

SMALL WIND CERTIFICATION COUNCIL

Wind Turbine Performance Certification Policy



SWCC4
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A. Introduction

The Small Wind Certification Council (SWCC) is an independent, third-party certification body that certifies wind turbines (WTs). For turbines with a rotor swept area that is greater than 200 m², SWCC offers certification services related to wind turbine power performance and acoustic performance (Performance Certification). SWCC Wind Turbine Performance Certification represents that performance testing of the turbine conforms with the requirements identified in IEC 61400-12-1 (Power Performance) and/or IEC 61400-11 (Acoustics), hereinafter referred to as the IEC Standards. Applicants may choose to pursue SWCC WT Power Performance Certification, SWCC WT Acoustic Performance Certification, or both.

SWCC WT Performance Certification is based on the evaluation of a WT through field testing. Field testing includes a power performance test and/or an acoustic sound test. The results of such field testing are documented in final reports which are submitted to SWCC for review. SWCC WT Performance Certification is granted on the basis of an assessment of the completeness and correctness of the final reports, and whether the performance testing of the WT conforms to all requirements of the IEC Standards.

B. Purpose and Scope

1. Purpose. This Wind Turbine Performance Certification Policy (Policy) has been adopted by the SWCC Board of Directors to define appropriate rules and procedures for the voluntary certification of eligible WTs and to ensure the impartiality and objectivity of SWCC's certification decisions. The Policy is the sole and exclusive means by which an Applicant may apply for SWCC Wind Turbine Performance Certification.

The Policy serves to define the process and requirements for:

- a. Testing of a WT for the purpose of power and acoustic performance certification;
 - b. Reporting requirements related to such testing;
 - c. SWCC Performance Certification of a WT;
 - d. Maintenance and renewal of SWCC Certification; and,
 - e. Reviewing and resolving certification deficiencies and violation matters.
2. Scope. SWCC certification requirements, evaluations, and decisions are based on appropriate standards and information specifically related to the purposes and scope of the certification. The scope of this Policy is to establish an objective and otherwise appropriate process to assess and certify that a WT meets the



requirements of the IEC Standards for power performance and/or acoustic performance.

C. Definitions

The following definitions have been adopted by SWCC for the identified terms used in this Policy.

1. Annual energy production. An estimate of the total energy production of a wind turbine during a one (1) year period as calculated by applying the measured power curve to a Rayleigh frequency distribution at a specified hub height annual average wind speed, assuming 100 % availability.
2. IEC Standards. International Standards developed by the International Electrotechnical Commission. For the purpose of SWCC Wind Turbine Performance Certification; IEC 61400-11: *Wind turbines - Part 11: Acoustic noise measurement techniques* and IEC 61400-12-1: *Wind turbines - Part 12-1: Power performance measurements of electricity producing wind turbines*. These IEC Standards were prepared by IEC technical committee 88: Wind turbines.
3. Qualified Testing Organization. A testing organization that is qualified under this Policy and applicable SWCC requirements to perform WT testing for the purpose of certification. In order to receive SWCC Qualified Testing Organization status, the organization must demonstrate compliance with all relevant requirements of ISO/IEC Standard 17025.
4. Remanufactured. A turbine which has been previously used, and subsequently disassembled, repaired, and reassembled to be used again.
5. Small Wind Turbine. Electricity-producing wind turbine with a swept area of up to 200 m².
6. Wind Turbine. For the purpose of SWCC Wind Turbine Performance Certification; electricity-producing wind turbine with a swept area greater than 200 m².

D. Policy Abbreviations

1. AC: alternating current
2. AEP: annual energy production
3. AWEA: American Wind Energy Association
4. C_p: power coefficient



5. ed: edition
6. HAWT: horizontal axis wind turbine
7. IEC: International Electrotechnical Commission
8. ISO: International Organization for Standardization
9. SWT: small wind turbine
10. VAWT: vertical axis wind turbine
11. WT: wind turbine

E. Certification Commission

The Certification Commission (Commission) has been established by the SWCC Board of Directors to supervise the evaluation of turbines for SWCC Certification. The structure and composition of the Commission has been developed to ensure impartiality in all matters pertaining to its role.

The Commission is composed of three (3), qualified and independent industry experts appointed by the Board of Directors. The Commission has been delegated the authority to review and approve WT performance certification applications in consultation with the Technical Director. Among other responsibilities, and consistent with this Policy, the Commission will: review each certification application and relevant supporting information under the applicable SWCC Certification standards, in consultation with the Technical Director; determine by majority vote whether each certification application is granted, conditionally granted, or rejected; determine whether each certification renewal application is granted, conditionally granted, or rejected; determine whether a Certification Holder must submit a new certification application when a product has been modified; initiate, review, and resolve all deficiency and violation matters under this Policy related to Certification Holders and Applicants, and determine whether to issue certification sanctions or other appropriate actions; require the submission of additional application renewal information when appropriate; and, review and determine the appropriateness of design changes related to certified WTs.

F. Certification Eligibility Requirements

1. General Policy Requirements. SWCC eligibility policies are administered in an objective and non-discriminatory manner and SWCC provides certification services to any Applicant that satisfies the conditions in this Policy. SWCC will not impede or inhibit Applicant access to SWCC services in any unlawful or improper preferential manner.



SWCC makes its services accessible to all Applicants whose activities fall within its declared field of operation. All Application and Certification Fees will be applied uniformly to all Applicants. Access to SWCC certification is not conditioned on the Applicant's size, membership in any association or group, nor the number of certifications previously issued by SWCC.

2. Applicant Eligibility. SWCC Certification Applications may be submitted only by the holder of all ownership rights in and to the WT (WT Manufacturer), or the authorized designee of such WT Manufacturer. If the Applicant is such an authorized designee, the Applicant must submit written proof of authorization from the WT Manufacturer to seek SWCC certification. SWCC will have the sole and exclusive right to determine whether such a designee is properly authorized to seek SWCC certification.

If the Applicant is an authorized designee, the non-Applicant WT Manufacturer will be required to accept and agree to comply with all terms of SWCC policies, including the SWCC Wind Turbine Performance Certification Policy and the SWCC Trademark and Certification Mark Use Policy, prior to SWCC issuing WT Performance Certification.

3. Equipment Eligibility.

Eligible WTs are defined as newly-manufactured, electricity-producing wind turbines with a swept area greater than 200 m². Previous versions of a WT design that are no longer available to the market are not eligible for SWCC certification. Towers and foundations are not part of the scope of SWCC WT Performance Certification. Remanufactured WTs are not eligible for SWCC WT Performance Certification (see definition in Policy Section C)

Applicants may submit one (1) Application for multiple WT configurations of the same turbine type, provided that the WTs are similar in design and other significant characteristics. In this regard, SWCC will make every reasonable effort to consolidate the testing requirements applicable under this Policy, based on SWCC's review of the information contained in an Applicant's Notice of Intent to Submit an Application. However, each WT configuration will be issued a separate certification, provided all certification eligibility requirements are met.

4. Certification Eligibility. A turbine is eligible for certification if all of the following requirements are satisfied in full:
 - a. The WT is compliant with the relevant IEC Standard(s) in all applicable respects;
 - b. The WT has been tested properly by a Qualified Testing Organization consistent with this Policy and the relevant IEC Standard(s), and such tests demonstrate compliance with the IEC Standards;



- c. All other SWCC Certification requirements and conditions have been satisfied;
- d. The Applicant has submitted a complete Notice of Intent to Submit an Application to SWCC;
- e. The Applicant has signed a Certification Agreement with SWCC, which details the responsibilities of the Applicant and SWCC with respect to the certification application review process;
- f. The Applicant has submitted a complete WT Performance Certification Application to SWCC;
- g. The Applicant has submitted all additional information and materials required by the Certification Commission or the Technical Director;
- h. The Applicant has submitted all required fees in full; and,
- i. The Certification Commission has determined that the turbine is eligible for certification, and grants certification to the SWT.

G. Certification Fees

All SWCC Certification fees are approved by the SWCC Board of Directors. The SWCC Certification Fee Schedule is provided in Policy Annex E. All current fees are subject to change. Fees may be paid by check or by wire transfer. Checks must be in U.S. funds drawn on a U.S. bank and payable to Small Wind Certification Council.

1. Preliminary Review Fee. A non-refundable fee paid by the Applicant with the Notice of Intent to Submit an Application. This fee satisfies all costs related to: an initial review of the WT design and test plans concerning the WT seeking certification; and, the development of the Certification Agreement(s).
2. Test Site Evaluation Fee. A non-refundable fee paid by the Applicant related to the on-site evaluation of a non-accredited testing organization (see Section I.2 and I.3), if such an evaluation is deemed necessary by SWCC to fulfill the requirements of this Policy. This fee will be invoiced to the Applicant and must be paid prior to scheduling the evaluation.

Any additional site evaluation expenses to be charged will be determined by SWCC based upon the actual costs incurred to complete the evaluation. Additional expenses related to site evaluation will be payable upon completion of the Test Site Evaluation. If the evaluation identifies deficiencies requiring corrective actions, additional fees will apply for any necessary SWCC reevaluation of the Applicant's completion of the corrective actions.



3. Test Site Travel Expenses. Non-refundable expenses paid by the Applicant related to the travel of SWCC representatives with respect to the Test Site Evaluation. Such expenses will be estimated in accordance with the SWCC Travel Policy and will be charged to the Applicant before the Test Site Evaluation has been scheduled. These expenses must be paid prior to scheduling the evaluation. Eligible travel expenses include:
 - a. Airfare;
 - b. Railroad fare;
 - c. Car rental and fuel;
 - d. Taxi and bus fare;
 - e. Toll fares;
 - f. Parking;
 - g. Meals and incidental expenses per federal rates;
 - h. Person mileage at the federal rate; and,
 - i. Lodging.
4. Certification Application Fee. A non-refundable fee paid by the Applicant with the Certification Application. This fee satisfies the costs related to: the technical review of test reports; the resolution of application issues; Certification Commission application review; and, the publishing of WT data.
5. Annual Certification Renewal Fee. A non-refundable fee paid by the Certification Holder with the required Annual Certification Report.

H. Application Requirements

In order to complete the SWCC WT Performance Certification application process, each Applicant must submit the following completed application materials.

1. Notice of Intent to Submit an Application. An Applicant intending to seek SWCC WT Performance Certification will first submit a Notice of Intent to Submit an Application (Notice of Intent). After receiving this Notice of Intent, SWCC will review the details of the WT to be certified and the plans for testing. SWCC will use this information to determine the Certification Fee and develop a Certification



Agreement. Guidelines for preparing the Notice of Intent are provided in Policy Annex B.

An SWCC Configuration Description Form will be included in the Application materials. This Form must be completed for each turbine seeking SWCC Certification and must be submitted with the Notice of Intent.

2. Certification Agreement with Applicant. After acceptance of the Notice of Intent by SWCC, the Applicant will sign an Agreement with SWCC, which provides detailed information concerning: the turbine to be certified; the test plans; and, the roles and responsibilities of each party. As part of this Agreement, the Applicant must agree to provide all design documents and raw data, or subsets of processed data (e.g., results for a particular date range), in a suitable format, if requested by SWCC. This Certification Agreement will be presented to the Applicant following the review of the Notice of Intent.
3. Testing Agreement with Testing Organization. Non-accredited testing organizations that intend to perform testing for certification must sign a Testing Agreement with SWCC, which provides detailed information concerning: the turbine to be certified; the test plans; and, the roles and responsibilities of each party. The Testing Agreement will be presented to the Testing Organization after the Applicant has signed the Certification Agreement.
4. Certification Application. Once all eligibility conditions have been satisfied and all required testing and reporting have been completed, Applicant will submit a complete Certification Application, including the final test reports, to SWCC.
5. Publication of Application Status. In the Notice of Intent, an Applicant may request to have the status of the Application published on the SWCC website. Following acceptance of the Certification Agreement, SWCC will publish on the SWCC website the Applicant's name, WT model, and Application Status with the following status information:

“Under Contract” which indicates that the Applicant has executed a Certification Agreement with the SWCC;

“Under Test” which indicates that the WT has been installed at the test site, commissioned, instrumented and is collecting data; or,

“Reports Submitted” which indicates that the Applicant has submitted complete test reports to the SWCC with a Certification Application.

Note: the date on which the Applicant has achieved each Application Status will be published on the SWCC website.



6. Inactive Status. After one (1) year of being “Under Contract,” the Applicant must complete an “SWCC Applicant Follow-Up Form” to identify to SWCC the progress of the WT toward achieving “Under Test” status. If the WT has not yet achieved “Under Test” status after eighteen (18) months from the “Under Contract” date, the WT application status will be changed to “Inactive” and the WT will be removed from the SWCC website until “Under Test” status is achieved.

I. Qualified Testing Organizations

Qualified Testing Organizations must satisfy, and comply with, all relevant requirements of ISO/IEC Standard 17025: *General Requirements for the Competence of Calibration and Testing Laboratories*. In order to be designated as a Qualified Testing Organization, the testing organization must be either: accredited under ISO/IEC Standard 17025 by an authorized third-party accreditation body with a scope that covers the required testing; or, evaluated and approved by SWCC under the ISO/IEC Standard. The three (3) types of Qualified Testing Organizations, and the related requirements, are as follows:

1. Accredited Testing Organization. Test reports will be accepted for turbines tested by an organization accredited to ISO/IEC Standard 17025 by an authorized national or international accreditation body. The scope of the accreditation must include testing to the WT Performance Certifications sought by the Applicant, IEC 61400-11 (Acoustics) and/or IEC 61400-12-1 (Power Performance), depending on the WT Performance Certification being sought by the Applicant.
2. Non-Accredited Testing Organization. For WTs tested by a non-accredited testing organization, SWCC will perform an on-site audit of the test facility to determine suitability and competence, using ISO/IEC Standard 17025 as a guide. The audit will document conformance with the IEC Standards, and will include:
 - a. An evaluation of the testing organization’s quality assurance system using ISO/IEC Standard 17025 as a guide. This quality audit will involve SWCC review and verification of the organization’s: staff; procedures; instruments; calibrations; signal quality to data acquisition system; data quality procedures; and/or, validated data analysis procedures; and,
 - b. An evaluation of the testing organization’s test environment using the IEC Standards as a guide.

If the testing organization fails to satisfy relevant requirements of ISO/IEC Standard 17025, all testing performed on the WT by that test facility, and all related test analysis reports, will be rejected by SWCC.

3. Manufacturer Testing. For turbines tested at a facility operated by the WT Manufacturer, SWCC will conduct an on-site audit and evaluation for non-accredited



testing organizations, consistent with the requirements of Policy Section I.2. In addition to the audit, the manufacturer must also agree to the following terms:

- a. Unannounced facility site inspections by SWCC;
- b. Periodic surveillance of data by SWCC; and,
- c. Development, maintenance, and enforcement of facility policies and procedures ensuring that all key personnel involved in the WT testing, and the collection and reporting of data related to the WT tests, are impartial and free from any undue commercial, financial, and other pressures that might influence their technical and independent judgment. In order to satisfy this requirement, the SWCC Manufacturer/Applicant must either: adopt the procedures identified in Annex I of this Policy; or, submit its policies and procedures concerning this requirement to SWCC for review and approval. SWCC retains the sole authority to accept, reject, or require modification of such WT Manufacturer policies.

If the test facility fails to satisfy relevant requirements of ISO/IEC Standard 17025 , all testing performed on the WT by that facility, and all related test analysis reports, will be rejected by SWCC.

J. Test and Analysis Report Requirements

1. Test and Analysis Reports submitted to SWCC must clearly and specifically state how each requirement of the relevant IEC Standards has been met with respect to the WT tested. The following information and elements must be included in the final Test Report in the format required by SWCC.
 - a. Power Performance Test Report. The power performance test report must include:
 1. Reporting requirements of Section 9 (Reporting Format) of IEC 61400-12-1;
 2. A summary of the data analysis tool(s) utilized in this test. These tools shall be made available for an SWCC audit; and,
 3. Log Book. A dedicated log book must be maintained during the testing as required by the IEC Standard. This log book must be submitted to SWCC if requested.
 - b. Acoustic Test Report. The acoustic test report must include:



1. Reporting requirements of Section 9 (Information to be reported) of IEC 61400-11; and,
2. A summary of the data analysis tool(s) utilized in this test. These tools shall be made available for an SWCC audit.

K. Certificate and Summary Report

SWCC will prepare, and provide to Certification Holders, a Certificate and Summary Report for the certified WT consistent with the SWCC WT Performance Certificate Format provided in Policy Annex A and the SWCC WT Performance Certification Summary Report Format provided in Annex F.

L. Complaints and Disputes Related to WT Reporting and Records Requirement

As a condition of SWCC certification and certification renewal, each Certification Holder is required to report to SWCC all complaints and disputes (complaint matters), including any legal, government, or other third party communications received by the Certification Holder, questioning or objecting to the acoustic and/or power performance of the WT, depending on the WT Performance Certification(s) granted by SWCC. Such complaint matters must be reported to SWCC within thirty (30) days of Certification Holder's knowledge of such matter.

With respect to this reporting requirement, the Certification Holder must submit to SWCC a Complaint Matter Reporting form, as provided in Policy Annex J, which includes the following information:

- Identification of the complaining party, if known;
- A description of the nature of the complaint matter; and,
- An explanation of the Certification Holder's response to the complaint matter, including any corrective actions taken, and the resolution of the matter.

In addition to these information requirements, the Certification Holder must submit to SWCC copies of: all written complaint matter communications; the Certification Holder's response to such complaint matter(s); any additional communications between the complaining party, any involved government agency(ies), and the Certification Holder relating to the matter; and, the final resolution of the matter, if available.

SWCC will review all complaint matters related to the certified WT in order to determine whether a Notice of Deficiency and Violation will be issued to the Certification Holder under Section O of this Policy.



M. Certification Renewal and Conditions

1. Period of Certification Validity. SWCC WT Performance Certification is valid during the certification period so long as all Certification Policy conditions are met. Among others, the Certification Holder must satisfy the following conditions:
 - a. The turbine has not been changed in any respect that significantly alters power and/or acoustic performance of the original design approved in the SWCC Certification;
 - b. Changes to the turbine design that may affect power and/or acoustic performance have been reported to SWCC by the Certification Holder as required by this Policy and the Certification Commission; All complaint matters, field failures and malfunctions of the WT, related to power and/or acoustic performance have been reported to SWCC consistent with this Policy;
 - c. The Certification Holder is in compliance with all applicable SWCC policies, including the SWCC Trademark and Certification Mark Use Policy. All SWCC marks have been used properly, and in a manner consistent with SWCC policies;
 - d. The Certification Holder has complied with the Complaint and Dispute requirements of Section L; and,
 - e. The Annual Certification Renewal Fee has been paid in full.
2. Certification Renewal Requirements.
 - a. Annual Certification Report. In order to maintain SWCC Certification, the Certification Holder is required to prepare and submit an Annual Certification Report to SWCC each year, at least 45 days before the anniversary of the date that the SWCC certification was issued. In order to be accepted, the Annual Certification Report must include a complete and accurate explanation of the following information:
 1. All abnormal operating experiences, equipment failures or malfunctions, and other problems related to the power and/or acoustic performance of the certified WT;
 2. All modifications to the certified WT, including all hardware and software changes, that may affect the power and/or acoustic performance of the certified WT; and,



3. A summary list of all complaint matters regarding power and/or acoustic performance of the certified turbine within the past twelve (12) months, consistent with the requirements of Section L of this Policy.

A sample Annual Certification Report Form is provided in Policy Annex G. The template provided in the Annex is for informational purposes only. A custom report form will be sent to the Applicant when Certification is granted.

The Technical Director will assess the Annual Certification Report information, and determine whether the Report satisfies the requirements of this Policy Section. If accepted, the Certification Holder will be notified of continued certification, and will receive an updated Certificate.

If the Technical Director identifies any concerns or anomalies related to the information in the Annual Certification Report, the matter will be referred to the Certification Commission, which will decide whether to accept the report and maintain certification for another year, or whether to require additional testing or other requirements in order to confirm the WT's ongoing compliance and eligibility. If any WT changes are deemed significant, then the Requirements of Section M.2.b below will apply. These results will be communicated to the Certification Holder in writing.

- b. Significant WT Modifications. In the event that a certified turbine is, or will be, modified in any significant respect that may affect power and/or acoustic performance, the Certification Holder must report such modification to SWCC in a timely and accurate manner, no more than thirty (30) days after such WT design changes have occurred.

The Certification Holder is required to consult with the Technical Director to determine whether a product change is minor or significant. Thereafter, the Technical Director will consult with the Certification Commission to determine whether there is a material deviation from the initial certified turbine design that may significantly affect the WT's power and/or acoustic performance. Once SWCC determines whether a significant modification to the certified WT has been proposed, SWCC may: require more information regarding the change; require re-testing or partial re-testing; require re-certification of the turbine; or, determine that the change is minor and no action is required. The Certification Holder must provide all required information and documentation to SWCC.

A sample Significant Modification Report Form is provided in Policy Annex H. The template provided in the Annex is for informational purposes only. A custom form will be sent to the Applicant when SWCC Certification is



granted.

- c. Annual Certification Renewal Fee. Payment of the Annual Certification Renewal Fee is required to maintain certification. In the event the information reported in the Annual Certification Report or the Significant Modification Report requires additional SWCC review, the Certification Holder will be charged separately for such SWCC costs and expenses, consistent with the applicable SWCC fee schedule.
3. Change in Ownership of WT. If ownership rights in and to the WT changes, or the Certification Holder identified in the SWCC WT Performance Certificate no longer has any rights in or to the certified WT, a new SWCC Certification Agreement must be accepted by the new owner of the WT to maintain the SWCC Performance Certification, or the certification will terminate. A fee will be charged to complete transfer of SWCC certification.

N. Applicant Information Confidentiality / Conflict of Interest

1. Application Confidentiality. Certification Applications, and the information contained therein, will be treated as confidential material by SWCC. The review of Applications by SWCC staff, consultants, and Certification Commissioners will be confidential and conducted in private meetings. Prior to a certification determination and upon request by the Applicant, SWCC will publish the Applicant's name, WT model, and Application Status, pursuant to Policy Section H.6. All other Application information will remain confidential until a certification determination has been issued by SWCC.

Once certification is granted, the following materials will be made available to the public: a Summary Report, as described in Policy Annex F and the SWCC Certificate, consistent with Policy Annex A. All other turbine information will remain confidential.

2. Conflict of Interest. All SWCC representatives are required to disclose any potential conflict of interest related to a pending WT Performance Certification Application to the SWCC Executive Director, consistent with SWCC conflict of interest policies and agreements.

O. Certification Deficiency and Policy Violation Resolution Process

SWCC will review and resolve all matters involving: a potential failure of the Certification Holder to satisfy a requirement of this Policy; a complaint or similar communication received by the Certification Holder or SWCC concerning the WT; and, any other dispute related to SWCC policies.

1. Notice of Potential Certification Deficiency or Policy Violation.



The Certification Commission will issue a Notice of Deficiency and/or Notice of Policy Violation (Notice) to a Certification Holder where the Commission has determined that:

- a. the Certification Holder may have violated any requirement of this Policy; or,
 - b. a deficiency may exist with respect to the Certification Holder's SWCC certification.
2. Required Response to Deficiency Notice. Within thirty (30) days of receipt of such Notice, the Certification Holder must: respond to each identified deficiency and/or Policy violation; provide all relevant information and materials; and, otherwise satisfy all requirements set forth in the Notice. Following the timely submission of a complete and accurate response to the Notice, all deficiency and violation matters will be resolved by the Certification Commission pursuant to this Policy Section.
3. Failure to Respond. In the event that the Certification Holder does not provide a timely, complete, and accurate response to a Notice, the Certification Commission may issue any sanction(s) or corrective action(s) authorized by this Policy, or any other applicable SWCC Policy. The Certification Holder must comply fully with all sanctions and/or corrective actions issued by the Commission.
4. Grounds for Sanction and Corrective Actions. The circumstances under which the Certification Commission may issue certification sanctions and/or corrective actions include, but are not limited to, the following:
 - a. The Certification Holder has failed to satisfy an SWCC Policy requirement with respect to a Certification Holder's SWCC certification;
 - b. The Certification Holder makes a material misrepresentation to SWCC;
 - c. The Certification Holder makes a public misrepresentation concerning its activities, operations, or a tested product;
 - d. The Certification Holder fails to comply with a condition of the certification;
 - e. The Certification Holder violates, or acts contrary to, an SWCC Policy;
 - f. The Certification Holder fails to remit required certification fees and charges to SWCC;
 - g. Other good and reasonable cause exists and supports the issuance of sanctions or corrective actions under this Policy.
5. Certification Deficiency and Policy Violation Decisions. Based on an objective and complete review of the information received, the Certification Commission, in its sole discretion, will determine whether a certification deficiency or Policy violation



exists, or whether to dismiss the Notice. Upon the finding of any such deficiency or violation, the Certification Commission will determine the severity of such deficiency(ies) or violation(s), and issue a Deficiency and/or Violation Decision. In its sole discretion, the Commission may issue one or more of the following actions:

- a. Private or Public Reprimand.
 - b. Conditions of Continued Certification.
 - c. Certification Probation. The term of certification probation will be for a period of up to six (6) months. Certification probation status will not be published on the SWCC website. During the period of SWCC certification probation, the SWCC certification remains in effect.
 - d. Certification Suspension. The term of a certification suspension will be for a period of at least six (6) months, and a maximum of thirty-six (36) months. Notice of certification suspension will be published on the SWCC website. During the period of SWCC certification suspension, the Certification Holder is not permitted to use any SWCC Certification Mark or make any representation concerning certification by, or affiliation with, SWCC with respect to the relevant WT that is the subject of the deficiency or Policy violation. In addition, the Certification Commission may require that the Certification Holder perform certain, appropriate corrective actions related to the suspension.
 - e. Certification Revocation. Upon certification revocation, all rights of the Certification Holder to SWCC Certification will terminate in all respects, and the WT will be removed from the listing of SWCC certified turbines on the SWCC website. Notice of certification revocation will be published on the SWCC website. The Certification Holder is not permitted to use any SWCC Certification Mark, or make any representation concerning certification by, or affiliation with, SWCC with respect to the WT that is the subject of the deficiency or Policy violation.
6. Probation Order/Reinstatement. Following the expiration of a final Certification Probation Decision and Order issued under Policy Section 0.4.c, the Certification Commission will do the following: if the Certification Holder has satisfied the terms of probation in full, verify that the probation has been completed and reinstate the Certification Holder to full certification status; or, if the Certification Holder has not satisfied the terms of probation in full, determine whether the probation order will continue, and/or issue additional, appropriate sanctions or actions.
 7. Suspension Order/Reinstatement Request. After the expiration of a final Certification Suspension Decision and Order issued under Policy Section 0.4.d, the Certification Holder may submit a Request for Reinstatement (Reinstatement



Request) to the SWCC Executive Director for review by the Certification Commission.

- a. Contents of Reinstatement Request. The Reinstatement Request must include the following information: a statement of the reasons that the Certification Holder believes support or justify the acceptance of the Reinstatement Request; and, copies of any relevant materials which support the Request. The Certification Commission may require any additional information or documents related to its review of the Reinstatement Request.
 - b. Certification Reinstatement Decision. Within thirty (30) days of the conclusion of its review of a Reinstatement Request, or as soon as practical, the Certification Commission will prepare and issue a written Reinstatement Decision and Order explaining its decision with respect to the Request. The final Decision and Order will indicate: whether the Reinstatement Request is granted, denied, or continued to a later date; whether all certification deficiencies and Policy violations identified in the Deficiency and/or Violation Decision have been appropriately remedied and resolved; or, whether additional deficiencies or Policy violations exist justifying the continuation of the Suspension Order, and/or issuance of additional certification actions. If appropriate, the Decision and Order will indicate any conditions of SWCC certification.
8. Revocation Order/Reapplication Petition. Two (2) years after the date of a final Certification Revocation Decision and Order issued under Policy Section 0.4.e, the WT Manufacturer, or its authorized designee, may submit a Petition to Reapply for Certification (Reapplication Petition) to the SWCC Executive Director for review by the Certification Commission.
- a. Contents of Reapplication Petition. The Reapplication Petition must include the following information: a statement of the reasons that support or justify the acceptance of the Reapplication Petition; and, copies of any relevant materials which support the Petition. The Certification Commission may require any additional information or documents related to its review of the Reapplication Petition.
 - b. Certification Reapplication Decision. Within thirty (30) days of the conclusion of its review of a Reapplication Petition, or as soon as practical, the Certification Commission will prepare and issue a written Reapplication Decision and Order explaining whether the Petition is accepted, denied, or continued to a later date. If the Reapplication Petition is accepted, then the WT Manufacturer, or its authorized designee, may submit a new Notice of Intent to Submit an Application for SWCC Certification.



P. Deficiency and Violation Decision Appeals

A Certification Holder may appeal an adverse Certification Deficiency or Policy Violation Decision, or any part thereof, to the SWCC Appeals Committee, pursuant to the terms of the SWCC Certification Appeal Policy.



Annex A: SWCC WT Certificate Formats

SWCC WT Power Performance Certificate Format

To be made publicly available once a SWCC Certification has been granted



This Certificate is issued to:

XXXX
Street
City
Country

For the wind turbine:

XXXX

This Certificate represents that the above-identified Wind Turbine (WT) has been evaluated by SWCC concerning Power Performance testing. The testing and reporting have been found to be in conformance with IEC 61400-12-1. SWCC WT Power Performance Certification only applies to the specific WT model identified above.

Changes to the Wind Turbine system design that may affect power performance are to be approved by SWCC. If changes are made to the WT without approval, this Certificate is not valid and is not in effect.

The wind turbine specifications relevant to this Certificate are provided on the following page.

This Certificate is valid from [Date] to [Date]. Certification must be renewed annually.

Signature

SWCC Executive Director

Date



SWCC Power Performance Certificate, Page 2

Wind Turbine Specifications:

Turbine parameters

Manufacturer.....
Model.....
Power Form.....
Rotor Diameter..... [m]
Rotor Swept Area..... [m²]
Rated Power..... [kW]
Rated Wind Speed..... [m/s]
Cut-In Wind Speed..... [m/s]
Cut-Out Wind Speed..... [m/s]



SWCC WT Acoustic Performance Certificate Format

To be made publicly available once a SWCC Certification has been granted



This Certificate is issued to:

XXXX
Street
City
Country

For the wind turbine:

XXXX

This Certificate represents that the above-identified Wind Turbine (WT) has been evaluated by SWCC concerning Acoustic testing. The testing and reporting have been found to be in conformance with IEC 61400-11. SWCC WT Acoustic Performance certification only applies to the specific WT model identified above.

Changes to the Wind Turbine system design that may affect acoustic performance are to be approved by SWCC. If changes are made to the WT without approval, this Certificate is not valid and is not in effect.

The wind turbine specifications relevant to this Certificate are provided on the following page.

This Certificate is valid from [Date] to [Date]. Certification must be renewed annually.

Signature

SWCC Executive Director

Date



SWCC Acoustic Performance Certificate, Page 2

Wind Turbine Specifications:

Turbine parameters

Manufacturer.....
Model.....
Power Form.....
Rotor Diameter..... [m]
Rotor Swept Area..... [m²]
Rated Power..... [kW]
Rated Wind Speed..... [m/s]
Cut-In Wind Speed..... [m/s]
Cut-Out Wind Speed..... [m/s]



Annex B: Notice of Intent to Submit an Application for SWCC WT Performance Certification



Notice of Intent to Submit an Application for SWCC Wind Turbine Performance Certification

Please submit this form and all attachments electronically to the e-mail address below. If necessary, send a hard copy of this form with payment of the Preliminary Review Fee to the mailing address below:

To: Small Wind Certification Council
56 Clifton Country Road, Suite 202
Clifton Park, NY 12065
info@smallwindcertification.org

Please use the legal corporate or other business name for the Company and the official corporate address.

Date (mm/dd/yyyy) _____

Applicant Name _____

Company _____

Description of Legal Status _____

(e.g. LLC organized in the State of xxxxxx)

Website _____

Address 1 _____

Address 2 _____

City, State, Zip, Country _____

Email _____

Phone 1 _____

Phone 2 _____



The Applicant identified above represents the following:

1. The Applicant is the designer and/or manufacturer of the WT, or the authorized designee of the designer/manufacturer. **Please indicate the Applicant type below:**
 - Holder of all ownership rights in and to the WT (WT Manufacturer)
 - Authorized Designee of the WT Manufacturer (include written proof of authorization with this application)

2. The Applicant chooses to pursue one or both of the following SWCC Wind Turbine Performance Certification services. **Please indicate your intent to pursue one (1) or both services.**
 - Certification of Power Performance testing according to IEC 61400-12-1
 - Certification of Acoustic testing according to IEC 61400-11

3. The rotor swept area is **greater than 200 m²**.

4. The Applicant has:
 - ✓ Received and accepted IEC 61400-12-1 (Power Performance testing) and/or IEC 61400-11 (Acoustic testing)
 - ✓ Included the SWCC **Preliminary Review Fee**.

By signing below, the authorized representative of the applicant confirms and agrees that all of the information contained in this Notice of Intent is true and accurate.

Applicant Signature - Applicant agrees to the above representations

Preliminary review fee

- Notice of Intent to Submit an Application for one (1) WT **US\$ 2500**

- For each additional WT submitted when multiple WT configurations of the same turbine type are included in the Notice of Intent, provided that SWCC confirms that the WTs are similar in design and other significant characteristics. **US\$ 1250**

- Fees may be paid by check or by wire transfer. Checks must be in U.S. funds drawn on a U.S. bank and payable to Small Wind Certification Council. Contact SWCC for wire instructions.



Turbine information. Please provide the following information for each turbine to be certified:

Model: _____

Rotor: _____

Rotor diameter (m): _____

Swept area (m²): _____

Power form _____ (e.g. 240VAC, 60Hz, 1-phase)

*(Please complete the **SWCC Configuration Description Form** for each turbine)*

Testing and evaluation plans. Please describe the Testing Organization that will be testing the turbine(s) to be certified:

Testing organization: _____

Address: _____

Contact: _____

Phone: _____

Website: _____

Email: _____

Publication of Application Status

The Applicant may request that SWCC publicly list the status of the SWCC Certification Application on the SWCC website, pursuant to Section H.6 of the SWCC WT Performance Certification Policy.

Please check one box below:

- Yes, I authorize SWCC to publicly list the Applicant’s name, WT model and Application Status on the SWCC website.
- No, I would like the Applicant’s name, WT model and Application Status to remain confidential as we pursue certification.

While SWCC makes a significant effort to maintain current and accurate applicant directory information on the SWCC website, SWCC does not warrant or guarantee the accuracy, timeliness, or fitness of the information contained therein for any purpose.



Annex C: Certification Process Summary

The following is an informative summary of the SWCC WT Performance Certification process.

1. Applicant will acquire from the SWCC website:
 - a. The **SWCC4: SWCC Wind Turbine Performance Certification Policy**;
 - b. The **Notice of Intent to Submit an Application for WT Performance Certification form**; and,
 - c. The **SWCC Configuration Description form**.
2. SWCC will receive a Notice of Intent to Submit an Application (Notice of Intent) along with the SWCC Configuration Description Form and Preliminary Review Fee
3. SWCC will evaluate Applicant's Notice of Intent to determine detailed plans for testing, the choice of Power and/or Acoustic Performance Certification, and will communicate with the Applicant and Testing Organization as required.
4. Applicant will sign a Certification Agreement with SWCC, which details the turbine to be certified, the test plans, and the Certification Fees.
5. If the Applicant chooses to authorize SWCC to publicly list the Applicant's name, WT model and Application Status, such information will be published on the SWCC website.
6. A non-accredited testing organization (if applicable) will sign an Agreement with SWCC, agreeing to perform appropriate tests on the turbine to be certified, and agreeing to the test plans and SWCC test site evaluation.
7. After testing and reporting are complete, Applicant must submit to SWCC:
 - a. A complete Certification Application (an Application form will be provided by the SWCC);
 - b. Final testing report(s); and,
 - c. The Certification Fee (determined after a review of the Notice of Intent; this fee varies depending on the particular details of the turbine and test plans).
8. SWCC Technical Director and other experts as needed, will review Application materials, test reports, and communicate with the Applicant and testing organization to resolve issues.



9. Technical Director will send a technical review report to the Certification Commission documenting the technical review results for the Certification Commission.
10. Certification Commission will review the Technical Director report, and determine whether the Certification Application is granted or rejected.
11. SWCC will grant certification to the WT, or issue a rejection of the Certification Application describing the reasons for such determination.
12. If certification is granted, SWCC will prepare a Certificate signed by the SWCC Executive Director and a Summary Report for publication on the SWCC Internet site and distribution by the Certification Holder.



Annex D: References

The following documents were used in the creation of, or are referenced within, this Policy.

1. IEC 61400-12-1 (2005): *Wind Turbines – Part 12-1: Power performance measurements of electricity producing wind turbines.*
2. IEC 61400-11 (2006): *Wind turbine generator systems - Part 11: Acoustic noise measurement techniques.*
3. IEC 61400-11 (2012): *Wind turbine generator systems - Part 11: Acoustic noise measurement techniques.*
4. IEC TS 61400-22 (2008): *Wind turbines - Part 22: Conformity testing and certification of wind turbines.*
5. IEC/ISO Guide 65 (1996): *General requirements for bodies operating product certification systems.*
6. ISO/IEC 17025 (2005): *General requirements for the competence of calibration and testing laboratories.*



Annex F: SWCC WT Performance Certification Summary Report Format

WT Power Performance Certification

The WT Power Performance Summary Report will include the following elements:

1. An introduction that includes a description of the field testing, the testing organization and the configuration of the tested WT;
2. a scatter plot of mean, standard deviation, maximum, and minimum power output as a function of wind speed;
3. a scatter plot of the turbulence intensity as a function of wind speed;
4. tabulated measured power curve for air density at sea level;
5. graph of the measured power curve for air density at sea level;
6. graph of C_p as a function of wind speed for air density at sea level;
7. tabulated annual energy production for air density at sea level; and,
8. graph of annual energy production for air density at sea level.

WT Acoustic Performance Certification

The WT Acoustic Performance Summary Report will include the following elements:

1. An introduction that includes a description of the field testing, the testing organization and the configuration of the tested WT;
2. table of apparent sound power level $L_{WA,k}$ at bin center wind speeds at hub height;
3. table of apparent sound power level $L_{WA,10m,k}$ at integer wind speeds at 10 m height;
4. table and plot of measured sound pressure levels (total noise and background noise);
5. table and plot of sound power spectrum in 1/3-octaves;
6. results of tonality analysis;



Annex G: Annual WT Performance Certification Report Form

This template is for informational purposes only. A custom form will be sent to the Applicant when Certification is granted.

SWCC Annual Certification Report Form

According to Section M.2.a of the SWCC Wind Turbine Performance Certification Policy, the Applicant shall prepare and submit this Annual Certification Report to SWCC 45 days before the anniversary of SWCC certification each year.



Date (mm/dd/yyyy): _____

Certification Holder: _____

Turbine Model: _____

SWCC Certification Number
(SAP-XX-XX and/or SPP-XX-XX): _____

Issue date of SWCC Certification (mm/dd/yyyy): _____

Report all abnormal operating experiences, equipment failures, and other problems related to the power and/or acoustic performance of the certified WT:
Summarize all complaints made known to supplier relating to the turbine's performance and compliance with the IEC Standard(s).
Identify all modifications to the certified WT, including all hardware and software changes, that may affect power and/or acoustic performance:



Annex H: WT Significant Modification Report Form

This template is for informational purposes only. A custom form will be sent to the Applicant when Certification is granted.

SWCC Significant Modification Report Form

According to Section M.2.b of the SWCC Wind Turbine Performance Certification Policy, in the event that a certified turbine is, or will be, modified in any significant respect that may affect power and/or acoustic performance, the Certification Holder must report such modification to SWCC in a timely and accurate manner, no more than thirty (30) days after such WT design changes have occurred. Please refer to Section M.2.b of the Policy for guidance on defining a Significant Modification.



Date (mm/dd/yyyy): _____

Certification Holder: _____

Turbine Model: _____

SWCC Certification Number
(SAP-XX-XX and/or SPP-XX-XX): _____

Issue date of SWCC Certification (mm/dd/yyyy): _____

Please report all planned Significant Modifications to the design of the certified wind turbine that may affect power and/or acoustic performance. Also include a rationale explaining how the changes may or may not affect the validity of the Certification.



Annex I: Policy and Procedures Concerning Independence and Impartiality of Testing Personnel

A. Introduction and Purpose

Testing laboratories and facilities (test facilities) operated by WT Manufacturers seeking SWCC certification of its product(s) must ensure that key personnel involved in the testing of WTs (testing personnel), and the reporting of WT test data, are impartial and free from any undue commercial, financial, and other pressures that might influence their technical and independent judgment. To that end, all test facilities must establish policies and procedures which: identify possible or actual influences which may create a conflict or undue influence on testing personnel; and, identify rules to prevent or limit such influences on those involved in the testing of WTs and related activities.

The purpose of such policies and procedures is to ensure confidence in the test facility's competence, impartiality, judgment, and operational integrity.

B. Internal and External Influence

A test facility must ensure that all owners, managers, and employees, contractors, and other third parties do not influence, or otherwise affect the validity or impartiality of, the activities and judgment of testing personnel. In order to accomplish this, the test facility must implement and satisfy the following procedures and requirements:

1. Test facility personnel involved in the design, development, and manufacture of the turbine are clearly identified in the related project report and documentation;

AND

2. When conducting tests and collecting data concerning a turbine, the test facility will only assign and use testing personnel who were not, and will not be, involved in the design, development, or manufacture of that turbine, and who are otherwise competent and qualified to perform such testing and data collection activities (approved testing personnel);

OR

In the WT Manufacturer is unable to identify appropriate testing personnel under this Policy, and intends to use other personnel or contractors who do not qualify for approved testing personnel status, the test facility must:

- a. Ensure that appropriate training concerning potential conflicts and undue influence is provided to such test facility personnel or contractors; and,



- b. Engage a qualified, independent third party evaluator to review and approve all test results and underlying data, and to confirm, modify, or reject such results and data.

C. Training of Testing Personnel/Activity Prohibitions

The test facility is responsible for ensuring that its testing personnel understand the importance of maintaining the competence, integrity, judgment, and operations integrity of the facility and related testing activities. In this regard, the test facility must take appropriate steps to ensure that its testing personnel not act in any manner, or engage in any activities, that may influence his/her independent judgment, or otherwise cast doubt upon its testing activities or the validity of test results or reports, including personnel training and the required disclosure of any involvement in any activities, organizations, or businesses that may relate to the interests or activities of the test facility.



Annex J: WT Complaint Matter Reporting Form

This template is for informational purposes only. A custom form will be sent to the Applicant when Certification is granted.

Complaint Matter Reporting Form

According to Section L of the SWCC Wind Turbine Performance Certification Policy, each Certification Holder is required to report to SWCC all complaints and disputes (complaint matters) questioning or objecting to the acoustic and/or power performance of the WT. Please refer to Section L of the Policy for more information on Complaint Matters Reporting.



Date (mm/dd/yyyy): _____

Certification Holder: _____

Turbine Model: _____

SWCC Certification Number
(SAP-XX-XX and/or SPP-XX-XX): _____

Issue date of SWCC Certification (mm/dd/yyyy): _____

Please use this form to report all Complain Matters to SWCC:

Complaining Party	Nature of Complaint	Response to Complaint