

**Distributed Generation  
Procedures & Guidelines  
Manual for Members**

**Whitewater Valley REMC**

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*Other Related Documents:*

- Member Owned Solar Distributed Generation Application*
- Member Owned Distributed Generation Application (for Other than Solar)*
- Agreement for Interconnection of Distributed Generation*
- Declaration of Coverage*
- Schedule DG – Distributed Generation Purchase Tariff*

## GENERAL

It is the intent of the Whitewater Valley REMC (REMC) to allow its members to install Distributed Generation (DG) provided that member's DG facility does not adversely affect the REMC, Hoosier Energy or other electric grid connected entities. The Member must conduct, or have consultants conduct, his/her own analysis to determine the economic benefit, if any, of the DG operation. Throughout this manual, a member who has installed or is planning to install a DG facility is referred to as "Member."

A DG facility that is not connected to the REMC lines in any way is known as "**stand-alone**" or "**isolated**" DG system. The Member may operate a DG facility in stand-alone or isolated fashion as long as such DG facility does not adversely affect the REMC's electric system or impose any undue hazards or risks to the REMC electric system or personnel. A DG facility connected in any way to the REMC's electric system shall be considered as being operated in "**parallel**." For purposes of this DG Manual, a DG facility is considered operating in "**parallel**" anytime it is connected to the REMC's system in any way, even if the Member does not intend to export or import power. All provisions of this DG Manual shall apply to parallel operation of DG facilities as so defined. Members must fully comply with the provisions of this DG Manual as a condition of receiving continuing electric service. Provisions hereof may be amended from time to time at the sole discretion of the REMC.

This DG Manual is not a complete description or listing of all laws, ordinances, rules and regulations that may be applicable to a member, nor is this DG Manual intended to be an installation or safety manual.

The Member requesting to interconnect a DG facility to the REMC's electric system is solely responsible for, and must follow, in addition to all provisions of this DG Manual, all of the REMC's Bylaws, Service Rules and Regulations, policies, tariffs for electric service, the policies and procedures of the REMC's power supplier, Hoosier Energy, Inc. (hereinafter referred to as "Power Supplier"), where applicable, the current *IEEE 1547 Standard Guide for Distributed Generation Interconnection*, applicable ANSI standards, including ANSI C84.1 Range A, Midwest Independent System Operator (MISO) directives, and all industry standard, prudent engineering practices. All standards or requirements of any controlling legal authority must also be met. All requirements in the following sections of this DG Manual must be met prior to interconnection of the DG facility to the REMC's system.

Inverter based systems listed by Underwriters Laboratories (UL) to UL Standard 1741, published May 7, 1999, as revised January 28, 2010 (UL 1741), are accepted by the REMC as meeting the technical requirements of IEEE1547 tested to UL 1741.

A Member may serve all of that Member's electric service loads beyond the meter at the location serving the DG facility, but will not be allowed to serve multiple meters, multiple consuming facilities or multiple Members with a single DG facility or under a single DG application. The Member shall not resell electricity under any circumstances except as provided by this agreement.

DG facilities larger than 50 kilowatts are not covered by this DG Manual and will be considered by the REMC and the REMC's Power Supplier on a case-by-case basis.

## **I. DETERMINING THE CATEGORY OF DISTRIBUTED GENERATION FACILITY**

### 1) Connection Level Category:

- a) Connected to the REMC's system  
The Member requests and/or the Member's DG facility requires connection to the REMC's system. All provisions of this DG Manual cover this category.
- b) Connected to the REMC's Power Supplier's system  
This DG Manual does **NOT** cover this category.

### 2) Power Export Categories:

#### Parallel (a)– no power export

The Member operates a DG facility connected in any way to the REMC system but with no intention to export power.

#### Parallel (b)– power generated to be both consumed and exported

The Member operates a DG facility connected in any way to the REMC's system designed primarily to serve the Member's own load but with the intention to export excess power.

#### Parallel (c)– power generated to be exported only

The Member operates a DG facility connected in any way to the REMC's system designed primarily with the sole intention to export power.

### 3) Size Category:

#### a) Facilities 50 kW and smaller

Facilities  $\leq$  50 kW of connected generation will be placed in this size category.

## **II. MEMBER'S INITIAL REQUIREMENTS**

### 1) Notification:

- a) The Member must meet all the REMC's membership and service requirements in addition to the requirements in the DG Manual.
- b) Anyone requesting to own or operate a DG facility in parallel with the REMC's electric system must notify the REMC in writing of the proposed location, use and size category of the proposed DG facility.

### 2) Service Request:

- a) In advance of request for an interconnection, the Member must contact the REMC and complete the "Whitewater Valley REMC Application for Operation

of Member-Owned Distributed Generation.”

b) A separate form must be submitted for each facility.

3) Submit a DG Plan and Pay Application Fee:

a) As a part of the application, the Member shall submit a plan detailing the electrical design, interconnection requirements, size, and operational plans for the DG facility (the “DG plan”). Either at the time of submission or at any time during the review process, the REMC may require additional information or may require the DG plan to be prepared by a Professional Engineer registered in the state of Indiana.

b) Prior to review of the application and DG plan by the REMC, the Member shall pay an application fee of \$100.00. An additional fee will be required if a PE Certification is necessary. A separate fee must be submitted for each DG facility.

### **III. REMC AND POWER SUPPLIER REVIEW PROCESS**

1) Plan Review Process:

a) The REMC, and its Power Supplier if requested by the REMC, will review the application and accompanying documents, plans, specifications, and other information provided and will return an interconnection analysis to the Member within 60 days of receipt of final plans and specifications and additional information, if any, requested by the REMC.

b) Technical review will be consistent with guidelines established by the most recent *IEEE Standard 1547 Guide for Distributed Generation Interconnection*. The Member may be required by the REMC to provide proof that the proposed DG Facilities have been tested and certified to applicable IEEE guidelines.

c) If corrections or changes to the plans, specifications and other information are to be made by the Member, the 60 day period may be reinitialized when such changes or corrections are provided to the REMC. In addition, any changes to the site or project requiring new analysis by the REMC may result in additional cost being incurred and a new DG plan may be required. The cost will be determined by the REMC and shall be paid in advance by the Member.

d) The Member acknowledges and agrees that any review or acceptance of such plans, specifications and other information by the REMC and/or its Power Supplier shall not impose any liability on the REMC and/or its Power Supplier and does not guarantee the adequacy of the Member’s equipment or DG facility to perform its intended function. The REMC and its Power Supplier disclaim any expertise or special knowledge relating to the design or

performance of DG installations and does not warrant the efficiency, cost-effectiveness, safety, durability, or reliability of such DG installations. Installation and operation of the DG facility shall at all times be at the Member's risk and expense.

- e) In the event it is necessary at the time of initial interconnection or at some future time for the REMC and/or its Power Supplier to modify electric delivery systems in order to serve the Member's DG facilities and/or purchase or continue to purchase the output of the Member's DG facilities, or because the quality of the power provided by the Member's DG adversely affects the REMC's and/or its Power Supplier's delivery system, the Member will be responsible to pay the REMC and/or its Power Supplier in advance for all costs of modifications required for the interconnection of the Member's DG facilities. Failure to comply with this provision may result in the REMC disconnecting/isolating Member's parallel DG facility or electrical service, with or without notice, from the REMC's electrical system. The REMC reserves the right to pursue any and all damage claims for damages incurred by the REMC caused by the Member's DG.

#### **IV. MEMBER'S RESPONSIBILITY PRIOR TO OPERATION**

##### **1) Line Extension and Modifications to REMC Facilities:**

- a) As a part of the interconnection analysis performed by the REMC, the Member will be provided with an estimate of any line extension or other cost to be incurred in providing electric delivery service to the Member's DG facility.
- b) Notwithstanding any other REMC line extension policy, the Member shall pay in advance the full cost of the construction of any transmission, substation, distribution, transformation, metering, protective, or other facilities or equipment which, at the sole discretion of the REMC and/or its Power Supplier, is required to serve the Member's proposed DG facility.
- c) In the event it is necessary at the time of initial interconnection or at some future time for the REMC and/or its Power Supplier to modify electric delivery systems in order to serve the Member's DG facilities and/or purchase or continue to purchase the Member's output, or because the quality of the power provided by the Member's DG adversely affects the REMC and/or its Power Supplier's delivery system, the Member will reimburse the REMC and/or its Power Supplier for all costs of modifications required for the interconnection of the Member's DG facilities. Failure to comply with this provision may result in the REMC disconnecting/isolating Member's parallel DG facility or electrical service, with or without notice, from the REMC's electrical system.
- d) In the event the REMC at any time in the future changes primary voltage of facilities serving the DG facility such that metering equipment, transformers and/or any other Member-owned equipment must be changed to continue

receiving service at the new primary voltage level, the full cost of the change will be borne by the Member. Failure to comply with this provision may result in the REMC disconnecting/isolating Member's parallel DG facility or electrical service, with or without notice, from the REMC's electrical system.

- e) A safety disconnect switch is required at the sole discretion of the REMC, the Member shall pay the full cost of the installation of a visible load break disconnect switch by and to the sole specification of the REMC. The switch will be readily accessible to REMC personnel and of a type that can be secured in an open position by an REMC lock. Failure to comply with this provision may result in the REMC disconnecting/isolating Member's parallel DG facility or electrical service, with or without notice, from the REMC's electrical system.

## 2) Liability Insurance:

- a) Prior to interconnection, the Member must provide (at Member's expense) a certificate of insurance (identifying the REMC as an additional insured) showing satisfactory personal liability insurance including contractual liability insurance covering indemnity agreements which insures the Member against all claims for property damage, and for personal injury or death arising out of, resulting from or in any manner connected with the installation, operation and maintenance of the Member's generating equipment
- b) The amount of such insurance coverage required to be provided by the Member shall be not less than \$500,000 per occurrence. The amount of such coverage and the type of insurance coverage required must be acceptable to the REMC and the insurance requirement may be amended from time to time by the REMC at the sole discretion of the REMC.

The certificate of insurance shall provide that the insurance policy will not be changed or canceled during its term without thirty days written notice to the REMC. The term of the insurance shall be coincident with the term of the interconnection contract or shall be specified to renew throughout the length of the interconnection contract. Failure to comply with this provision may result in the REMC disconnecting/isolating Member's parallel DG facility or electrical service, with or without notice, from the REMC's electrical system.

- c) The Member shall provide proof of such insurance to the REMC prior to interconnection via the "Declaration of Coverage" document with the Declaration of Coverage Form" from your insurance provider attached. This coverage is to be confirmed at least annually or at the request of any authorized REMC representative.

## 3) Contracts:

- a) Interconnection Contract  
The Member shall sign and deliver an Agreement for Interconnection to

the REMC substantially in the form as shown in the REMC AGREEMENT FOR INTERCONNECTION OF DISTRIBUTED GENERATION included in this DG Manual.

4) Ownership of facilities:

- a) The Member shall own and be solely responsible for all expense, installation, maintenance and operation of all facilities, including all power generating facilities, at and beyond the point of delivery as defined in the REMC's tariffs.
- b) At its sole discretion, the REMC may locate REMC owned metering equipment and/or transformers past the point of delivery.

5) Self-Protection of DG Facilities:

- a) The Member will furnish, install, operate and maintain in good order and repair all equipment necessary for the safe operation of DG facilities operated in parallel with the REMC system.
- b) The Member's equipment will have capability to both establish and maintain synchronism with the REMC system and to automatically disconnect and isolate the DG facility from the REMC system pursuant to abnormal operation or unsafe conditions present on either system.
- c) The Member's DG facility will be designed, installed and maintained to be self-protected from normal and abnormal conditions on the REMC system including, but not limited to, overvoltage, under voltage, over current, frequency deviation, and faults. Self-protection will be compatible with all applicable REMC, Power Supplier or other controlling legal authority protection arrangements, requirements and/or operating policies.
- d) Additional protective devices and/or functions may be required by the REMC when, in the sole judgment of the REMC, the particular DG facility installation and/or the REMC system characteristics so warrant.

6) Safety Disconnect:

- a) The REMC requires some means to visually disconnect the REMC's system from the Member's system. If service can be safely disconnected by REMC personnel pulling the meter, then this arrangement will not require a separate safety disconnect.
- b) A Member shall install a visible load break disconnect switch at the Member's expense and to the REMC's specifications in all other instances where pulling the REMC's meter will not safely and visibly disconnect the REMC's system from the Member's system.
- c) The switch will be located so as to be readily accessible to REMC personnel at all times and in a location acceptable to both the Member and the REMC.



- d) The switch shall be a type that can be secured in an open position by a lock owned by the REMC. If the REMC has locked the disconnect switch open, the Member shall not operate or close the disconnect switch.
- e) Signage shall be placed by the REMC at the Member's expense and located at the disconnect indicating the purpose of the switch along with contact names and numbers of both the Member and the REMC.

7) Initial Interconnection:

- a) Upon satisfactory completion of the review process and execution of required agreements as outlined in this DG Manual, the REMC will begin installation of the interconnection of the DG facilities. The interconnection will be completed as soon as practical after completion of the review process and execution of the necessary agreements/contracts. After completion of interconnection requirements and prior to initiation of service, the REMC will conduct a final inspection of the facilities and interconnection to the REMC's system. Upon final inspection satisfactory to the REMC and/or Power Supplier if applicable, or other controlling legal authority, the REMC will initiate service to the Member's DG facility.
- b) The REMC's review process and final inspection is intended as a means to help safeguard the REMC's facilities and personnel. The Member acknowledges and agrees that any review or acceptance of such plans, specifications and other information by the REMC and/or its Power Supplier shall not impose any liability on the REMC and/or its Power Supplier and does not guarantee the adequacy of the Member's equipment or DG facility to perform its intended function. The REMC and its Power Supplier disclaim any expertise or special knowledge relating to the design or performance of DG installations and does not warrant the efficiency, cost-effectiveness, safety, durability, or reliability of such DG installations.

## **V. REFUSAL TO INTERCONNECT SERVICE OR DISCONNECTION OF INTERCONNECTION SERVICE**

The REMC may, at its sole discretion, prevent the interconnection or disconnect the interconnection of DG facilities, with or without notice, due to reasons such as safety concerns, reliability issues, power quality issues, breach of interconnection contract, or as ordered by any controlling legal authority, or any other issue which the REMC considers to be a reasonable basis for such action. Any disconnection may be without prior notice.

## **VI. OPERATION OF PARALLEL FACILITY**

The purpose of this section is to outline the REMC's operational requirements (the fulfillment of which is the responsibility of the Member) for DG facilities operated in parallel with the REMC's system and is not intended to be a complete listing of all operational, regulatory, safety and other requirements.

1) Quality of Service:

- a) The Member's DG facility will generate power at the nominal voltage of the REMC's system at the Member's delivery point as defined by ANSI C84.1 Range A.
- b) Member's DG installation will generate sinusoidal power at a frequency of sixty hertz within the tolerances as defined by IEEE 1547.
- c) Member's DG facility shall produce power at a minimum power factor of at least 97% peak and average or member shall provide and utilize power factor correction capacitors to ensure at least a 97% peak and average power factor. Failure to comply with this provision may result in billing power factor penalties being assessed.
- d) Member's DG facility shall operate in accordance with the power quality limits specified in IEEE 519. This standard specifies generally acceptable harmonic distortion (both current and voltage) levels.
- e) The overall quality of the power provided by the Member's DG facility including, but not limited to, the effects of harmonic distortion, voltage regulation, voltage flicker, switching surges and power factor, will be such that the REMC system or other members are not adversely affected in any manner.
- f) In the event that adverse effects are caused in whole or in part by the Member's DG facility, the Member will correct the cause of such effects within 14 days of the initial adverse effect and reimburse the REMC for required costs incurred due to such correction and reimburse the REMC and its members, or any other affected entities, for documented and substantiated damages incurred due to Member's DG operation. However, the disconnection of the facilities by the REMC is permitted without notice if, in the sole judgment of the REMC, adverse effects may warrant immediate disconnection from the REMC's system.

2) Operation of Safety Disconnect, Whether Achieved by REMC Personnel Safely Pulling The Meter or Operation of a Separate Switch:

- a) The REMC shall have the right to pull the meter (if pulling the meter can be done safely) or lock the disconnect switch open when, in the sole judgment of the REMC:
  - (1) It is necessary to maintain safe electrical operating and/or maintenance conditions,
  - (2) The Member's DG system , in the sole judgment of the REMC, adversely affects the REMC's or other connected entities or member's system/service, or

- (3) There is a system emergency (a system emergency may occur on the REMC, Power Supplier, MISO system or control area) or other abnormal operating condition warranting disconnection with or without notice.
  - (4) Or if ordered to do so by any controlling legal authority.
- b) The REMC reserves the right without incurring any liability to the Member to safely pull the meter or operate the disconnect switch for the protection of the REMC system even if so doing shall adversely affect the Member's DG facility. In the event the REMC opens and/or closes the disconnect switch with or without notice:
    - (1) The REMC shall not be responsible for energizing or restoring the parallel operation of the DG facility.
    - (2) The REMC will make reasonable efforts to notify the Member of the disconnection and the reasons thereof.
  - c) The Member will not reset or re-energize the meter or bypass the disconnect switch at any time for any reason.
  - d) Members with DG facilities as defined in this DG Manual that are solely for the purpose of emergency backup without intent to export power shall not operate their DG facilities at any time unless their electric system is visibly disconnected and locked out from the REMC system. At its sole discretion, the REMC may require the Member to install at his/her own expense an interlocking switch, approved by the REMC, for the purpose of insuring the Member's facilities do not operate in parallel with the REMC's facilities.

### 3) Access:

- a) Persons authorized by the REMC shall have the right to enter the Member's property for purposes of testing, operating the disconnect switch, reading or testing the metering equipment, maintaining right-of-way or other DG facility equipment and/or REMC service requirement. Such entry onto the Member's property may be at any time without notice.
- b) If the Member erects or maintains locked gates or other barriers, the Member will furnish the REMC with convenient means to circumvent the barrier for immediate full access for the above-mentioned reasons. The REMC shall not be responsible for any damage to gates, locks or other barriers incurred in carrying out the provisions of this section.

### 4) Liability for Injury and Damages:

- a) The Member assumes full responsibility for electric energy furnished by the Member and shall indemnify the REMC and/or its Power Supplier against, and hold the REMC and/or its Power Supplier harmless from, all claims, liability, damages, and expenses, including attorney's fees, based on any injury to any person, including loss of life or damage to any property, including loss of use

thereof, arising out of, resulting from, or connected with, or that may be alleged to have arisen out of, resulted from, or connected with an act or omission by the Member, its employees, agents, representatives, successors, or assigns in the construction, ownership, operation, or maintenance of such party's facilities used in net billing.

- b) The REMC and/or its Power Supplier shall not be liable for either direct or consequential damages resulting from failures, interruptions, or voltage and waveform fluctuations occasioned by causes reasonably beyond the control of the REMC and/or its Power Supplier including, but not limited to, acts of God or public enemy, acts of terrorism, sabotage and/or vandalism, accidents, fire, explosion, labor troubles, strikes, order of any court or judge granted in any bona fide adverse legal proceeding or action, or any order of any commission, tribunal or governmental authority having jurisdiction. ALL PROVISIONS NOTWITHSTANDING, IN NO EVENT SHALL THE REMC BE LIABLE TO THE MEMBER FOR ANY INTEREST, LOSS OF ANTICIPATED REVENUE, EARNINGS, PROFITS, OR INCREASED EXPENSE OF OPERATIONS, LOSS BY REASON OF SHUTDOWN OR NON-OPERATION OF MEMBER'S PREMISES OR FACILITIES, OR FOR ANY INDIRECT, INCIDENTAL, OR CONSEQUENTIAL, PUNITIVE OR EXEMPLARY DAMAGES ARISING OUT OF OR RELATED, IN WHOLE OR PART, TO THIS AGREEMENT. THE REMC SHALL NOT BE LIABLE IN ANY EVENT FOR CONSEQUENTIAL DAMAGES.
- c) The Member is solely responsible for insuring that the Member's facility complies with all applicable regulations including, but not limited to, laws, regulations, ordinances, REMC and REMC Power Supplier tariffs, policies and directives, and MISO policies and directives.

5) Notice of Change in Installation:

- a) The Member will notify the REMC in writing thirty (30) days in advance of making any change affecting the characteristics, performance, or protection of the DG facility.
- b) If any modification undertaken by the Member will create or has created conditions which may be unsafe or adversely affect the REMC system, the Member shall immediately correct such conditions or be subject to immediate disconnection from the REMC system without notice.
- c) Any change in the operating characteristics of the DG facility including, but not limited to, size of generator, total facility capacity, nature of facility, fuel source, site change, hours of operation, or type used, may, at the sole discretion of the REMC, require a new application process, including, but not limited to, application form, application fee, DG plan and DG plan review by the REMC.

6) Testing and Record Keeping:

- a) The Member will annually test all aspects of the protection systems up to and including tripping of the generator. Testing will verify all protective set points

and relay/breaker trip timing and shall include procedures to functionally test all protective elements of the system. The REMC may witness the testing. The REMC, pursuant to its sole judgment, may require that these tests be repeated at Member's expense.

- b) The Member will maintain records of all maintenance or testing activities, which the REMC may review at reasonable times.

7) Disconnection of Service:

The REMC may, at its sole discretion, discontinue the interconnection of DG installations due to reasons such as safety concerns, reliability issues, power quality issues, breach of interconnection contract or any other issue, which the REMC considers to be a reasonable basis for such action.

The REMC shall disconnect or discontinue interconnection of the DG facility, with or without notice, if ordered to do so by any controlling legal authority.