

Adams-Columbia Electric Cooperative Interconnection Process



Distributed Energy Resource
Interconnection Process for Systems Less
than 15 MW.

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Foreword

Adams-Columbia Electric Cooperative has an Interconnection Process standard in effect to address the interconnection of distributed energy resources (DER) to the distribution grid. The Adams-Columbia Electric Cooperative Interconnection Process for Distributed Energy Resources (Interconnection Process) applies to any DER no larger than 15-megawatt (MW) AC interconnecting to and operating in parallel with Adams-Columbia Electric Cooperative's distribution system in Wisconsin. This interconnection process document is designed to be member-centric when explaining the steps and details to interconnect DER systems to the distribution grid.

This Interconnection Process includes DER types such as solar systems, energy storage batteries and wind systems along with fossil fuel generators and electric vehicles that may be used for emergency power. For the safety of the Cooperative's personnel and the public, it is important for cooperative members to communicate with the Cooperative regarding the installation of all types of DERs.

The process to interconnect a DER system to the distribution grid starts with the submission of an Interconnection Application. Depending on the type and size of the DER system, the Interconnection Application will fall under one of four tracks. Each track has different information required in the application; and non-refundable Interconnection Application fees will vary. Both the electric utility and the Applicant have timelines that are enforced to ensure a timely application review, contract execution and interconnection of the DER system.

The key to a successful interconnection of a DER system is communication between all parties. Timely submission of the Interconnection Application prior to the purchase and installation of a DER system is strongly recommended. The Cooperative encourages members to ask questions throughout the Interconnection Process.

1 Glossary

ANSI – The American National Standards Institute.

Applicant [^]: The legally responsible person or entity, whom will be the owner of the DER that proposes to interconnect a DER(s) with the Utility’s Distribution System. The Applicant is responsible for ensuring the DER(s) is designed, operated and maintained in compliance with the Technical Requirements.

Category 1 – A DER facility with an export capacity of 20 kW AC or less. The nameplate rating shall be used instead of the export capacity for this definition if the export capacity is greater than 20% of the nameplate capacity.

Category 2 – A DER facility with an export capacity greater than 20 kW AC and not more than 200 kW AC. The nameplate rating shall be used instead of the export capacity for this definition if the export capacity is greater than 20% of the nameplate capacity.

Category 3 – A DER facility with an export capacity greater than 200 kW AC and not more than 1 MW AC. The nameplate rating shall be used instead of the export capacity for this definition if the export capacity is greater than 20% of the nameplate capacity.

Category 4 – A DER facility with an export capacity greater than 1 MW AC and not more than 15 MW AC. The nameplate rating shall be used instead of the export capacity for this definition if the export capacity is greater than 20% of the nameplate capacity.

Certified Equipment – A generating, control or protective system that has been tested by a national recognized lab meeting an accepted safety and reliability standards. For DER systems, UL 1741 listing is a common form of DER inverter certification.

Commissioning Test – The process of documenting and verifying the performance of the DER facility so that it operates in conformity with the design specifications.

Confidential Information – Any confidential and/or proprietary information provided by one Party to the other Party and is clearly marked or otherwise designated “Confidential.” All procedures, design, operating specifications, and metering data provided by the Applicant may be deemed Confidential Information. See Section 13.1 for further information.

Distributed Energy Resource (DER) – A source of electric power that is not directly connected to a bulk power system. DER includes both generators and energy storage technologies capable of exporting active power to an EPS. An interconnection system or a supplemental DER device that is necessary for compliance with this standard is part of a DER.

For the purpose of the Interconnection Process and Interconnection Agreement, the DER includes the Applicant’s Interconnection Facilities but shall not include the Utility’s Interconnection Facilities.

Distribution System – The Utility’s owned or provided facilities, including all electrical wires, equipment, that are normally operated at 50 kV or less.

Distribution System Study – A study to determine if a distribution system upgrade is needed to accommodate the proposed DER system and to determine the cost of any such upgrade.

Energy Storage System (ESS) – Devices that capture energy produced at one time, stores that energy for a period of time, and delivers that energy as electricity for use at a future time.

Energy Storage System Max Continuous Output – the maximum rated continuous power output of the ESS measured in kilowatts (kW) in alternating current.

Energy Storage System Max Usable Energy – the maximum rated amount of energy stored in the ESS measured in kilowatts-hours (kWh) in alternating current.

Energy Storage System Peak Output – the maximum short duration rated output power of the ESS to the distribution system, while grid interactive, measured in kilowatts (kW) in alternating current.

Export Capacity – the amount of power that can be transferred from the DER facility to the distribution system measured in kilowatts (kW) in alternating current. Export capacity is either the nameplate rating, or a lower amount if limited using any approved means.

Force Majeure Event – An act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, an order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or another cause beyond a Party’s control. A Force Majeure Event does not include an act of negligence or intentional wrongdoing.

Import Capacity – means the amount of power than can be imported by a DER facility from the distribution system measured in kilowatts (kW) in alternating current. Import capacity is either the nameplate rating, or a lower amount if limited using any approved means.

Interconnection Application – The Applicant’s request to interconnect a new or modified DER.

Interconnection Facilities – The Utility’s Interconnection Facilities and the Applicant’s Interconnection Facilities. Collectively, Interconnection Facilities include all facilities and equipment between the DER and the Point of Common Coupling, including any modification, additions or upgrades that are necessary to physically and electrically interconnect the DER to the Utility’s System. Some examples of Customer Interconnection Facilities include: supplemental DER devices, inverters, and associated wiring and cables up to the Point of DER Connection. Some examples of Utility Interconnection Facilities include sole-use facilities; such as, line extensions, controls, relays, switches, breakers, transformers.

Interconnection Process – A Utility’s interconnection steps for DER systems to be interconnected to the Distribution System.

IEEE – Institute of Electrical and Electronics Engineers.

KV – Kilovolt. Unless otherwise specified, the definition references units in alternating current.

kW – Kilowatt. Unless otherwise specified, the definition references units in alternating current.

Material Modification – A modification to machine data, equipment configuration or to the interconnection site of the DER at any time after receiving notification by the Utility of a complete Interconnection Application that has a material impact on the cost, timing, or design of any Interconnection Facilities or Upgrades, or a material impact on the cost, timing or design of any Interconnection Application with a later Queue Position or the safety or reliability of the electric system.¹

MW – Megawatt. Unless otherwise specified, the definition references units in alternating current.

Nameplate Rating – The sum total of maximum continuous rating power (kW) output while grid connected of all of a DER facility’s constituent generating units and/or Energy Storage Systems as identified on the manufacturer nameplate, regardless of whether it is limited by any approved means.

Nationally Recognized Testing Laboratory – Any testing laboratory recognized by the U.S. Department of Labor Occupational Safety and Health Administration’s accreditation program².

Operating Requirements – Any operating and technical requirements that may be applicable due to the Transmission Provider’s Technical Requirements or the Utility’s Technical Requirements, including those set forth in the Interconnection Agreement.

Party or Parties – The Utility and the Applicant.

¹ A Material Modification shall include, but may not be limited to, a modification from the approved Interconnection Application that: (1) changes the physical location of the Point of Common Coupling; such that it is likely to have an impact on technical review; (2) increases the Nameplate Rating or output characteristics of the Distributed Energy Resource; (3) changes or replaces generating equipment, such as generator(s), inverter(s), transformers, relaying, controls, etc., and substitutes equipment that is not like-kind substitution in certification, size, ratings, impedances, efficiencies or capabilities of the equipment; (4) changes transformer connection(s) or grounding; and/or (5) changes to a certified inverter with different specifications or different inverter control settings or configuration. A Material Modification shall not include a modification from the approved Interconnection Application that: (1) changes the ownership of a Distributed Energy Resource; (2) changes the address of the Distributed Energy Resource, so long as the physical point of common coupling remains the same; (3) changes or replaces generating equipment such as generator(s), inverter(s), solar panel(s), transformers, relaying, controls, etc. and substitutes equipment that is a like-kind substitution in certification, size, ratings, impedances, efficiencies or capabilities of the equipment; and/or (4) increases the DC/AC ratio but does not increase the maximum AC output capability of the Distributed Energy Resource in a way that is likely to have an impact on technical review.

²A list of nationally recognized testing laboratories is available at: www.osha.gov/nationally-recognized-testing-laboratory-program.

Point of Common Coupling (PCC) – The point where the Interconnection Facilities connect with the Utility’s Distribution System. See Figure 1. Equivalent, in most cases, to “service point” as specified by the Utility and described in the National Electrical Code and the National Electrical Safety Code.

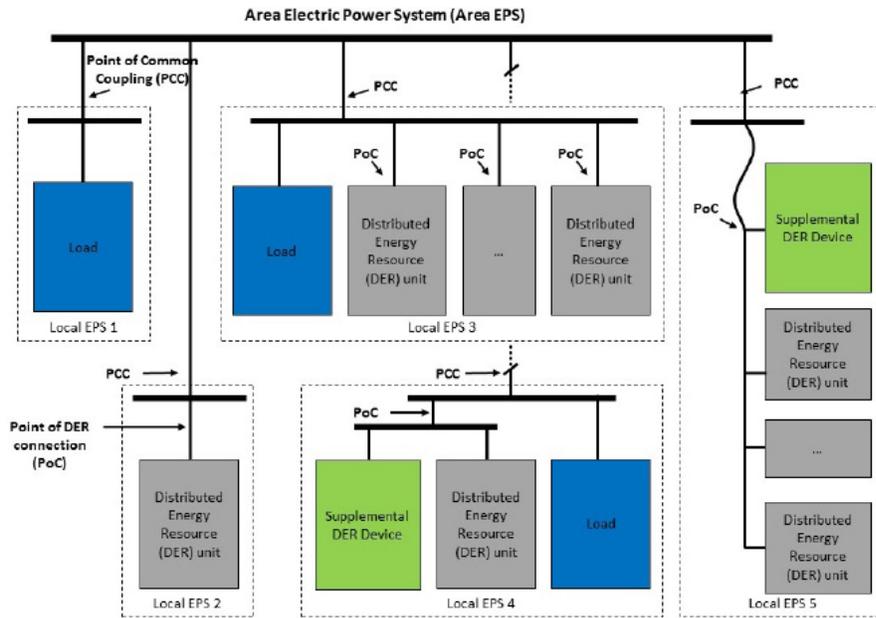


Figure 1: Point of Common Coupling and Point of DER Connection

(Source: IEEE 1547)

Point of DER Connection (PoC) – When identified as the Reference Point of Applicability, the point where an individual DER is electrically connected in a Local EPS and meets the requirements of this standard exclusive of any load present in the respective part of the Local EPS (e.g. terminals of the inverter when no supplemental DER device is required). For DER unit(s) that are not self-sufficient to meet the requirements without a supplemental DER device(s), the Point of DER Connection is the point where the requirements of this standard are met by DER in conjunction with a supplemental DER device(s) exclusive of any load present in the respective part of the Local EPS.

Power Factor – The ratio of active power to apparent power.

Reference Point of Applicability – The location, either the Point of Common Coupling or the Point of DER Connection, where the interconnection and interoperability performance requirements specified in IEEE 1547 apply. With mutual agreement, the Utility and Customer may determine a point between the Point of Common Coupling and Point of DER Connection.

Standard Interconnection Agreement – The Utility’s Interconnection Agreement for qualifying new and existing interconnections between the Utility and a DER system.

Technical Requirements – The term including all of the DER technical interconnection requirement documents for the Utility.

Transmission Owner – The entity that owns, leases or otherwise possesses an interest in the portion of the Transmission System relevant to the Interconnection.

Transmission Provider – The entity (or its designated agent) that owns, leases, controls, or operates transmission facilities used for the transmission of electricity. The term Transmission Provider includes the Transmission Owner when the Transmission Owner is separate from the Transmission Provider. The Transmission Provider may include the Independent System Operator or Regional Transmission Operator.

Transmission System – The facilities owned, leased, controlled or operated by the Transmission Provider or the Transmission Owner that are used to provide transmission service.

Upgrades – The required additions and modifications to the Utility’s Transmission or Distribution System at or beyond the Point of Interconnection. Upgrades do not include Interconnection Facilities.

Utility – An entity that owns, controls, or operates the electric power distribution system that are used for the provision of electric service in Wisconsin. For this Interconnection Process the Utility is Adams-Columbia Electric Cooperative.

Working Day – Monday through Friday, excluding the holidays of New Year’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. Any communication to have been sent or received after 4:30 p.m. Central Prevailing Time or on a Saturday, Sunday or Holiday shall be considered to have been sent on the next Working Day.

2 Know Before Applying for Interconnection

2.1. Overview

This Interconnection Process applies to any DER no larger than 15 MW AC interconnecting to and operating in parallel with the Utility's distribution system. Interested parties with plans to interconnect DER systems larger than 15 MW AC to the distribution system should contact the Cooperative for the specific Interconnection Process. Federal Energy Regulatory Commission's (FERC) Interconnection Process will supersede any Interconnection Process the Utility has for DER system interconnections that fall under the jurisdiction of FERC.

The Interconnection Process for DER is broken into four different tracks; Category 1, Category 2, Category 3 and Category 4. The general classification of each track is summarized in Table 1.

Table 1. Interconnection Process Tracks

Track	Size Limitations
Category 1	20kW AC
Category 2	Greater than 20 kW and not more than 200 kW
Category 3	Greater than 200 kW and not more than 1 MW
Category 4	Greater than 1 MW and not more than 15 MW

The size limitations listed in Table 1 is defined as the export capacity of the DER system. If the export capacity is greater than 20% of the nameplate capacity, the AC nameplate rating of the inverter should be used to determine Interconnection track.

If the application is for an increase in capacity to an existing DER system, the Interconnection Application shall be evaluated on the basis of the total new alternating current (AC) capacity of the DER. The maximum capacity for the DER shall be the aggregate maximum Nameplate Rating.³

2.2. DER Interconnection Coordinator

The Utility shall designate a DER Interconnection Coordinator(s) to serve as a single point of contact from which general information on the application process may be obtained. The DER Interconnection Coordinator shall be available to provide coordination assistance with the Applicant but is not responsible to directly answer or resolve all of the issues involved in review and implementation of the Interconnection Process and standards.

³ Example: An existing 10 kW AC solar system is interconnected to a home. Three years later a 5 kW AC energy storage system is also interconnected to the same electric service for the home but with a separate inverter. The second Interconnection Application would be for an additional 5 kW AC of capacity but the aggregate nameplate capacity of the DER systems would be 15 kW AC.

2.3. Process Assistance

Prior to submitting an application, the Applicant may request assistance from the Utility with navigating the Interconnection Process. In lieu of requesting specific information related to technical capabilities of the distribution system prior to the submission of an application, a Pre-Application Request may be submitted. The Pre-Application Requests and the information in the Pre-Application Report are detailed in Section 11. Proposed DER systems sized larger than 200kW AC are encouraged to submit a Pre-Application Request.

2.4. Technical Requirements

The Applicant's proposed DER must meet the codes, standards and certification requirements listed in the Utility's Technical Requirements. The Utility may allow DER systems that do not meet codes, standards and certification only if the DER system design is reviewed, tested and determined that it is safe to operate in parallel with the distribution system.

3 Interconnection Applications

3.1. Overview

A separate Interconnection Application is required for every DER system with a distinct Point of Common Coupling. This may mean multiple Interconnection Application submissions are required if multiple DER systems are proposed to be interconnected on separate electric services that may be on the same property.

Each track has different information that needs to be provided to the Utility. The Utility will provide all necessary applications, Interconnection Process documents and the Interconnection Agreement on its website if possible.

The Utility will also accept applications submitted electronically either through a web portal or to an email address specified by the Utility. The Utility may allow the application to be submitted with an electronic signature.

3.2. Application Review Fees

Each Interconnection Application submitted to the Utility must include the appropriate application review fee prior to the Utility reviewing the Interconnection Application. The maximum amount of the required application review fee for each DER category is listed in Table 2. Any unexpended funds shall be credited to the subsequent interconnection step and associated fee obligation.

Table 2. Application/ Commissioning Fee*

Category	Export Capacity	Application/Commissioning Fee
1	20 kW or Less	\$300
2	Greater than 20 kW to 100 kW	\$300 + Time & Materials per ACEC Engineering Study
3	Greater than 100 kW to 1 MW	\$300 + Time & Materials per ACEC and Alliant Energy Engineering Study
4	Greater than 1 MW to 15 MW	\$300 + Time & Materials per ACEC and Alliant Energy Engineering Study

*Additional trip charges may apply as required for successful interconnection

3.3. Requirements for a Complete Application

A completed application will include the following:

- A completed Interconnection Application for the appropriate Category DER signed by the Applicant.
- The application review fee indicated in Table 2.
- A site layout drawing of the proposed DER system.
- A one-line diagram of the proposed DER system showing the point of common coupling to the Utility’s distribution system, the point of interconnection and the reference point of applicability.
- All equipment manufacturer specification sheets.

Additional documentation may be required for specific DER Categories.

3.4. One-line Schematic Diagram

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:

- Generator or inverter.
- Point where the DER facility is electrically connected to the consumer.
- Point of common coupling.
- Lockable interconnection disconnect switch.
- Method of grounding, including generator and transformer ground connections.
- Protection functions and systems.

The Application shall include with the schematic diagram technical specifications of the point where the DER facility is electrically connected to the consumer's electrical

system, including all unintentional islanding and power quality protective 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 for over/under voltage, over/under frequency, overcurrent, and loss of synchronism. The Applicant shall also provide technical specifications for the generator, 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.

3.5. Control Schematic

For equipment not certified, the Applicant shall include with the Interconnection Application a complete set of control schematics showing all protective functions and controls for generator protection and distribution system protection.

3.6. Site Plan

For all categories, the Applicant shall include with the Interconnection Application a site plan that shows the location of the interconnection disconnect switch, electric service entrance, electric meter, interface equipment, major equipment, adjoining street name, and street address of the DER facility.

4 Application Review

4.1. Completeness Review

The Interconnection Application shall be date- and time-stamped upon initial receipt. The Utility shall begin the Completeness Review of each submitted application in the order that it is received for completeness.

The Utility shall also notify the Applicant if the application is deemed incomplete within ten (10) Working Days of receipt of an application and provide a written list detailing all information that must be provided to complete the Interconnection Application. The Applicant may submit a revised application to the Utility for a Completeness Review.

An application will be deemed complete once the Utility has confirmed all documents, fees and information required with the Interconnection Application, adhering to the Utility's Technical Requirements, were provided.

4.2. Queue

The Utility shall maintain a single, administrative queue. The queue position of each completed Interconnection Application is used to determine the application review order. The queue position is also used to determine the cost responsibility for system upgrades necessary to accommodate the interconnection.

An Interconnection Application can lose its queue position if the Interconnection Customer misses timelines in the Interconnection Process.

4.3. Application Review

Within ten (10) Working Days of determining that the Interconnection Application is complete, the Utility shall complete its Interconnection Application review and notify the Applicant of its findings. If the Utility determines, on the basis of Interconnection Application review that an engineering review is needed, the notification shall state a nonbinding estimate of that review. If the Interconnection Application review shows that an engineering review is not needed, the Applicant may install the DER facility.

4.4. Engineering Review

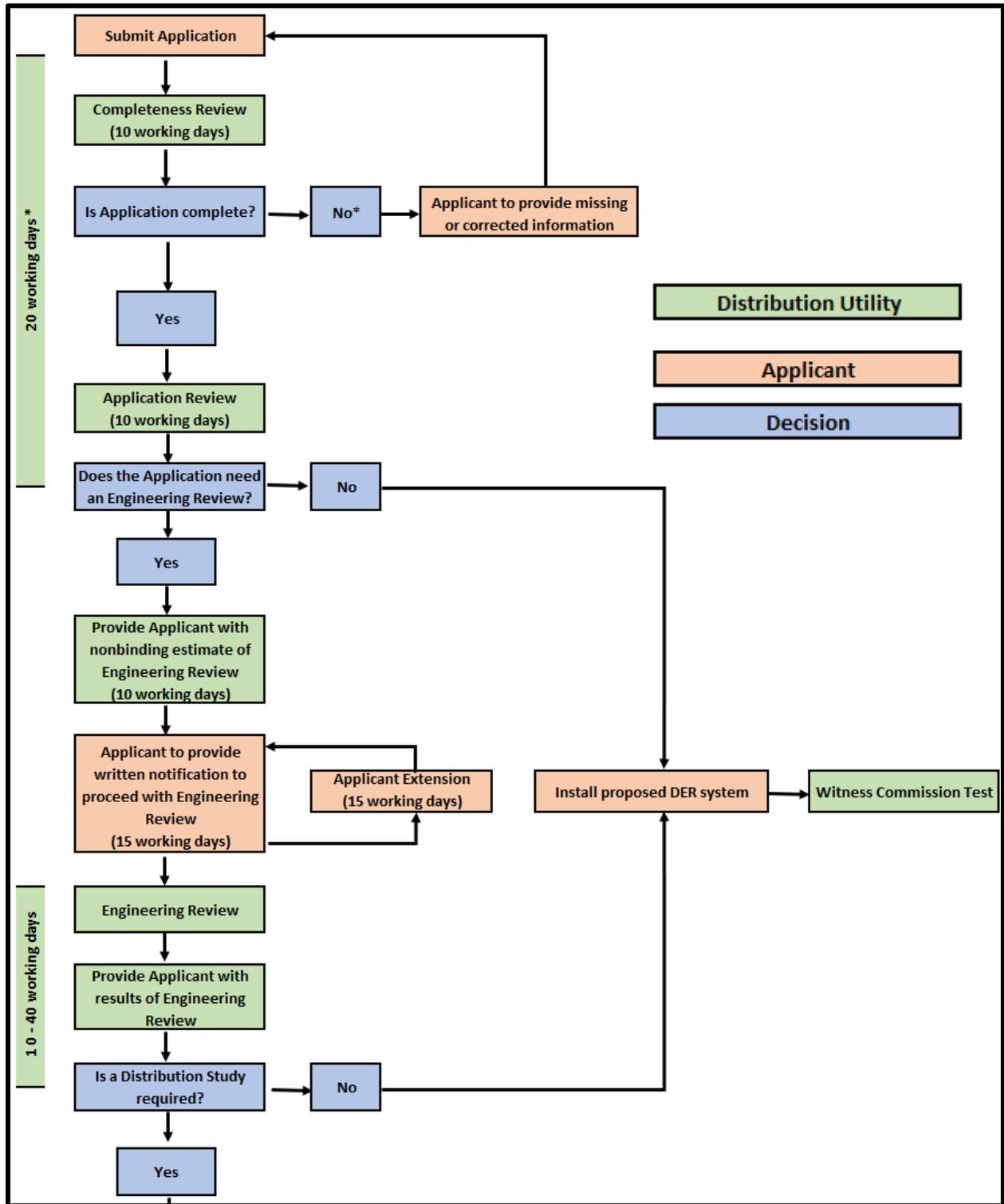
The Applicant shall provide written notification to proceed and full payment of the estimated cost of the engineering review within fifteen (15) Working Days of receiving the Utility’s notification requiring an engineering review. At the request of the Applicant, the Utility may provide a fifteen (15) Working Days extension of the deadline to provide notification to proceed and full payment. If notification and payment has not been received by the Utility within 30 Working Days after the deadline to accept, the application shall be deemed withdrawn.

Upon receiving from the Application written notification to proceed with full payment of the estimated cost of the engineering review, the Utility shall complete an engineering review and notify the Applicant of the results within the following times listed in Table 3.

Table 3. Engineering Review Timelines

Category	Timeline for Results
1	10 Working Days
2	15 Working Days
3	20 Working Days
4	40 Working Days

Figure 1 Application Flow Chart



4.5. Engineering Review Screens

The Utility shall determine if the DER can be interconnected safely and reliably without the construction of facilities by the Utility and by using a set of Engineering Review Screens. The Engineering Review Screens include the following engineering screens:

- The proposed DER's Point of Common Coupling must be on a portion of the Utility's distribution system.
- For interconnection of a proposed DER to a radial distribution circuit, the aggregated generation, including the proposed DER, on the circuit shall not exceed 15% of the line section annual peak load as most recently measured or 100% of the substation aggregated minimum load. A line section is that portion of a Utility's electric system connected to a customer bounded by automatic sectionalizing devices or the end of the distribution line. The Utility may consider 100% of applicable loading (i.e. daytime minimum load for solar), if available, instead of 15% of line section peak load.
- For interconnection of a proposed DER to the load side of network protectors, the proposed DER must utilize an inverter-based equipment package and, together with the aggregated other inverter-based DERs, shall not exceed the smaller of 5% of a network's maximum load or 50kW.⁴
- The proposed DER, in aggregation with other DERs on the distribution circuit, shall not contribute more than 10% to the distribution circuit's maximum fault current at the point on the high voltage (primary) level nearest the proposed Point of Common Coupling.
- The proposed DER, in aggregate with other Distributed Energy Resources on the distribution circuit, shall not cause any distribution protective devices and equipment (including, but not limited to, substation breakers, fuse cutouts, and line reclosers), or Applicant equipment on the system to exceed 87.5% of the short circuit interrupting capability; nor shall the interconnection be proposed for a circuit that already exceeds 87.5% of the short circuit interrupting capability.

Using Table 4, determine the type of interconnection to a primary distribution line. This screen includes a review of the type of electrical service provided to the

⁴ Network protectors are protective devices used on secondary networks (spot and grid networks) to automatically disconnect its associated transformer when reverse power flow occurs. Secondary networks are most often used in densely populated downtown areas.

Interconnecting Customer, including line configuration and the transformer connection to limit the potential for creating over-voltages on the Utility’s electric power system due to a loss of ground during the operating time of any anti-islanding function.

Table 4. Type of Primary Distribution Line Interconnections

Primary Distribution Line Type	Type of Interconnection to Primary Distribution Line	Results
Three-Phase, three wire	Three-phase or single-phase, phase-to-phase	Pass Screen
Three-phase, four wire	Effectively-grounded three-phase or single-phase, line-to-neutral	Pass Screen

- If the proposed DER is to be interconnected on single-phase shared secondary, the aggregate generation capacity on the shared secondary, including the proposed DER, shall not exceed 20kW or 65% of the transformer nameplate rating.
- If the proposed DER is single-phase and is to be interconnected on a center tap neutral of a 240-volt service, its addition shall not create an imbalance between the two sides of the 240-volt service of more than 20% of the nameplate rating of the service transformer.

The technical screens listed shall not preclude the Utility from using tools that perform screening functions using different methodologies provided the analysis is targeted to maintain the voltage, thermal and protection objectives as the listed screen.

4.6. Notification of Approval of Application

Provided the application passes the engineering screens, or if the proposed interconnection fails the screens but the Utility determines that the DER may, nevertheless, be interconnected consistent with safety, reliability and power quality standards, the Utility shall provide notice to the Applicant that their application has been approved.

4.7. Failure of Engineering Review Screens

If the proposed interconnection fails the engineering review screens, and the Utility does not or cannot determine that the DER may, nevertheless, be interconnected consistent with safety, reliability, and power quality standards unless the Applicant is willing to consider minor modifications or further study, the Utility shall provide the Applicant, in writing, a cost estimate for a Distribution Study in the results of the Engineering Review.

4.8. Engineering Review Fee

This final cost of the Engineering Review fee shall be cost based. The application fees shall be credited towards the cost of the engineering review or distribution study. A final true-up of the actual engineering review cost and the estimated engineering review cost shall be accounted for and incorporated with other remaining costs for interconnection including the Distribution System Study fee, if applicable, and the Commissioning fee.

5 Distribution System Study

5.1. Study Cost Estimate

If the Engineering Review indicates that a Distribution System Study is necessary, the Utility shall, in writing, provide a nonbinding cost estimate of the study in the Engineering Review. To proceed with a Distribution System Study, the Applicant shall provide the Utility with written notification of acceptance and full payment of the estimated study cost within 15 Working Days of receiving the Engineering Review. If notification and payment have not been received by the Utility within 30 Working Days after the deadline to accept, the Interconnection Application shall be deemed withdrawn.

5.2. Study Timeline

Upon receiving written notification to proceed and payment of the cost estimate for the Distribution System Study, the Utility shall perform a Distribution System Study of the local distribution system. The results of the Distribution System Study shall notify the Applicant of finding along with an estimate of any distribution system construction or modification cost to be borne by the Applicant. The time period in which the Distribution System Study and costs estimates are to be completed are shown in Table 5.

Table 5. Distribution Study Timelines

Category	Timeline for Distribution Study
1	10 Working Days
2	15 Working Days
3	20 Working Days
4	60 Working Days

5.3. Electric System Impacts

The Distribution System Study shall identify and detail the electric system impacts that would result if the proposed DER(s) were interconnected without project modifications or electric system modifications. The Distribution System Study shall evaluate the impacts of the proposed interconnection on the reliability of the electric system.

5.4. Construction of Facilities

The Distribution System Study shall also identify if construction of facilities is required. If construction of facilities is required to address electrical system impacts, the Distribution System Study shall include the specification of facilities, along with an estimate the cost of the equipment, engineering, procurement and construction work.

5.5. Distribution System Upgrades

If the Applicant agrees, in writing, to pay for any required distribution system construction or modifications, the Utility shall complete the distribution system upgrades and the Applicant shall install the DER system within a time frame that is mutually agreed upon.

5.6. Distribution System Study Fee

This final cost of the Distribution System Study fee shall be cost based. A final true-up of the actual Distribution System Study cost and the estimated Distribution System Study cost shall be accounted for and incorporated with other remaining costs for interconnection including the Commissioning fee.

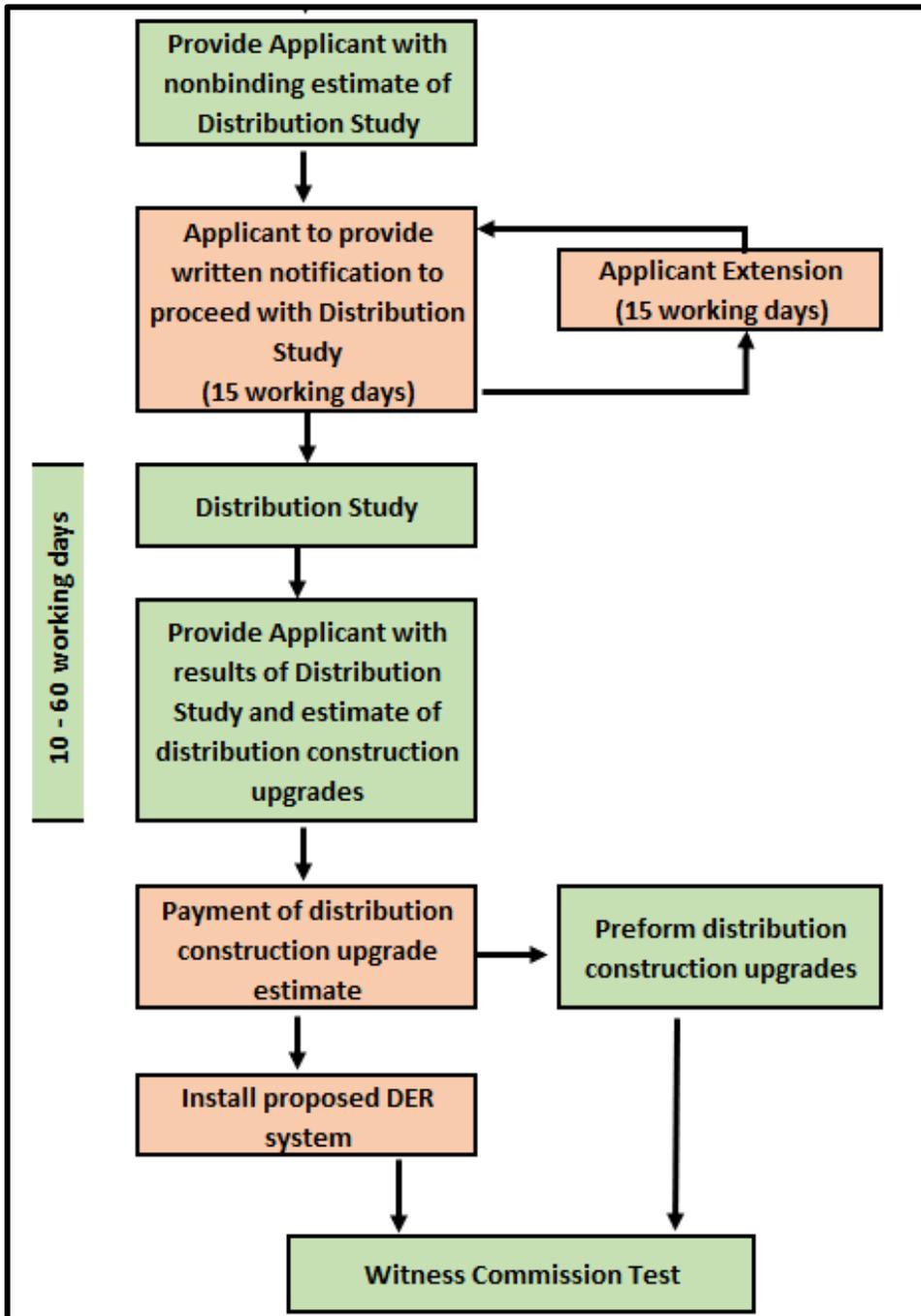
5.7. Transmission System

In some situations, the proposed DER system may result in power flowing back through the distribution substation and onto the transmission system. In this case, additional transmission studies may be required by the transmission owner. The costs and timeline of a transmission owner will be determined on an individual case basis.

5.8. Engineering Study Confidentiality

The results of the Distribution System Study and the information provided by the Applicant shall be treated with confidentiality as listed in Section 13.1.

Figure 2 Distribution Study Flow Chart



6 Application Approval

6.1. Application Memorandum

Upon approval of an application, the Utility shall provide the Applicant with an interconnection approval memorandum that confirms the utility's application approval and identifies any application condition for approval. For Category 2 to 4 DER projects, the memorandum and associated attachments shall provide:

- The date of approval.
- Completed application materials.
- Engineering review requirements, if applicable.
- Distribution system study requirements, if applicable.
- Identification of the authorized tariff or program agreement applicable to the DER facility at the time the memorandum is issued.
- Expiration date of the memorandum if Utility's requirements are not met, including identification of options for a deadline extension.
- System specifications and specific requirements imposed by the Utility as conditions for approval.
- Estimated distribution construction or modification cost and scope, if applicable.
- Estimated completion date for the Utility to complete distribution system upgrades, if applicable.
- A copy of the Interconnection Agreement that would be executed by both parties upon completion of all requirements, including any anticipated distribution system upgrades.
- Acknowledgement that the Utility will interconnect the DER facility if all identified conditions are met.

7 Modifications to Application

7.1. Procedures

At any time after the application is deemed complete, the Applicant or the Utility may identify modifications to the proposed DER system that may improve costs and

benefits (including reliability) of the proposed DER system and the ability for the Utility to accommodate the proposed DER system. The Applicant shall submit to the Utility in writing all proposed modifications to any information provided in the application. The Utility cannot unilaterally modify the application.

7.2. Timelines

The Applicant shall notify the Utility of plans for any Material Modification to the DER facility by providing advance notice meeting the minimum time period listed in Table 6.

Table 6. Minimum Advance Notice of Material Modifications

Track	Export Capacity after Modification	Working Days of Advance Notice of Proposed Material Modifications
Category 1	20 kW AC	20 Working Days
Category 2	Greater than 20 kW and not more than 200 kW	40 Working Days
Category 3	Greater than 200 kW and not more than 1 MW	60 Working Days
Category 4	Greater than 1 MW and not more than 15 MW	60 Working Days

The Applicant shall provide this notification by submitting a revised standard Interconnection Application form and such supporting materials as may be reasonably requested by the Utility. The Applicant may not commence any Material Modification to the DER facility until the Utility has approved the revised application, including any necessary engineering review or distribution system study. The Utility shall indicate its written approval or rejection of the revised application with the time period listed in Table 7.

Table 7. Utility Review of Material Modifications

Track	Export Capacity after Modification	Working Days of Utility's Response to Proposed Material Modifications
Category 1	20 kW AC	20 Working Days
Category 2	Greater than 20 kW and not more than 200 kW	40 Working Days
Category 3	Greater than 200 kW and not more than 1 MW	60 Working Days
Category 4	Greater than 1 MW and not more than 15 MW	60 Working Days

Upon completion of the application process, a new standard Interconnection Agreement shall be signed by both parties prior to parallel operations. If the Utility fails to respond in the time specified, the completed application is deemed approved.

8 Interconnection

8.1. Metering

Any metering requirements necessitated by the use of the DER system shall be installed at the Applicant's expense. The metering requirement costs will be included in the final invoice of interconnection costs to the Applicant.

8.2. Inspection, Testing and Commissioning

The Applicant shall notify the Utility when the DER facility construction is complete and is ready for Commissioning Tests. Upon notification, the Utility shall schedule a Commissioning Test that meets the time periods listed in Table 8. The Utility shall send qualified personnel to the DER site to inspect the interconnection and participate in the commission testing of the DER system. Testing and inspection shall occur on a Working Day at a mutually agreed upon time and date. The Utility may waive the right, in writing, to witness or verify the commission tests. The Applicant shall provide the Utility with a copy of the results of the Commissioning Test.

Table 8. Commissioning Tests Scheduled

Track	Export Capacity	Days from Notice of DER Facility Completion
Category 1	20 kW AC	10 Working Days
Category 2	Greater than 20 kW and not more than 200 kW	10 Working Days
Category 3	Greater than 200 kW and not more than 1 MW	20 Working Days
Category 4	Greater than 1 MW and not more than 15 MW	20 Working Days

The Applicant shall arrange for the inspection and testing of the DER system and the Applicant's Interconnection Facilities prior to interconnection pursuant to the Utility's Technical Requirements. Commissioning Tests of the Applicant's installed equipment shall be performed pursuant to applicable codes and standards of the Utility's Technical Requirements.

8.3. Technical Requirements

The Utility shall make the Technical Requirements for any potential DER interconnection publicly available. Unless notified by the Utility, the Applicant only

needs to be in compliance of the current version of the Utility’s Technical Requirements at the time of interconnection.

8.4. Interconnection Costs

The Utility may recover from the Applicant an amount up to the actual cost, for labor and parts, of any distribution system upgrades required. The Utility may charge for retesting an installation that does not conform to the Utility’s Technical Requirements. The fee for retesting shall be equal to the applicable Commissioning fee listed in **Error! Reference source not found.**

8.5. Authorization for Parallel Operations

The Applicant shall not operate its DER system in parallel with the Utility’s distribution system without prior written authorization from the Utility. The Utility shall review the results of the on-site Commissioning Tests and shall notify the Applicant withing the time periods shown in Table 9, of its approval or disapproval of the interconnection.

Table 9. Review of Commissioning Tests

Track	Export Capacity	Days from Receipt of Test Results
Category 1	20 kW AC	5 Working Days
Category 2	Greater than 20 kW and not more than 200 kW	5 Working Days
Category 3	Greater than 200 kW and not more than 1 MW	10 Working Days
Category 4	Greater than 1 MW and not more than 15 MW	10 Working Days

If the results of the Commissioning Tests are approved, the Utility shall provide a written statement of final acceptance and cost reconciliation. Prior to operation of the DER system in extended parallel manner, the Applicant for a DER system that passes the commissioning tests must sign a standard interconnection agreement. If the Utility does not approve the interconnection, the Applicant may take corrective action and request the Utility to reexamine its interconnection request.

8.6. Continual Compliance

The Applicant shall be fully responsible to operate, maintain, and repair the DER as required to ensure that it complies at all times with the interconnection standards to which it has been certified. The Applicant shall also operate its DER system in compliance with the Utility’s Technical Requirements. The Utility may periodically inspect, at its own expense, the operation of DER system as it relates to power quality, thermal limits and reliability. Failure by the Applicant to remain in compliance with the technical requirements will result in the disconnection of the DER system from the Utility’s distribution system.

8.7. Disconnection of DER

The Utility has the right to refuse to connect or may disconnect a DER facility from the distribution system in the event of the following:

- Lack of approved standard application form or standard application agreement.
- Termination of interconnection by mutual agreement.
- Non-compliance with the technical or contractual requirements.
- Distribution system emergency.
- Routine maintenance, repairs, and modification, but only for a reasonable length of time necessary to perform the required work and upon reasonable notice.

9 Interconnection Agreement

9.1. Standard Interconnection Agreement

Upon the DER system passing Commissioning Tests, the Applicant may sign a Standard Interconnection Agreement. The Standard Interconnection Agreement shall be signed by the Applicant and the Utility prior to parallel operation of the DER system commencing.

9.2. Power Purchase Agreement

For DER systems greater than 100 kW, the generation from the DER system will be purchased from the Utility's wholesale supplier. A power purchase agreement between the Applicant and the wholesale supplier may be executed. The Standard Interconnection Agreement shall still be signed between the Applicant and the Utility prior to parallel operations of the DER system commencing.

10 Insurance

10.1. Insurance Requirements

At minimum, the Applicant shall maintain, for the duration the DER system is interconnected to the Utility's distribution system, liability insurance equal to or greater than the amount listed in Table 90 per occurrence.

Table 90. Liability Insurance Requirements

Track	Generation Capacity	Liability Insurance Requirement
Category 1	20 kW or Less	\$300,000
Category 2	Greater than 20 kW to 200 kW	\$1,000,000
Category 3	Greater than 200 kW to 1 MW	\$2,000,000
Category 4	Greater than 1 MW to 15 MW	Negotiated

For all proposed Category 2 to 4 DER systems, the liability insurance shall name the Utility as an additional insured party or meet the criteria in Section 10.2

10.2. Self-Insurance

The Applicant may choose to be self-insured provided there is an established record of self-insurance. The Applicant shall supply the Utility at least twenty (20) days prior to the date of initial operation, evidence of an acceptable plan to self-insure to a level of coverage equivalent to that required in Section 10.1. Failure of the Applicant or the Utility to enforce the minimum levels of insurance does not relieve the Applicant from maintaining such levels of insurance or relieve the Applicant of any liability.

10.3. Proof of Insurance

The Applicant shall furnish the required insurance certificates and endorsements to the Utility prior to the initial operation of the DER. A copy of the Declaration page of the Homeowner's insurance policy is a common example of an insurance certificate. Thereafter, the Utility shall have the right to periodically inspect or obtain a copy of the original policy or policies of insurance.

11 Pre-Application Report

11.1. Pre-Application Report Requests

The Applicant may submit a Pre-Application Report Request, including a non-refundable fee of \$300, for a Pre-Application Report on a proposed project at a specific site. The Applicant must fill out the Pre-Application Request form as completely as possible. The Utility shall provide the readily available data listed in Section 11.3 within ten (10) Working Days of receipt of a completed request form and payment. The Pre-Application Report produced by the Utility is non-binding, does not confer any rights, and does not preclude the Applicant from any Interconnection Process steps including submission of the Interconnection Application.

11.2. Information Provided

Using the information provided in the Pre-Application Report Request form, the Utility will identify the substation/area bus, bank or circuit likely to serve the proposed Point of Common Coupling (PCC). This selection by the Utility does not necessarily indicate, after application of the screens and/or study, that this would be the circuit the project ultimately connects to. The Applicant must request additional Pre-Application Reports if information about multiple PCCs is requested.

The Pre-Application Report will only include existing data that is readily available. A request for a Pre-Application Report does not obligate the Utility to conduct a study or other analysis of the proposed DER in the event that data is not readily available. The

Utility will provide the Applicant with the data that is available. The confidentiality provisions in Section 13.1 apply to Pre-Application Reports.

11.3. Pre-Application Report Components

The Pre-Application Report shall include the following pieces of information provided the data currently exists and is readily available.

- Total capacity (in megawatts (MW)) of substation/area bus, bank or circuit based on normal or operating ratings likely to serve the proposed Point of Common Coupling.
- Existing aggregate generation capacity (in MW) interconnected to a substation/area bus, bank or circuit (i.e., amount of generation online) likely to serve the proposed Point of Common Coupling.
- Aggregate queued generation capacity (in MW) for a substation/area bus, bank or circuit (i.e., amount of generation in the queue) likely to serve the proposed Point of Common Coupling.
- Available capacity (in MW) of substation/area bus or bank and circuit likely to serve the proposed Point of Common Coupling (i.e., total capacity less the sum of existing aggregate generation capacity and aggregate queued generation capacity).
- Substation nominal distribution voltage and/or transmission nominal voltage if applicable.
- Nominal distribution circuit voltage at the proposed Point of Common Coupling.
- Approximate circuit distance between the proposed Point of Common Coupling and the substation.
- Relevant line section(s) actual or estimated peak load and minimum load data, including daytime minimum load and absolute minimum load, when available.
- Whether the Point of Common Coupling is located behind a line voltage regulator.
- Number and rating of protective devices and number and type (standard, bi-directional) of voltage regulating devices between the proposed Point of Common Coupling and the substation/area. Identify whether the substation has a load tap changer.

- Number of phases available on the distribution system at the proposed Point of Common Coupling. If a single phase, distance from the three-phase circuit.
- Limiting conductor ratings from the proposed Point of Common Coupling to the distribution substation.
- Whether the Point of Common Coupling is located on a spot network, grid network, or radial supply.
- Based on the proposed Point of Common Coupling, existing or known constraints such as, but not limited to, electrical dependencies at that location, short circuit interrupting capacity issues, power quality or stability issues on the circuit, capacity constraints, or secondary networks.

12 Disputes

12.1. Procedures

The Parties agree in a good faith effort to attempt to resolve all disputes arising out of the Interconnection Process, associated studies and Interconnection Agreements. The Parties agree to follow the established dispute resolution policy adopted by the Utility.

13 Clauses

13.1. Confidentiality

Confidential Information shall mean any confidential and/or proprietary information provided by one Party to the other Party that is clearly marked or otherwise designated "Confidential." For purposes of these procedures, design, operating specifications, and metering data provided by the Applicant may be deemed Confidential Information regardless of whether it is clearly marked or otherwise designated as such. If requested by either Party, the other Party shall provide in writing the basis for asserting that the information warrants confidential treatment.

Confidential Information does not include information previously in the public domain with proper authorization, required to be publicly submitted or divulged by Governmental Authorities (after notice to the other Party and after exhausting any opportunity to oppose such publication or release), or necessary to be publicly divulged in an action to enforce these procedures. Each Party receiving Confidential Information shall hold such information in confidence and shall not disclose it to any third party nor to the public without the prior written authorization from the Party providing that information, except to fulfill obligations under these procedures, or to fulfill legal or regulatory requirements that could not otherwise be fulfilled by not making the information public.

Each Party shall hold in confidence and shall not disclose Confidential Information, to any person (except employees, officers, representatives and agents, who agree to be bound by this section). Confidential Information shall be clearly marked as such on each page or otherwise affirmatively identified. If a court, government agency or entity with the right, power, and authority to do so, requests or requires either Party, by subpoena, oral disposition, interrogatories, requests for production of documents, administrative order, or otherwise, to disclose Confidential Information, that Party shall provide the other Party with prompt notice of such request(s) or requirements(s) so that the other Party may seek an appropriate protective order or waive compliance with the terms of this Agreement. In the absence of a protective order or waiver the Party shall disclose such confidential information which, in the opinion of its counsel, the party is legally compelled to disclose. Each Party will use reasonable efforts to obtain reliable assurance that confidential treatment will be accorded to any confidential information furnished.

Critical infrastructure information or information that is deemed or otherwise designated by a Party as Critical Energy/Electric Infrastructure Information (CEII) pursuant to FERC regulation, [18 C.F.R. §388.133](#), as may be amended from time to time, may be subject to further protections for disclosure as required by FERC or FERC regulations or orders and the disclosing Party's CEII policies. Each Party shall employ at least the same standard of care to protect Confidential Information obtained from the other Party as it employs to protect its own Confidential Information.

Confidential Information does not include information previously in the public domain with proper authorization, required to be publicly submitted or divulged by Governmental Authorities (after notice to the other Party and after exhausting any opportunity to oppose such publication or release), or necessary to be publicly divulged in an action to enforce these procedures. Each Party receiving Confidential Information shall hold such information in confidence and shall not disclose it to any third party nor to the public without the prior written authorization from the Party providing that information, except to fulfill obligations under these procedures, or to fulfill legal or regulatory requirements that could not otherwise be fulfilled by not making the information public.

Each Party is entitled to equitable relief, by injunction or otherwise, to enforce its rights under this provision to prevent the release of Confidential Information without bond or proof of damages and may seek other remedies available at law or in equity for breach of this provision.

13.2. Non-Warranty

The Utility does not give any warranty, expressed or implied, as to the adequacy, safety, or other characteristics of any structures, equipment, wires, appliances or

devices owned, operated, installed or maintained by the Applicant, including without limitation, the DER and any structures, equipment, wires, appliances or devices not owned, operated or maintained by the Utility. The Utility does not guarantee uninterrupted power supply to the DER and will operate the distribution system with the same reliability standards for the entire membership base.

13.3. Indemnification

Each party to the Standard Interconnection Agreement shall identify, hold harmless and defend the other party, 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 of each party shall be limited to direct actual damages, and all other damages at law or in equity shall be waived.