# INTERCONNECTION REQUIREMENTS OF WISCONSIN ELECTRIC COOPERATIVES (IRWEC)

VERSION 1.3
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# Preamble

This document, referred to as the Interconnection Requirements for Wisconsin Electric Cooperatives ("IRWEC"), effective July 1, 2025 and adopted by Vernon Electric Cooperative ("Cooperative") on November 11, 2025, presents uniform requirements for the interconnection of Distributed Energy Resources ("DER") within Wisconsin to an electric distribution system owned and operated by an electric cooperative. Each electric cooperative that has adopted the IRWEC may also have its own Technical Specification Manual ("TSM") with additional interconnection requirements exclusive to its electric distribution system. This Preamble provides interested parties with an overview of the interconnection process. It is not intended to replace provisions found in the IRWEC, in documents related to the IRWEC, or in a TSM.

Any person with the intent of interconnecting any DER to the electric distribution system of a Wisconsin electric cooperative that has adopted the IRWEC must:

- Submit a complete application in accordance with Section 2.2 by using the portal.
- Pay the appropriate fees as outlined within this document.
- Complete each step outlined in the interconnection process defined by the Cooperative.
- Adhere to the requirements of the IRWEC and the Cooperative's TSM.

Upon interconnecting with the Cooperative's electric distribution system, and by signing the Cooperative's interconnection agreement, the owner of the DER also agrees to:

- Notify the Cooperative of any DER Facility modifications using the portal in accordance with Section 2.4.
- Notify the Cooperative of any DER Facility ownership changes using the portal in accordance with Section 2.5.

A DER Facility under new ownership may not operate in parallel to a Wisconsin electric cooperative distribution system until the Cooperative has received and approved a change in ownership form.

The IRWEC is intended to provide Wisconsin electric cooperative members and installers with a clear set of technical requirements and a uniform application process, and to standardize other expectations for the interconnection of a DER to a Wisconsin electric cooperative distribution system. The IRWEC aligns with an electric cooperative's duty and obligation to plan and operate a Distribution System that economically delivers electric power, while focusing on safety, reliability, and quality of service for each member that it serves.

The application process and interconnection requirements outlined within this document parallels those found in Wisconsin Administrative Code Chapter PSC 119, which regulates the interconnection of a DER to a Wisconsin electric public utility's distribution system. Additionally, the interconnection requirements are also based on the IEEE 1547 standard as well as other national standards referenced within this document. The Cooperative will follow applicable industry standards and good utility practice when applying engineering judgment to the interconnection process outlined in these requirements.

This statewide IRWEC is intended to be used in conjunction with a TSM as adopted by individual electric cooperatives. Where industry standards exist, a cooperative's TSM should align with the applicable standards including IEEE 1547. A TSM should also list the individual electric cooperative's specific requirements, provide detail in areas not addressed by the IRWEC, and address situations where no national industry standards exist. In addition to allowing for differences in electrical distribution and information systems design and operation, individual TSMs may allow for expedited adoption of new industry standards and best practices as they become available without creating conditions where the statewide interconnection standards and national standards become out-of-sync. To obtain a copy of a cooperative's TSM, please refer to the cooperative's website or contact the cooperative directly by using the contact information below.

**Adams-Columbia Electric Cooperative**
(608) 339-3346
www.acecwi.com

**Barron Electric Cooperative**
(715) 537-3171
www.barronelectric.com

**Bayfield Electric Cooperative**
(715) 372-4287
www.bayfieldelectric.com

**Central Wisconsin Electric Cooperative**
(715) 677-2211
www.cwecoop.com

**Chippewa Valley Electric Cooperative**
(715) 239-6800
www.cvecoop.com

**Clark Electric Cooperative**
(715) 267-6188
www.cecoop.com

**Dunn Energy Cooperative**
(715) 232-6240
www.dunnenergy.com

**East Central Energy**
(800) 254-7944
www.ece.coop

**Eau Claire Energy Cooperative**
(715) 832-1603
www.ecec.com

**Jackson Electric Cooperative**
(715) 284-5385
www.jackelec.com

**Jump River Electric Cooperative**
(715) 532-5524
www.jrec.com

**Oakdale Electric Cooperative**
(608) 372-4131
www.oakdalerec.coop/

**Oconto Electric Cooperative**
(920) 846-2816
www.ocontoelectric.com

**Pierce Pepin Cooperative Services**
(715) 273-4355
www.piercepepin.coop

**Polk-Burnett Electric Cooperative**
(715) 646-2191
www.polkburnett.com

**Price Electric Cooperative**
(715) 339-2155
www.priceelectric.coop

**Richland Electric Cooperative**
(608) 647-3173
www.rec.coop

**Riverland Energy Cooperative**
(608) 323-3381
www.riverlandenergy.com

**Rock Energy Cooperative**
(608) 752-4550
www.rock.coop

**Scenic Rivers Energy Cooperative**
(608) 723-2121
www.sre.coop

**St. Croix Electric Cooperative**
(715) 796-7000
www.scecnet.net

**Taylor Electric Cooperative**
(715) 678-2411
www.taylorelectric.org

**Vernon Electric Cooperative**
(608) 634-3121
www.vernonelectric.org

**Washington Island Electric Cooperative**
(920) 847-2541
www.wiecoop.com

# 1. General Information

## 1.1 Scope

This document applies to all DER facilities with a capacity of 15 MW or less that are interconnected, or whose owner seeks to interconnect, to an electric cooperative's distribution system. It also applies to all electric cooperatives to whose Distribution Systems a DER Facility is interconnected, or to which interconnection is sought. These rules establish uniform statewide standards for the interconnection of DER facilities to an electric distribution system owned and operated by an electric cooperative in the state of Wisconsin.

## 1.2 Definitions

The following definitions apply to the IRWEC. They provide the Cooperative and an Applicant a common vocabulary for the Interconnection process and should be referred to and used by the Cooperative and Applicant when gathering information and completing documentation.

i. "ANSI" means American National Standards Institute.

ii. "Applicant" means a Member of the Cooperative who is the legally responsible person applying to the Cooperative to Interconnect a DER Facility to the Cooperative's Distribution System.

iii. "Application Review" means a review by the Cooperative of the completed Wisconsin Electric Cooperative DER Application Form, to determine if an Engineering Review or Distribution System Study is needed.

iv. "Category 1" means a DER Facility with an Export Capacity kW in Alternating Current of 20 kW or less.

v. "Category 2" means a DER Facility with an Export Capacity kW in Alternating Current of greater than 20 kW and not more than 200 kW.

vi. "Category 3" means a DER Facility with an Export Capacity kW in Alternating Current of greater than 200 kW and not more than 1 MW.

vii. "Category 4" means a DER Facility with an Export Capacity kW in Alternating Current of greater than 1 MW and not more than 15 MW.

viii. “Certified Equipment” means a generating, control or protective system that has been certified by a Nationally Recognized Testing Laboratory as meeting acceptable safety and reliability standards.

ix. “Change of Ownership” means the transfer of title to, or control of, a DER Facility. Change of Ownership includes, but is not limited to, transfer of title to, or control of, real property upon which a DER Facility is installed.

x. “Change of Ownership Form” means the Wisconsin Electric Cooperative DER Change of Ownership Form, which a new Owner must file with the Cooperative to transfer the Interconnection Agreement from the previous Owner of the DER Facility to the new Owner.

xi. “Commissioning Test” means the process of documenting and verifying the performance of a DER Facility so that it operates in conformity with the Cooperative’s TSM.

xii. “Cooperative” means the Member-owned, not-for-profit electric cooperative that owns and operates the electric Distribution System that can Interconnect with Applicant’s DER Facility.

xiii. “Distributed Energy Resource” or “DER” means all types of generation and energy resources that can Interconnect to the Cooperative’s electric Distribution System pursuant to the IREWC and TSM. This includes, but is not limited to, photovoltaic systems (PV), wind turbines, battery energy storage systems (BESS), and fossil fuel generators. DERs are not limited to renewable energy technologies.

xiv. “DER Facility” means the entirety of a DER with an Export Capacity kW in Alternating Current of not more than 15 MW that will be or is Interconnected to the Cooperative’s electric Distribution System at one PCC. The term “DER Facility” is intended to include all equipment on the DER side of the PCC.

xv. “Distribution Feeder” means an electric line from the Cooperative substation or other supply point to Members that is operated at 50 kV or less.

xvi. “Distribution System” means all electrical wires, equipment, and other facilities owned or provided by the Cooperative that are normally operated at 50 kV or less.

xvii. “Distribution System Study” means a study to determine if a Distribution System upgrade is needed to accommodate the proposed DER Facility and to determine the cost of any such upgrade.

xviii. “Electric Power System” or “EPS” has the same meaning as “Distribution System”.

xix. “Energy Storage System” or “ESS” means a device or devices that capture energy produced at one time, store that energy for a period of time, and deliver that energy as electricity for use at a later time.

xx. “Energy Storage System Max Continuous Output kW in Alternating Current” means the maximum rated continuous power output of the Energy Storage System.

xxi. “Energy Storage System Max Usable Energy kWh in Alternating Current” means the maximum rated amount of energy stored in the Energy Storage System.

xxii. “Energy Storage System Peak Output kW in Alternating Current” means while grid interactive, the maximum short duration rated output power of the Energy Storage System to the Distribution System.

xxiii. “Engineering Review” means a study that may be undertaken by a Cooperative, in response to its receipt of a completed Wisconsin Electric Cooperative DER Application Form, to determine the suitability of the installation.

xxiv. “Export Capacity kW in Alternating Current” means the amount of power that can be transferred from the DER Facility to the Distribution System. Export Capacity is the combined nameplate rating in AC kW of all Distributed Energy Resources at the DER Facility.

xxv. “Fault” means an equipment failure, conductor failure, short circuit, or other condition resulting from abnormally high amounts of current from the power source.

xxvi. “IEEE” means Institute of Electrical and Electronics Engineers.

xxvii. “Interconnect” or “Interconnected” means the establishment and utilization of an Interconnection.

xxviii. “Interconnection” means the physical connection of a DER Facility to the Distribution System so that Parallel Operation can occur.

xxix. “Interconnection Agreement” means the agreement between the Cooperative and a DER Facility Owner for the Interconnection of the DER Facility. This typically takes the form of, but is not limited to, the Standard Interconnection Agreement.

xxx. “Lockable Interconnection Disconnect Switch” means a mechanical device used to disconnect a DER Facility from a Distribution System.

xxxi. “Interconnection Requirements for Wisconsin Electric Cooperatives” or “IRWEC” means this document which contains uniform requirements for the Interconnection of a DER Facility within Wisconsin to an electric Distribution System owned and operated by an electric Cooperative.

xxxii. “Inverter” means a machine, device, or system that converts direct current power to alternating current power.

xxxiii. “Islanding” means a condition on the Distribution System in which a DER Facility delivers power to Members using a portion of the Distribution System that is electrically isolated from the remainder of the Distribution System.

xxxiv. “kV” means kilovolt.

xxxv. “kW” means kilowatt. Unless otherwise specified, the definition references units in alternating current.

xxxvi. “Material Modification” means any modification to an interconnected DER Facility that changes the maximum electrical output of the DER Facility or changes the Interconnection equipment, including:

a. Changing from certified to non–certified devices.

b. Replacing a component with a component of different functionality or UL listing.

xxxvii. “Member” means any person who is receiving electric service from a Cooperative’s Distribution System.

xxxviii. “MW” means megawatt. Unless otherwise specified, the definition references units in alternating current.

xxxix. “Nameplate Rating” means the sum total of maximum continuous rated alternating current (AC) power (kW) output while grid connected of all of a DER Facility’s constituent generating units or Energy Storage Systems, or both, as identified on the manufacturer nameplate, regardless of whether it is limited by any approved means.

xl. “Nationally Recognized Testing Laboratory” means any testing laboratory recognized by the U.S. Department of Labor Occupational Safety and Health Administration’s accreditation program.

a. Note: A list of Nationally Recognized Testing Laboratories is available at www.osha.gov/dts/otpca/nrtl/index.html.

xli. “Network Service” means two (2) or more primary Distribution Feeders electrically connected on the low voltage side of two (2) or more transformers, to form a single power source for any Member.

xlii. “Owner” means a party that holds title to, or controls, real property where a DER Facility is located.

xliii. “Parallel Operation” means the operation, for longer than 100 milliseconds, of an on−site DER Facility while the Facility is connected to the energized Distribution System.

xliv. “Paralleling Equipment” means the generating and protective equipment system that interfaces and synchronizes a DER Facility with the Distribution System.

xlv. “Point of Common Coupling” or “PCC” means the point where the electrical power system of the Applicant seeking to Interconnect a DER Facility is electrically connected to the Distribution System. The Point of Common Coupling is equivalent, in most cases, to the service point as specified by the Cooperative and described in the National Electric Code and National Electrical Safety Code.

xlvi. “Portal” means the internet website used by an Applicant to submit documentation required by the IRWEC.

xlvii. “Power Factor” means the ratio of active power to apparent power.

xlviii. “RSD” or “Rapid Shutdown Device” means electrical safety mechanism designed to quickly shut down a DER Facility, such as a PV system or BESS, in the event of an emergency.

xlix. “Regional Transmission Operator” means the Midcontinent Independent System Operator (MISO).

l. “Standard Application Form” has the same meaning as “Wisconsin Electric Cooperative DER Application Form”.

li. “Standard Interconnection Agreement” means the Interconnection agreement form that must be completed by the Applicant and submitted to the Cooperative, and approved by the Cooperative, before a proposed DER Facility may Interconnect with the Cooperative’s Distribution System.

a. Note: A copy of each Cooperative’s Standard interconnection Agreement is available either on the respective Cooperative’s website or upon request.

lii. “Standard Pre–Application Request Form” means the Wisconsin Electric Cooperative DER Interconnection Pre-Application Data Request Form submitted by an Applicant to the Cooperative.

liii. “Standard Pre–Application Report” means the information provided by the Cooperative on a Wisconsin Electric Cooperative DER Interconnection Pre-Application Data Report in response to a completed Standard Pre-Application Request Form.

liv. Technical Specification Manual or “TSM” means the additional Interconnection requirements exclusive to a Cooperative’s electric Distribution System.

lv. “Telemetry” means transmission of DER operating data and settings using telecommunications techniques. It may also include controls and two–way communication.

lvi. “UL” means Underwriters Laboratory.

lvii. “Wisconsin Electric Cooperative DER Application Form” - means the standard application form that is submitted by the Applicant to

the Cooperative to allow for the Cooperative to review and evaluate the proposed DER Facility's impact upon potential Interconnection.

lviii. "Working Day" means any day except Saturday, Sunday, and holidays designated by the Cooperative.

## 1.3 References

The following standards are incorporated by reference except to the extent that a provision therein conflicts with the IRWEC or the Cooperative's TSM in which case the IRWEC or TSM provision shall prevail.

i. IEEE Std 1547: IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces

ii. IEEE Std. 1547.1: IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Energy Resources with Electric Power Systems and Associated Interfaces

# 2. General Requirements

## 2.1 Designated Points of Contact

Each Cooperative shall designate one or more points of contact for all Member inquiries related to DER Facilities and from which interested parties can obtain installation guidelines and the appropriate Wisconsin Electric Cooperative DER Application and Interconnection Agreement forms. Each Cooperative shall have current information concerning its DER points of contact available on its website.

## 2.2 Application Process for Interconnecting DER Facilities

Cooperatives and Applicants shall complete the following steps for all classes of DER Facilities, in the order listed:

i. The Cooperative shall respond to each request for DER Interconnection by furnishing, within five (5) Working Days, its guidelines and the Cooperative's electric service rules, representative or sample one–line schematic diagrams, and the appropriate Standard Application Form. Cooperatives shall also make these materials accessible on their website.

ii. The Applicant shall complete and submit the Standard Application form to its Cooperative via the Portal. An application shall not be considered submitted until the Applicant submits a fully completed form and pays applicable application fees in accordance with Table III below.

a. All submitted applications shall be reviewed for completeness in the order in which they fulfill the requirements of §2.2(ii) regardless of whether the project is from an outside Applicant or the Cooperative.

iii. Within ten (10) Working Days of receiving a new or revised application and application fee, the Cooperative shall notify the Applicant whether the application is complete.

a. All complete applications shall be processed in the order in which they are deemed complete, regardless of whether the project is from an outside Applicant or the Cooperative. Reasonable exceptions may be made to account for the location of the proposed DER Facility or other technical considerations, provided there is no material adverse impact on processing of other complete applications when an exception is made. Exceptions may also be made if an Applicant exceeds any timing requirements identified in §2.2 & §2.4. If the Cooperative misses any timing requirements in §2.2 & §2.4, the order in which the application is processed shall not be affected.

iv. Cooperatives and Applicants shall complete the following steps for processing Interconnection applications, in the order listed:

a. Within ten (10) Working Days of determining that the application is complete, the Cooperative shall complete its Application Review and notify the applicant of its findings. If the Cooperative determines, on the basis of the Application Review, that an Engineering Review is needed, the notification shall state a nonbinding estimate of that review. If the Cooperative informs the Member that the Application Review showed that an Engineering Review is not needed, the interconnection process may proceed to par. (g).

b. The Applicant shall provide written notification to proceed and full payment of the estimated cost of the Engineering Review within fifteen (15) Working Days of receiving the Cooperative's notification under par. (a). At the request of the Applicant, the Cooperative may provide a fifteen (15) Working Day extension of the deadline to provide notification to proceed and full payment. If notification and payment have not been received by the Cooperative within thirty (30) Working Days after the deadline to accept, the Interconnection application shall be deemed withdrawn.

c. Upon receiving from the Applicant written notification to proceed and full payment of the estimated cost of the Engineering Review, the Cooperative shall complete an Engineering Review and notify the Applicant of the results within the following times:

    i. Category 1 DER Application: ten (10) Working days.

    ii. Category 2 DER Application: fifteen (15) Working days.

    iii. Category 3 DER Application: twenty (20) Working days.

    iv. Category 4 DER Application: forty (40) Working days.

d. If the Engineering Review indicates that a Distribution System Study is necessary, the Cooperative shall include, in writing, a nonbinding cost estimate of the study in its Engineering Review. To proceed with a Distribution System Study, the Applicant shall provide the Cooperative with written notification of acceptance and full payment of the estimated study costs within fifteen (15) Working Days of receiving the Engineering Review. At the request of the Applicant, the Cooperative may provide a fifteen (15) Working Day extension of the deadline to provide notification to proceed and full payment. If notification and payment have not been received within thirty (30) Working Days after the deadline to accept, the Interconnection application shall be deemed withdrawn.

e. Upon receiving written notification to proceed and payment of the applicable fee, the Cooperative shall conduct the Distribution System Study. The Cooperative shall within the following time periods complete the Distribution System Study and provide study

results to the Applicant unless any additional studies are required by the Regional Transmission Operator, in which case the time periods may be extended:

i. Category 1 DER Application: ten (10) Working Days.

ii. Category 2 DER Application: fifteen (15) Working Days.

iii. Category 3 DER Application: twenty (20) Working Days.

iv. Category 4 DER Application: sixty (60) Working Days.

f. The Cooperative shall perform a Distribution System Study of the local Distribution System and notify the Applicant of findings along with an estimate of any Distribution System construction or modification costs to be borne by the Applicant.

g. If the Applicant agrees, in writing, to pay for any required Distribution System construction and modifications, the Cooperative shall then complete the Distribution System upgrades and the applicant shall install the DER Facility.

h. Upon completion of construction, the Applicant shall contact the local electrical inspector having jurisdiction and arrange for an inspection of the DER Facility. Following the inspection, the inspector shall provide the Cooperative with written verification of the inspection result.

i. The Applicant shall give the Cooperative the opportunity to witness or verify the system testing, as required in the Cooperative's service rules and applicable codes and standards. Upon receiving notification that an installation is complete and is in compliance with all applicable codes and standards, including any necessary state and local government inspections, and all requirements set forth in this chapter, the Cooperative has ten (10) Working Days for a Category 1 or 2 facility, or twenty (20) Working Days for a Category 3 or 4 facility, to complete the following:

i. Find a mutually agreed upon time to conduct the Commissioning Test in accordance with the procedure in the Cooperative's Technical Specifications Manual.

ii. Waive its right, in writing, to witness or verify the Commissioning Tests.

j. The Applicant shall provide the Cooperative with the results of any required test within five (5) Working Days of the completion of the test, for a Category 1 facility, or within ten (10) Working Days, for a Category 2 through 4 facility.

k. The Cooperative shall, unless its rights have been waived per par. (i)ii., review the results of the on-site test. Upon receipt of the test results, the Cooperative shall notify the applicant within five (5) Working Days, for a Category 1 facility, or within ten (10) Working Days, for a Category 2 through 4 facility, of its approval or disapproval of the Interconnection.

    i. If approved, the Cooperative shall provide a written statement of final acceptance and reconciliation of costs from the Engineering Review, Distribution System Study, and any required Distribution System upgrades or modifications. The Cooperative shall refund to the Applicant any fees paid in excess of costs incurred by the Cooperative. Applicant shall pay any additional costs incurred by the Cooperative in excess of previous payments. Any Applicant for a DER Facility that passes the Commissioning Test may sign a copy of the Cooperative's Standard Interconnection Agreement and Interconnect.

    ii. If the Cooperative does not approve the Interconnection, the Applicant may take corrective action and request the Cooperative to reexamine its Interconnection request. The Applicant shall provide the Cooperative with written notification that corrective action has been taken and request reexamination within fifteen (15) Working Days of receiving notification of disapproval. At the request of the applicant, the Cooperative may provide a fifteen (15) Working Day extension of the deadline to provide notification to proceed and full payment. If a request for reexamination has not been received by the Cooperative within thirty (30) Working Days after the deadline to accept,

the Interconnection application shall be deemed to be withdrawn.

l. A Standard Interconnection Agreement shall be signed by the Applicant and the Cooperative before Parallel Operation commences, within five (5) Working Days of the Interconnection being approved by the Cooperative, for a Category 1 facility, or within ten (10) Working Days for a Category 2 through 4 facility.

v. Application queues

a. A Cooperative shall maintain a single application queue that identifies the status of all applications submitted to the Cooperative and shall be used to address Applicant inquiries about application status.

b. At a minimum, the information maintained in an application queue for applications received by a Cooperative after its adoption of the IRWEC shall include:

i. Application or queue numbers that enable Applicants to identify their submissions.

ii. Technology type(s).

iii. Proposed DER Facility Export Capacity kW in Alternating Current.

iv. Category assignment.

v. Location by city, state, and county.

vi. Substation and circuit on which the proposed installation would be located.

vii. Current application status (active, withdrawn, approved, in service).

viii. Date application deemed complete, if applicable.

ix. Current status of the application's progress through the application process steps outlined in this section.

x. Date of signed Interconnection Agreement, if applicable.

vi. Upon approval of the application under sub. (iv)(a), (c), or (g), the Cooperative shall provide the Applicant with an Interconnection approval memorandum that confirms the Cooperative's application approval and identifies any applicable conditions of approval. For Category 2 through 4 facilities, the memorandum and associated attachments shall provide:

a. The date of approval.

b. Completed application materials.

c. Engineering Review requirements, if applicable.

d. Distribution System Study requirements, if applicable.

e. Identification of the authorized tariff or program agreement applicable to the DER Facility at the time the memorandum is issued.

f. Expiration date of the memorandum if Cooperative requirements are not met, including identification of options for deadline extensions.

i. Standard expiration period for an approved application is eighteen (18) months, or a mutually agreed upon period commencing from the date of the memorandum. In the event that the DER Facility has not Interconnected to the Distribution System prior to expiration, the application will no longer be considered approved and will instead be considered withdrawn.

g. System specifications and specific requirements imposed by the Cooperative as conditions for approval.

h. Estimated Distribution System construction or modification costs and scope, if applicable.

i. Estimated completion date for the Cooperative to complete Distribution System upgrades, if applicable.

j. A copy of the Standard Interconnection Agreement that would be executed by the Applicant and Cooperative upon completion of all requirements, including any anticipated Distribution System upgrades.

k. Acknowledgement that the Cooperative will Interconnect the DER Facility if all identified conditions are met.

## 2.3 Insurance and Indemnification

i. An Applicant seeking to Interconnect a Category 1 DER Facility to the Distribution System of a Cooperative shall maintain liability insurance equal to or greater than the amounts stipulated in Table I below, per occurrence, and shall name the Cooperative as a certificate holder with thirty (30) day cancellation notice in the liability insurance policy.

ii. An Applicant seeking to Interconnect a Category 2 through 4 DER Facility to the Distribution System of a Cooperative shall maintain liability insurance equal to or greater than the amounts stipulated in Table I below, per occurrence, and shall name the Cooperative as an additional insured party with thirty (30) day cancellation notice in the liability insurance policy.

**Table I - Minimum Liability Insurance Coverage**

| Category | Generation Capacity | Minimum Liability Insurance Coverage |
|---|---|---|
| 1 | 20 kW or less | $300,000 |
| 2 | Greater than 20 kW to 200 kW | $1,000,000 |
| 3 | Greater than 200 kW to 1 MW | $2,000,000 |
| 4 | Greater than 1 MW to 15 MW | Negotiated |

iii. The Applicant shall indemnify, hold harmless, and defend the Cooperative, its officers, directors, employees and agents from and against any and all claims, suits, liabilities, damages, costs and expenses resulting from the installation, operation, modification, maintenance, or removal of the DER Facility. The liability shall be limited to direct actual damages, and all other damages at law or in equity shall be waived.

## 2.4 Modifications to the DER Facility

The Applicant shall notify the Cooperative of plans for any Material Modification to a DER Facility that has previously completed the Interconnection process by providing at least twenty (20) Working Days of advance notice for a Category 1 facility, forty (40) Working Days for a Category 2 facility, and sixty (60) Working

Days for a Category 3 or 4 facility. The Applicant shall provide this notification by submitting a revised Standard Application Form and such supporting materials as may be reasonably requested by the Cooperative. The Applicant shall submit the revised Standard Application Form and supporting materials using the portal. The Applicant may not commence any Material Modifications to the DER Facility until the Cooperative has approved the revised application, including any necessary Engineering Review or Distribution System Study. The Cooperative shall indicate its written approval or rejection of a revised application within the number of Working Days shown in Table II below. Upon completion of the application process, a new Standard Interconnection Agreement shall be signed by the Cooperative and Applicant prior to Parallel Operation. If the Cooperative fails to respond within the time specified in Table II below, the completed application is deemed approved.

**Table II - Working Days for Cooperative Response to Proposed DER Modifications**

| Category | Export Capacity after Modification | Working Days for Cooperative Response to Proposed DER Modifications |
|---|---|---|
| 1 | 20 kW or less | 20 |
| 2 | Greater than 20 kW to 200 kW | 40 |
| 3 | Greater than 200 kW to 1 MW | 60 |
| 4 | Greater than 1 MW to 15 MW | 60 |

## 2.5 Change of Ownership

i. In the event of a Change of Ownership for real property where a DER Facility is located, the existing Owner must assign the applicable Interconnection Agreement to the new Owner. Prior to any assignment of the Interconnection Agreement, the written consent of the Cooperative must be obtained. Such consent shall not be unreasonably withheld by the Cooperative.

   a. To obtain the Cooperative's consent under this section, the proposed new Owner shall submit a Change of Ownership Form and all supplementary documentation to the Cooperative and shall fulfill the Cooperative's Interconnection requirements.

b. The Change of Ownership Form and supplementary documentation shall be submitted to the Cooperative by use of the Portal.

ii. The Interconnection Agreement for the DER Facility must be assumed by any new Owner, and any new Owner must follow the Interconnection Agreement, the IRWEC, and the TSM.

iii. Failure of an Applicant or existing Owner to fulfill any obligations under the IRWEC, a TSM, or any Interconnection Agreement shall not relieve a new Owner from fulfilling obligations arising out of the same.

iv. In the event of a Change of Ownership, the DER Facility will not be permitted to operate in parallel with the Cooperative's Distribution System until the requirements of this section are satisfied.

## 2.6 Easements and Rights-of-Way

If a Cooperative line extension is required to accommodate a DER Facility Interconnection, the Applicant shall provide, or obtain from others, suitable easements or rights-of-way for Cooperative facilities. The Applicant is responsible for the cost of providing or obtaining these easements or rights of way.

## 2.7 Fees and Distribution System Costs

i. Upon receiving a Standard Application Form, the Cooperative shall specify the amount of any Engineering Review or system impact study fees. The Applicant shall pay the fees specified in Table III below, unless the Cooperative makes a determination to waive the fees in whole or in part. For any fees paid by the Applicant per Table III, any unexpended funds shall be credited to applicant's subsequent interconnection steps and associated fee obligations.

| Table III - Cooperative DER Fee Schedule | | | | | |
|---|---|---|---|---|---|
| Category | Export Capacity | Application Review Fee | Engineering Review Fee | Distribution System Study | Commissioning Fee |
| 1 | 20 kW or less | $300 | Cost based | Cost based | $150 |
| 2 | Greater than 20 kW to 200 kW | $300 + $10/kW | Cost based | Cost based | $250 |
| 3 | Greater than 200 kW to 1 MW | $2,000 + $2/kW | Cost based | Cost based | $1,000 |
| 4 | Greater than 1 MW to 15 MW | $4,000 + $0.50/kW | Cost based | Cost based | $2,500 |

ii. The Cooperative may recover from the Applicant an amount up to the actual cost, for labor and material, of any Distribution System upgrades required. Costs for any necessary line extension shall be assessed pursuant to the Cooperative's policy.

iii. The Cooperative may charge for retesting an installation that does not conform to the requirements set forth in the Cooperative's service standards. The fee for retesting shall be equal to the applicable commissioning fee.

iv. For any application that is withdrawn by the Applicant or deemed withdrawn by the Cooperative, the Cooperative shall provide the Applicant with a reconciliation of costs from any Engineering Review, Distribution System Study, or required Distribution System upgrades or modifications performed. The Cooperative shall refund to the Applicant any fees paid in excess of costs incurred by the Cooperative. Applicants shall pay any additional costs incurred by the Cooperative in excess of previous payments.

v. Cooperatives may assess a fee of up to $300 for preparation of a Standard Pre-Application Report.

## 2.8 Disconnection

The Cooperative may disconnect and may refuse to connect or reconnect a DER Facility from the Distribution System under any of the following conditions:

i. Lack of approved Standard Application Form or Interconnection Agreement.

ii. Termination of Interconnection by mutual agreement.

iii. Non-compliance with the technical or contractual requirements outlined in the IRWEC, Cooperative's Interconnection Agreement, service standards, policies, or Technical Specifications Manual.
iv. Distribution System emergency.
v. Routine maintenance, repairs, and modifications, but only for a reasonable length of time necessary to perform the required work and upon reasonable notice.
vi. Unapproved Material Modification.
vii. Other conditions as identified in the Cooperative's TSM.

## 2.9 One-line Schematic Diagram

i. The Applicant shall include a one-line schematic diagram with the completed Standard Application Form. ANSI symbols shall be used in the one-line schematic diagram to show the following:
    a. Generator(s), inverter(s), and battery(ies), if applicable, and their nameplate capacities.
    b. Conductor and conduit size, type, and length.
    c. Point where the DER Facility is electrically connected to the Member's electrical system.
    d. Method of Interconnection.
    e. Point of Common Coupling.
    f. Production meter, if required by the Cooperative.
    g. Lockable Interconnection Disconnect Switch.
    h. RSD such as a BESS emergency shutdown switch.
    i. Method of grounding, including generator and transformer ground connections.
    j. Protection functions and systems.

ii. The Applicant shall include with the schematic diagram technical specifications of the point where the DER Facility is electrically connected to the Member's electrical system, including all unintentional Islanding and power quality protection systems. The specifications regarding the unintentional Islanding protective systems shall describe all automatic features provided to disconnect the DER Facility from the Distribution System in case of loss of grid power, including the functions of over/under voltage, over/under frequency, overcurrent, and loss of synchronism. The Applicant shall also provide technical specifications for the generator, inverter, battery (if applicable), Lockable Interconnection Disconnect Switch,

and grounding and shall attach the technical specification sheets for any certified equipment. The Applicant shall include with the schematic diagram a statement by the manufacturer that its equipment meets or exceeds the type tested requirements for certification.

## 2.10 Control Schematics

For equipment not certified under IEEE 1547 and UL 1741, the Applicant shall include with the application a complete set of control schematics showing all protective functions and controls for generator protection and Distribution System protection.

## 2.11 Site Plan

For all DER Facility categories, the Applicant shall include with the application a site plan that shows the location of the Lockable Interconnection Disconnect Switch, adjoining street name and the street address of the DER Facility. The site plan shall also show the location of major equipment, electrical service entrance, electric meter, and interface equipment.

## 2.12 Pre-application Report

i. Potential Applicants may request a Standard Pre-Application Report from the Cooperative in order to obtain information about system conditions and their proposed Interconnection location without submitting an application.

ii. To request a Standard Pre-Application Report, potential Applicants shall complete and submit the Standard Wisconsin Electric Cooperative DER Interconnection Pre-Application Data Request Form to the respective Cooperative. A request for a Wisconsin Electric Cooperative DER Interconnection Pre-Application Data Report shall not be considered submitted until Applicant submits the Standard Pre-Application form and pays applicable pre-application review fees.

iii. All submitted pre-application report requests shall be reviewed for completeness in the order in which they fulfill the requirements of sub. (ii).

   a. The Cooperative shall evaluate the submitted pre-application form for completeness within five (5) Working Days of receipt. A complete request shall include specific location information that allows the Cooperative to clearly identify a proposed point

of Interconnection and information on the proposed DER Facility sufficient to identify DER type, Export Capacity kW in Alternating Current, and service configuration. Blanket systemwide pre-application requests that are submitted for the mere purpose of obtaining Interconnection data for large areas of the Cooperative's service territory will be denied.

iv. All complete pre-application report requests shall receive the pre-application reports in the order in which they fulfill the requirements of sub. (iii). Within fifteen (15) Working Days of determining a pre-application report is complete, the Cooperative shall respond by providing the Applicant with a completed standard pre-application report that provides information on the capacity, network and operating characteristics, and applicable operating constraints at the proposed point of Interconnection.

   a. Completed pre-application reports shall reflect the best available information using existing data readily available to the Cooperative at the time of reporting. A cooperative shall not be obligated to conduct additional analysis of the proposed project or location in order to complete a pre-application report. The report shall communicate to potential Applicants that the information provided is subject to change and may not be applicable as of the date when a future application is submitted.

# 3. Design Requirements

## 3.1 General Design Requirements

i. The Applicant shall install protection devices to ensure that the current supplied by the DER Facility is interrupted if a Fault or other potentially dangerous event occurs on the Distribution System. If such an event occurs and the Cooperative's Distribution System is de-energized, any DER Facility that is connected to this Distribution System shall automatically disconnect. All DER Facilities shall utilize protection devices that prevent electrically closing a DER Facility that is out of synchronization with the Distribution System.

ii. All installations shall include equipment circuit breakers on the DER Facility side of the point where the DER is electrically connected to the

Member's electrical system, that are capable of interrupting the maximum available fault current. Equipment circuit breakers shall meet all applicable UL, ANSI, and IEEE standards.

iii. The Cooperative may require that the Applicant furnish and install a Lockable Interconnection Disconnect Switch that opens, with a visual break, all ungrounded poles of the Interconnection circuit. The Lockable Interconnection Disconnect Switch shall be rated for the voltage and fault current requirements of the DER Facility, and shall meet all applicable UL, ANSI, and IEEE standards. The switch enclosure shall be properly grounded. The Lockable Interconnection Disconnect Switch shall be accessible at all times, located for ease of access to Cooperative personnel, and shall be capable of being locked in the open position.

iv. The Applicant shall label the Lockable Interconnection Disconnect Switch as defined within the Cooperative's TSM.

v. The Applicant shall install an equipment grounding conductor, in addition to the ungrounded conductors, between the DER Facility and the Distribution System. The grounding conductors shall be available, permanent, and electrically continuous, shall be capable of safely carrying the maximum fault likely to be imposed on them by the systems to which they are connected, and shall have sufficiently low impedance to facilitate the operation of overcurrent protection devices under fault conditions. All DER transformations shall be multi-grounded. The DER Facility may not be designed or implemented such that the earth becomes the sole fault current path.

vi. Certifications and listings

    a. All inverter-based DER Facilities shall be the most recent published and adopted version of UL 1741 listed.
    b. All DER Facilities shall meet the requirements of IEEE Std. 1547 and be tested in accordance with IEEE Std. 1547-1.
        i. Synchronous machine generation shall use the normal performance category of Category A and the abnormal performance category of Category I. Ride-through and trip settings shall meet the recommendations of the Regional Transmission Operator guidelines.
        ii. Inverter-based DER Facilities shall use the normal performance category of Category B and the abnormal performance category of Category II. Ride-through and trip settings shall meet the recommendations of the Regional

Transmission Operator guidelines. The Cooperative shall constructively work with the Regional Transmission Operator to provide a recommendation whether the abnormal performance category of Category III is the proper category assignment for inverter-based DER Facilities.

iii. Exceptions to these performance categories may be reviewed by the Cooperative on a case-by-case basis.

vii. Power Factor

a. All Category 1 DER Facilities shall be operated at a Power Factor greater than 0.9.
b. All Category 2, 3, and 4 DER Facilities shall be operated at unity Power Factor or as mutually agreed between the Cooperative and Applicant.

viii. The DER Facility shall not create system voltage or current disturbances or negatively impact the Distribution System according to the Cooperative's Interconnection policy.

ix. The Applicant shall protect and synchronize its DER Facility with the Distribution System.

x. Each DER Facility shall include an automatic interrupting device that is listed with a Nationally Recognized Testing Laboratory and is rated to interrupt available fault current. The interrupting device shall be tripped by any of the required protective functions.

xi. An Applicant for Interconnection of a Category 3 or Category 4 facility shall provide test switches as specified by the Cooperative to allow for testing the operation of the protective functions without unwiring or disassembling the equipment.

xii. The Cooperative may require a DER Facility to be isolated from other Members by installation of a separate power transformer. When a separate transformer is required, the Cooperative may include its actual cost in the Distribution System upgrade costs. The Applicant is responsible for supplying and paying for any custom transformer. This requirement does not apply to an induction-type generator with a capacity of 5 kW or less, or to other generating units of 10 kW or less that utilize a line-commutated inverter.

xiii. The owner of a DER Facility designed to operate in parallel with a spot or secondary Network Service shall provide relaying or control equipment

that is rated and listed for the application and is acceptable to the Cooperative.

xiv. For a Category 3 or Category 4 DER Facility, the Cooperative may require that the facility owner provide telemetry equipment which must also be approved by the Cooperative but whose monitoring functions include transfer-trip functionality, current, real power (watts), reactive power (vars), and breaker status.

xv. When the Cooperative requires two-way communication or control functionality of the DER Facility, the applicant shall work with the Cooperative and reference the Cooperative's TSM to establish the minimum standard technical and communication requirements.

xvi. For Interconnection purposes, Energy Storage Systems shall be treated as DER Facilities and shall meet the following requirements and standards:

a. Provide operational mode programming that controls the charging, discharging, and bypass (export or non-export) of an Energy Storage System. Operational mode programming shall be stated in an Interconnection Agreement.
b. Be the most recent published and adopted version of UL 9540 listed.

## 3.2 Minimum Protection Requirements

i. Each DER Facility shall include protection and unintentional Islanding equipment to prevent the facility from adversely affecting the reliability or capability of the Distribution System. The Applicant shall adhere to the specific protection requirements outlined in the Cooperative's TSM.

ii. The protective system functions, which may be met with microprocessor-based multifunction protection systems or discrete relays, are required. Protective relay activation shall not only alarm but shall also trip the generator breaker/contactor.

iii. In addition to unintentional Islanding protection, a DER Facility shall meet the following minimum protection requirements:

1. A Category 1 DER Facility shall include:
    a. Over/under frequency function
    b. Over/under voltage function
    c. Overcurrent function
    d. Ground fault protection
2. A Category 2, 3, or 4 DER Facility shall include:

a. Over/under frequency function
b. Over/under voltage function
c. Overcurrent function
d. Ground fault protection
e. Synchronism check function
f. Other equipment that the Cooperative determines to be necessary and is compliance with applicable codes and standards, including, but not limited to, protective devices, supervisory control and alarms, telemetry and associated communications channel. The Cooperative shall advise the Applicant of any communications requirements after a preliminary review of the proposed installation.

# 4. Equipment Certifications

## 4.1 Certified Paralleling Equipment

DER paralleling equipment that a Nationally Recognized Testing Laboratory certifies as meeting the applicable type testing requirements of UL 1741 (September 28, 2021 revision) is acceptable for Interconnection without additional protection systems, to the Distribution System. The Applicant may use certified paralleling equipment for Interconnection to a Distribution System without further review or testing of the equipment design by the Cooperative, but the use of this paralleling equipment does not automatically qualify the Applicant to be Interconnected to the Distribution System at any point in the Distribution System. The Cooperative may still require an Engineering Review to determine the compatibility of the DER Facility with the Distribution System capabilities at the selected Point of Common Coupling. DER paralleling equipment shall meet applicable codes and standards listed in the Cooperative's TSM.

## 4.2 Non-certified Paralleling Equipment

i. Any DER Facility that is not certified under §4.1 shall be equipped with protective hardware or software to prevent unintentional Islanding and to maintain power quality. The Applicant shall provide the final design of this protective equipment. The Cooperative will require an Engineering Review to determine the compatibility of the DER Facility with the Distribution

System capabilities at the PCC. This will include the review and approval of the design, types of protective functions, and the implementation of the installation. The Applicant will incur a higher commissioning fee to be determined by the Cooperative for utilizing non-certified parallelling equipment based on the time and resources spent by the Cooperative to ensure its functionality and compatibility with the Distribution System is satisfactory but shall own the protective equipment installed at its facility.

ii. The Applicant shall calibrate any protective system approved under sub. (i) to the specifications of the Cooperative. The Applicant shall obtain written approval from the Cooperative prior to any revisions to specified protective system calibrations.

# 5. Testing of DER Facility Installations

## 5.1 Unintentional Islanding Test

The Cooperative may perform an unintentional Islanding test or observe the automatic shutdown before giving final written approval for Interconnection of the DER Facility. The unintentional Islanding test requires that the DER Facility shall detect the island, cease to energize the local Distribution System, and trip within two seconds of the formation of an island. The test shall be conducted with all DER Facility equipment operational and generating at an output that satisfies the Cooperative's testing requirements. If a voltage is sustained after the simulation of an unintentional island, approval of the installation shall not be given until corrective measures are taken by Applicant and a subsequent test is performed and voltage is not sustained after the simulation of an unintentional island.

## 5.2 Commissioning Tests for Parallelling Equipment in Categories 2 to 4

The Cooperative shall provide the acceptable range of settings for the parallelling equipment of a Category 2, 3, or 4 DER Facility. The Applicant shall program protective equipment settings into this paralleling equipment. The Cooperative may verify the protective equipment settings prior to allowing the DER Facility to Interconnect to the Distribution System.

## 5.3 Additional Testing

The Cooperative or Applicant may, upon reasonable notice, re-test the DER Facility installation after a failed test or a disconnect in accordance with § 2.8 or the Cooperative's TSM. The party responsible for re-testing shall bear the costs of the re-tests.

## 5.4 Dispute Procedures

The Cooperative and Applicant will attempt in good faith to resolve disputes arising out of the Interconnection process and associated studies and Interconnection Agreements. If initial good faith efforts to resolve a dispute do not succeed, the Cooperative and Applicant will follow the Cooperative's established dispute resolution process.