

## Focus on Energy Full Service Installer Requirements Small Wind Turbines

### **Purpose**

Focus on Energy supports the development of Wisconsin's renewable energy market by co-funding renewable energy systems and encouraging the creation of a highly professional class of renewable energy system installers.

### **Experience and Training Requirement Objective**

These experience and training requirements were developed to:

- provide a measure of protection to the public by giving them a standard for judging the competency of installers;
- provide installers with a way to distinguish themselves from their competition; and
- promote the quality of installations, thus improving the public perceptions of the technology and helping increase the industry's prominence.

### **Definitions**

#### **Full Service Installer**

A Full Service Installer is an individual that meets, on an ongoing basis, the requirements described in this document.

#### **Provisional Installer**

A Provisional Installer is an individual that meets the educational requirements of being a Full Service Installer, but who has not met the other requirements for being listed as a Full Service Installer in a given Small Wind Turbine Category. It is possible to be a Full Service Installer in one Small Wind Turbine Category and a Provisional Installer in another.

A **Full Service Installation Firm** is defined as the single point of contact with a customer to design, sell, install and maintain (service and/or repair) renewable energy equipment or who contracts with subcontractors to supply these services. A Full Service Installation Firm must employ a Focus on Energy approved Full Service Installer who takes the responsible role on systems co-funded by Focus on Energy.

**Experience** is having the responsible role on the job installing at least two Wind Electric Systems in the relevant category. These two systems require complete permitting and inspection process, if applicable, by a permitting authority. Being in a **responsible role** means doing decision-making on the job and includes the foreman, supervisor, site manager, or experienced worker performing small wind turbine installation work without direct supervision.

For systems to be counted toward years of experience they must be documented using the System Installation Tracking Sheet (Appendix A).

**The following table describes the size and tower categories in which a Small Wind Turbine Installer can be considered a Full Service Installer or Provisional Installer.** Small Wind Turbine Full Service Installers have fulfilled the Focus on Energy eligibility requirements in their listed Installer Category. Provisional Installers are installers working toward eligible Full Service Installer status in a given Installer Category.

### **Wind Turbine Installer Categories**

#### Installer Category A

Tilt Up Tower only up to 85' tall and turbine generator capacities of 3 kW or less

#### Installer Category B\*

Tilt Up Tower only over 85' tall and turbine generator capacities up to 100 kW

\*Meeting the criteria for Category B qualifies the installer for listing under Category A

#### Installer Category C

Crane based tower installations of any turbine capacity of 100 kW or less

### **Focus on Energy Small Wind Turbine Full Service Installer Requirements**

Small Wind Turbine Installers providing services in Wisconsin must meet the experience and training criteria of ONE of the following tracks AND education requirement **prior to being listed** on the Focus on Energy Full Service Installation Firm list in a selected Wind Turbine Installer Category:

#### Track 1 – Field Experience

Installers may become listed in an Installer Category by demonstrating past successful experience in a **responsible role** by providing the following information:

- a. Three references of past clients served within the past three years who received an installation in the respective category with positive reports regarding final project disposition (Focus on Energy recommends supplying references that can be easily verified). Positive reports would include meeting all contractual obligations, resolving any installation issues related to system tuning, and having followed proper siting principles; AND
- b. No evidence of past unsuccessful projects in the respective category in the past three years. Unsuccessful projects will be based on an installer not meeting contractual obligations, unresolved installation issues related to system tuning, or an exhibited failure to follow proper siting principles.

#### Track 2 – Mentor Training for Provisional Installers

**Provisional Installers** are installers who have not acquired the relevant past experience in a **responsible role** for a given Installer Category but who wish to become Full Service Installers in that Installer Category.

To qualify as a Provisional Installer, the installer must have been actively involved with a small wind energy system installation in the selected Installer Category. Evidence of

active installation experience must be provided by the installer and verified by Focus on Energy using the System Installation Tracking Sheet (Appendix A). Active involvement includes taking on the responsible role of the project, or responsibility for foundation installation or design, crane operations, tower construction, tower climbing, or electrical system design or installation.

Focus on Energy will recommend a Mentor to provide assistance with two to three installation projects, at the cost of the Provisional Installer. Mentors are individuals who are experienced practitioners with over 10 years experience in the industry in a turbine category related to the provisional installer's interests. Mentors will provide assistance and guidance for the installations and qualify the installation as either passing or failing toward qualifying the installer in a given Installer Category. Mentors MAY NOT take on the **responsible role** of the project for that project to qualify the provisional installer as having made progress toward FSI listing. Mentors will only have the option to take on the **responsible role** at the risk and expense of the Provisional Installer and at the discretion of the Mentor. Mentors will be permitted to take on the responsible role for the project at their discretion based on concerns over any aspect of the installation.

#### Track 3 – NABCEP Certified

Upon the availability of NABCEP Wind Installer Certification, Focus on Energy may allow NABCEP Certified individuals to become Full Service Installers. Focus on Energy reserves the right to add additional requirements to NABCEP Certification, including requiring references per Track 1 or Mentor assistance per Track 2.

#### **AND**

#### Education Requirement

In addition to the above Tracks, Focus on Energy requires the following educational experience from an organization with dedicated wind courses. If a Provisional Installer wishes to substitute an alternative educational experience for one or more of the approved workshops listed below, Focus on Energy will consider the request (see contact information below). Verifiable documentation must be presented in all cases.

The educational categories in which the provisional installer must have documented experience include:

- Wind site assessment training for turbines 100 kW or less, AND
- Wind turbine design education for turbines 100 kW or less, AND,
- A wind turbine installation workshop or other structured hands-on training, AND
- Repair and maintenance training for small wind turbines (sales training does not meet the requirement)

Those installers interested in being listed as a Full Service Installer should be aware that the Midwest Renewable Energy Association provides workshops that meet the educational requirements. Lake Shore Technical College also provides an educational experience that meets the requirements. Below are a list of workshops and classes that can meet the educational requirements from either organization. These courses may change from time to time.

Focus on Energy will waive educational requirements for installers with substantive experience in the small wind turbine industry. Focus on Energy will waive an educational requirement if the installer can provide evidence of work experience in the last five years that meets an educational category. For example, an installer may have experience installing turbines, but have no experience at repair and maintenance. In this case, the installation workshop requirement could be waived if documentation can be provided that meets the definition of a successful project in the respective turbine category (see above) within the last five years. Repair and maintenance educational requirements can be waived if an individual can show direct work experience repairing or maintaining a minimum of three different turbine models.

### **Approved Workshops from the Midwest Renewable Energy Association**

The following workshops and courses have been developed by the Midwest Renewable Energy Association (MREA) to aid a wind energy system installer in acquiring the skill set as described in the educational requirements.

While workshops and courses can be taken in any sequence, they progress logically and build on each other as presented below.

1. **Wind Site Assessment Certification Workshop** - This four day workshop covers the fundamentals required to do a residential wind energy site assessment. Completion of the workshop, two to three practice site assessments, and successful passing of a test allow an assessor to apply for Wind Site Assessor Certification through the Midwest Renewable Energy Association.
2. **Wind Turbine Design Workshop** - This three day workshop examines all of the design considerations that go into the manufacturing of a residential wind turbine. Individual components, their function, and materials are compared across all manufactured equipment. All commercially available residential wind equipment will be assembled and compared. (currently offered by the MREA)
3. **Wind System Installation Workshop** - These five to seven day workshops focus on the actual installation of a residential wind turbine, tower, wiring, and associated electronics. The bulk of the workshop is spent in the field. At the end of the workshop, participants gain hands on experience from an operating wind system, completely assembled and installed during the workshop. The workshop varies in configuration and can feature the following possible combinations: (three versions of this workshop are currently offered by the MREA)

Towers:

- a. Freestanding
- b. Guyed
- c. Tilt-up

Tower installation occurs via one of the following:

- a. Crane
- b. Gin pole
- c. Tilt-up with winch and or motorized vehicle

Storage:

- a. On-grid
  - b. Off-grid battery charging system with or without a PV component
  - c. On-grid with battery back-up
4. **Wind System Repair and Maintenance Workshop** - This five day workshop details the maintenance issues involved with all of the commercially available wind equipment in the U.S. today. This workshop should follow attendance in the Wind Turbine Design Workshop. Most of this workshop is spent in the field doing actual repairs and maintenance on real-life wind systems. Each workshop will work with a number of turbines, depending on what is available.

#### **Approved courses from Lakeshore Technical College**

The following course list and descriptions have been provided by Lakeshore Technical College. These courses will provide educational experiences related to small wind turbines, though the general coursework at Lakeshore Technical College is geared toward large wind turbines.

##### ***10468101 Wind Systems Introduction to***

...prepares the learner to assess the global energy picture; analyze the causes of wind and wind flow properties; explore small, medium, and large wind turbine designs; assess the environmental effects of wind turbines; perform business and site assessments for a wind turbine project, plan your wind turbine project, evaluate, operation and maintenance of the turbine system, and analyze the future of wind energy.

##### ***10468102 Wind System Technician I***

...allows participants to develop essential skills and attitudes for employment in the wind industry. Topics include: safety, electrical hazard, confined space, climbing practices, tool use, calibration, documentation and routine maintenance operations

The Approved Small Wind Education list will be maintained by Focus on Energy and be available at [focusonenergy.com/fullserviceinstallers](http://focusonenergy.com/fullserviceinstallers) or 800-762-7077. Focus on Energy will determine if courses not on the approved list meet the core competencies and requirements. To request that a course be approved and added to the list, contact:

Focus on Energy – Small Wind Turbine Program  
431 Charmany Drive  
Madison, WI 53719  
800.762.7077

**Eligibility**

Provisional Full Service Installers must comply with the criteria outlined in the Renewable Energy Program Full Service Installer and Market Provider Eligibility policy in order to be eligible to participate in the Focus on Energy program as a Full Service Installer.

**Listing Removal and Reinstatement**

If Focus on Energy receives a documented complaint, Small Wind Turbine Full Service Installers must satisfy the conditions as detailed in the Renewable Energy Program Complaint and Grievance Process and Renewable Energy Reinstatement Policy to maintain or reinstate Full Service Installer listing.

**To Maintain Listing**

To maintain Full Service listing, at least one (1) Wind Turbine system installation must be documented every calendar year (See Appendix A)

**Appendix A: System Installation Tracking Sheet**

Prospective Small Wind Energy Full Service Installers pursuing Tracks 1 or 3 must submit a complete description for each wind energy system they install to meet the installation requirements for a given Wind Turbine Installer Category. Please submit the completed form to the Focus on Energy Small Wind Program:

Focus on Energy – Small Wind Turbine Program  
 431 Charmany Drive  
 Madison, WI 53719  
 800.762.7077

Focus on Energy reserve the right to contact the wind system owner.

Site owner: name	
Site owner: address	
Site owner: phone number	
Site owner: email address	
Date the system was turned on:	
Customer Type: Circle one	Residential, Multifamily, Commercial
Small Wind Turbine Category: Circle one	A B C
Turbine Mfr, Model	
Tower Height and Type	
Was this system eligible for Focus on Energy funding?	
If the system had a mentor assigned, provide their name and date of the visit	
Your name, employer and your contact information	
Your signature attesting that the information submitted here is correct and that you had the responsible role for the installation.	
Date signed	