Ph.D.

Email: frederic.tremblay.wind@genivar.com

Web: www.genivar.com

Test site location: N/A

Turbines tested to date: GENIVAR has been or is currently involved in the power performance testing of megawatt class turbines in 7 different projects.

Accreditation: N/A

Other Comments: GENIVAR is a leading Canadian engineering firm with over 20 years of experience in the wind industry. Our extensive team of engineering and wind energy professionals provides you with the full range of expertise for the wind turbine certification process.

GREAT (Global Renewable Energy Assessment Testing) Laboratory

Mail: World Cal, Inc., 2012 High St., Elk Horn, IA 51531

Phone: (712) 764-2197

Contact: Mike Howard

Email: MHoward@liberty-labs.com

Web: www.world-cal.com

Test site location: 2012 High St., Elk Horn, IA 51531 and 1346 Yellowwood Rd., Kimballton, IA 51543

Turbines tested to date: 3 and 6kW VAWT with Ginlong PMG

Accreditation: We have applied for accreditation under ISO 17025 with A2LA and expect to have this completed by mid summer

Other Comments: Obtain GREAT Seal for your turbine from our Global Renewable Energy Assessment Testing Lab.

We have over 40 acres available at this time for turbine testing as well as indoor labs for inverter test and evaluation. Additional acreage of up to 200 acres will be added later this summer.

Narec

Mail: Eddie Ferguson House, Ridley Street, Blyth, Northumberland, UK, NE24 3AG

Phone: +44 (0) 1670 357680

Contact: Dave Hails, dave.hails@narec.co.uk

Web: www.narec.co.uk

Test Site Location: N/A at present

Turbines tested to date: Testing nearing completion on (1) turbine, (1) further turbine on test, and (3) additional turbine tests to commence shortly.

Accreditation:

- ISO/IEC 17025 accredited calibration laboratory for calibration of high voltage voltmeters, voltage dividers, and high voltage sources.
- ISO/IEC 17025 accredited testing laboratory for full scale testing of large wind turbine blades
- Not accredited for small wind turbine testing, but currently assessed and recognised by BRE Global (a UK accredited certification body) as operating in accordance with ISO/IEC 17025 for this activity

Other comments: Currently in the process of identifying a small wind turbine test site, however in the meantime we continue to work with clients who wish to test their product at their own test facilities in accordance with the requirements of the standards.

Northern Colorado Wind Test Center (NCWTC)

A collaboration between RRD Engineering and CPP Wind Engineering

Mail: 670 Cody St. Lakewood, CO 80215

Phone: (970) 581-8091

Contact1: Rick Damiani, RRD Engineering

Email: r.damiani@rrdengineering.com

Web: www.RRDengineering.com

Contact2: Brad Cochran, CPP Wind Engineering

Email: bcochran@cppwind.com

Web: www.cppwind.com/services/renewable_energy/renewable_energy.html

Test site location: The test site is located in Weld County, Colorado. The site is open grassland with annual mean wind speed of 5 m/s at a height of 20 m above grade and experiences approximately 185 hours per year of mean wind speeds in excess of 15 m/s. The site utilizes state-of-the-art data collection and communication instrumentation and software to minimize response times and man hour requirements for data analysis and reporting.

Turbines tested to date: Five turbines at various sites throughout the Rocky Mountain West. Testing has included power performance, duration, and acoustical noise evaluations following the IEC 61400-11 (noise) and IEC 61400-12 (power performance) test standards. In addition, CPP has conducted turbine development tests for dozens of wind turbines (hundreds of configurations) in their large atmospheric boundary layer wind tunnels and through

CFD modeling.

Accreditation: N/A

Other Comments: The Principal Investigators are Registered professional Engineers in the State of Colorado. They have been actively involved in the development of both the AWEA and IEC test standards. RRD Engineering and CPP have 15 years of experience providing turbine design and evaluation services using a combination of wind tunnel modeling, FEA and CFD modeling and field testing, along with conducting wind resource assessments for small and utility sized wind applications.

Pine Ridge Products LLC

Mail: 1646 East Highwood Rd, Belt, MT 59412

Phone: (406) 738-4283

Contact: Logan Bryce

Email: wlbryce@pineridgeproducts.com

Web: www.pineridgeproducts.com

Test site location: Belt, MT

Turbines tested to date: 11

Accreditation: N/A

Other Comments: Specializing in 10kW and below, turbulent class 5 wind site.

Retlif Testing Laboratories

Mail: 795 Marconi Avenue, Ronkonkoma, NY 11779

Phone: (631) &37-1500

Contact: Walter A. Poggi

Email: wpoggi@retlif.com

Web: www.retlif.com

Test Set Location: Retlif maintains test laboratories in Ronkonkoma, Long Island, NY, Goffstown, NH and Harleysville, PA. We are currently preparing a test site at our Ronkonkoma, NY location along with a satellite location on Long Island in Bethpage, NY.

Turbines Tested To Date: At this point Retlif has only tested components and wind technology instrumentation.

Accreditation: Retlif is fully accredited by both A2LA and NVLAP for over 300 test methods in the areas of Electromagnetic Compatibility, Electro-Static Discharge, Lightning, Environmental Simulation and Body Armor Conditioning. Retlif is also a corporate member of NACLA.

South Dakota Wind Application Center (SDWAC)

South Dakota State University (SDSU)

Mail: South Dakota Wind Application Center, Box 2219, Crothers Engineering Hall 234, Brookings, SD 57007

Phone: (605) 688-4301

Contacts: Michael Twedt, Michael.Twedt@sdstate.edu; Matthew Hein, matthew.hein@sdstate.edu

Test Set Location: 141 Acres (over ½ square-kilometer). Testing site is within 3-miles of the SDSU campus and is located on SDSU property. All access rights are controlled by SDSU and the surrounding land is primarily used for agriculture with all residential structures being far outside the required setback distances. Interstate-29 is

approximately two-miles from the proposed site and the Brookings Regional Airport is with 4-miles of the proposed site for efficient transportation. The northern climate of eastern South Dakota provides excellent performance testing conditions with an appropriate wind regime, temperature profile, and precipitation matrix.

Latitude: 44.3530 **Longitude:** -96.7913

Turbines Tested To Date: N/A

Accreditation: The South Dakota Wind Application center is actively pursuing accreditations recommended by the National Wind Testing Center (NWTC) and American Wind Energy Association (AWEA).

Other Comments: We monitor performance of 7 small wind turbines and all technical concerns related to the South Dakota Wind for Schools program are directed through our office. The Engineering College of SDSU has extensive material testing capability. The imaging, mechanical testing, and Non-Destructive Evaluation (NDE) techniques can identify the material structure, the structure's correlation to strength and performance, and help evaluate the material pre- and post-manufacturing characteristics as well as operation fatigue. The Department of Wildlife and Fisheries at SDSU indicates an opportunity to explore interactions between wind machines and wildlife. The Climatology Department at SDSU places an emphasis on renewable resource evaluation and houses the South Dakota Wind Resource Assessment Network (WRAN), which specializes in wind resource assessment and turbine performance prediction in South Dakota. Recruitment opportunities may also present themselves, as interaction with the university and your company will undoubtedly include capable members of the student body.

The Cadmus Group, Inc.

Mail: 57 Water St., Watertown, MA 02472

Phone: (617) 673-7106

Contact: Shawn Shaw

Email: shawn.shaw@cadmusgroup.com

Web: www.cadmusgroup.com/clean_energy

Test Site Location: Cadmus conducts small wind turbine testing at various sites across the northeastern US. We will work with interested manufacturers to identify an appropriate test location and conduct testing to IEC 61400 and AWEA standards. Cadmus also conducts design reviews, post-installation inspections, and monitoring of wind projects at existing sites.

Turbines Tested to Date: Testing and energy production monitoring is ongoing on over 40 small wind turbines, with detailed testing in progress on 7 turbines. Models tested include the Bergey Excel-S, Aircon 10, ARE 442, Eoltec Scirroco, Endurance S250, and others.

Accreditation: N/A

Other Comments: Our team conducts a wide range of wind energy related consulting activities such as testing, design reviews, wind resource assessment, site evaluation, and development of software tools for predicting small wind system performance.

The Wind Energy Institute of Canada (WEICan)

Mail: 21741 Route 12, North Cape, Prince Edward Island, Canada, C0B 2B0

Phone: (902) 882-2746

Email: info@weican.ca

Web: www.weican.ca

Test site location: North Cape, Prince Edward Island, Canada

Turbines tested to date: WEICan has tested over 20 wind turbines rated from 1kW to 500kW. Since 2006 we have partnered with DEWI the German wind institute for testing of large wind turbines and are now offering power performance, power quality, duration, and noise tests; in accordance with IEC 61400 on small and large wind turbines. Presently we have two small wind turbines being tested to IEC 61400-12-1, -2, -11, and -21.

Accreditation: We are currently investigating the resources required to become accredited.

Other Comments: We have been doing power performance and durability testing since 1981 and have tested as well as participated in R&D activities on many wind turbines during that period. We are currently investigating the resources required to become accredited. WEICan also works with DEWI who are accredited to provide certification for international markets. If requested by the client, WEICan will test to other standards such as: AWEA, BWEA or CSA standards: C61400-2,-11,-12-1 and -21. WEICan has compiled twenty years of wind data at the test site; as well as a detailed report from DEWI which gives results of the sites wind regime and characteristics.

USDA-Agricultural Research Service

Conservation & Production Research Laboratory

Mail: P.O. Drawer 10, Bushland, TX 79012-0010

Phone: (806) 356-5724

Contact: Brian Vick

Email: Brian.Vick@ars.usda.gov

Web: www.cprl.ars.usda.gov

Test site location: Bushland, TX

Turbines tested to date: Between AEI and USDA we have installed over 75 wind turbines (50 W to 100 kW), most of them prototypes or first production units.

Accreditation: N/A

WindGuard North America

Mail: P.O. Box 204, 199 Anglesea Street, Goderich, ON, Canada, N7A 3Z2

Phone: (519) 440-0925

Email: info@windguard-northamerica.com

Web: www.windguard-inc.com

Test site location: N/A

Turbines tested to date: >1000 , with various testing services

Accreditation: N/A

Other Comments: We are experts for loads verification, vibration testing, frequency issues and rotor balancing and blade angle alignment.

Wind Energy Center (WEC)

University of Massachusetts at Amherst

Mail: Bldg ELAB 160 Governors Drive, Amherst, MA 01003

Phone: (413) 577-2139

Contact: William Stein

Email: wstein@ecs.umass.edu

Web: www.ceere.org/rerl

Test site location: Mt Tom, Leyden, MA (pending)

Turbines tested to date: ESI-80, Electro, Umass Windfurnace-WF-1, Dakota Wind and Sun (4 kW Jacobs clone), Windcharger

Accreditation: N/A

Other Comments: The WEC has been involved in all aspects of wind power since the late 1970's including design, prototyping, wind tunnel and atmospheric testing of both small and large wind turbines.

WindTesting.com

Mail: PO Box 1138, Tehachapi, CA 93581

Contact: Brent Scheibel

Email: Service@WindTesting.com

Web: www.WindTesting.com

Test site location: Tehachapi, CA

Turbines tested to date: 30

Accreditation: N/A

For more information, corrections or additions please contact:

Brent Summerville PE

Technical Director

Small Wind Certification Council

518-213-9438

www.smallwindcertification.org

Brent@smallwindcertification.org