

Attachment C

Minimum Technical Requirements for Community-Scale Projects

Minimum Technical Requirements for Community Scale Wind

All Commonwealth Wind: Community Scale Projects must demonstrate compliance with the Minimum Technical Requirements set forth in this Attachment. These requirements are not intended to be all-encompassing, nor is this Attachment intended to be a substitute for engineering specifications or for safety requirements. Site specific conditions and/or local requirements may require additional or specific technical requirements not contained in the following minimum requirements. MRET reserves the right to withhold payment to any projects that do not satisfy the Minimum Technical Requirements.

Minimum Technical Requirements	
Siting Requirements	<p>All projects seeking Feasibility or Design & Construction funding must comply with the following minimum requirements to be eligible for funding:</p> <ul style="list-style-type: none"> • All aspects of the Wind Project must comply with the local, applicable zoning by-laws, if any; • all aspects of the Wind Project must comply with the terms of the manufacturer’s design and warranty requirements, if any; and • the wind turbine lay down zone (defined as the height to the tip of the blades at the highest point in the blade sweep, as measured from the proposed installation location) must be in compliance with local bylaws. <p>If no bylaws are in place, the following requirements apply:</p> <ul style="list-style-type: none"> • The area within 1.1 x the proposed turbine lay down zone cannot be outside the property of the System Owner; and • The area within 2.0 x the proposed turbine lay down zone cannot reach an existing residential property. <p>If no bylaws are in place AND the requirements outlined above cannot be met, Applicants will be required to demonstrate that all affected abutters (all owners of property that is within 1.1 x the lay down zone of the turbine and all owners of residential property that is within 2.0 x the lay down zone of the turbine) are in support of the project in order to be considered eligible for funding.</p>
Equipment	<p>All wind turbine models receiving funding through Commonwealth Wind must either (1) be certified as meeting IEC WT 01 standards by a third party certification agent, or (2) maintain the following:</p> <ul style="list-style-type: none"> • documentation of a third-party power curve certification, • minimum 2-year manufacturer provided warranty, • adequate technical documentation including cut sheets, an installation manual, and an O&M manual, • a fleet wide history of retrofits made for the proposed model, and • fleet wide turbine availability history. <p>A list of turbines meeting the requirements for option #2 is available, upon request, from the Commonwealth Wind program team.</p> <p>In addition, all of the equipment and related components that comprise the Wind Project must:</p> <ul style="list-style-type: none"> • Be new and must be designed for the specific Wind Project in question, • have a UL listing and must be compliant with Institute of Electrical and

	<p>Electronics Engineers (IEEE) standards,</p> <ul style="list-style-type: none"> • comply with National Electric Code provisions for wind tower grounding and over-current protection, and • include appropriate lightning protection and surge suppression.
<p>Installation Requirements</p>	<p>The Wind Project electrical work must be performed by a Massachusetts licensed electrician professional. For more information: http://www.mass.gov/dpl/boards/el/index.htm</p> <p>The Wind Project must be installed according to the manufacturer’s instructions and in compliance with all applicable codes and standards including:</p> <ul style="list-style-type: none"> • The most up-to-date provisions of the National Electric Code (NEC) at the time of system installation, and • local, state, and /or federal building laws, codes and practices. <p>All systems must have an appropriate electric utility interconnection agreement in place at the time of interconnection to the utility grid. For more information: http://www.masstech.org/cleanenergy/howto/interconnection/index.htm</p> <p>All pertinent permits and inspections must be obtained and copies kept on file as may be required by local codes and/or state law.</p> <p>Additional general installation practices to be followed include:</p> <ul style="list-style-type: none"> • All interconnecting wires must be copper and all wiring connections must be properly made, insulated, and weather-protected, • Areas where wiring passes through ceilings, walls, or other areas of the building must be properly restored, booted, and sealed, • Thermal insulation in areas where wiring is installed to be returned to “as found or better” condition, • Warning labels must be posted on the control panels and junctions boxes indicating that the circuits are energized by an alternate power source independent of utility-provided power, • Owner’s manual of operating and maintenance instructions is provided to the system owner and preferably also posted on or near the system. The owner’s manual should include manufacturers specifications, serial numbers, warranty policies, etc., • Owners are provided with, at minimum, a basic training orientation that includes maintenance instructions, troubleshooting, meter reading, and electric production reporting instructions, and • Electrical production estimates are specific to the site and equipment. <p>The Wind Project may not be removed from the site for its useful design life as specified in the grant agreement or terms and conditions.</p>
<p>Mandatory Commissioning</p>	<p>The Wind Project must be independently commissioned and a commissioning report must be prepared. Commissioning is the process of ensuring that the systems are designed, installed, functionally tested, and capable of being maintained and operated according to the approved design and owner’s operational needs. At a minimum, the report should include: inspection process and findings,</p>

	system and component testing process and findings, and initial system performance findings.
Warranty	<p>All equipment must have a minimum two-year full warranty to the purchaser against defects, failures, breakdowns, or excessive degradation of electrical output. The warranty shall cover the full cost, including labor, of repair or replacement of defective components or systems.</p> <p>In addition, Applicants are strongly encouraged to obtain a service contract that provides the same coverage outlined above for the period after warranty.</p>
Meter	<p>Each renewable energy project proposed for MRET funding must have a dedicated meter that:</p> <ul style="list-style-type: none"> • Is readily accessible and easily understood by the System Owner, • records only the system’s AC output as measured on the AC side of the system’s isolation transformer, • shall be separate from the utility billing meter and shall not interfere with utility billing or net-metering, • must be a standard utility “revenue quality” meter that conforms to applicable American National Standards Institute (ANSI) C-12 standards and shall be installed on the output side of the renewable system's isolation transformer, and • shall have a visible display of cumulative energy produced by the renewable energy system and be available for periodic testing and/or re-calibration, if necessary. <p>More information about meter requirements can be found at: http://ar.masstech-pts.org/downloads/</p>
Automated Reporting to MRET’s Production Tracking System (PTS)	<p>All Wind Projects must include an automated reporting system which meets the requirements described below and must report to the MRET Production Tracking System (PTS) for a minimum of five years.</p> <p>There are three options for establishing automated reporting to the PTS:</p> <ol style="list-style-type: none"> 1) Vendor-Supplied System: A Data Acquisition System (DAS) that has local PTS-incorporated Automated Reporting features. 2) Vendor-Supplied Service: A DAS with a service that offers remote monitoring that has PTS-incorporated Automated Reporting features. 3) Sample Source Code Integration: A DAS vendor or service provider can customize the software of their system to incorporate this data transfer functionality. <p>More information about Automated Reporting requirements can be found at: http://ar.masstech-pts.org/downloads/</p>