

Rock Energy Cooperative

Guidelines for Technical Requirements of Interconnection and Operation of Distributed Generation (DG) Resources

- The DG installation must meet all applicable national, state, and local construction and safety codes as well as all requirements of REC.
- The DG installation must be equipped with protective hardware and software designed to prevent the generator from being connected to a de-energized circuit owned by REC. The DG installation shall not energize the Point of Common Coupling (PCC) when the REC system has been de-energized for any reason.
- The DG installation must be equipped with protective hardware and software designed to prevent the connection or parallel operation of the DG installation with the REC system unless the REC system service voltage and frequency is of nominal value.
- The DG installation shall not degrade the voltage provided to other REC members to service voltages outside the limits of ANSI C84.1, Range A.
- The REC distribution system is a four wire multi-grounded neutral system. All grounding must ensure that fault conditions are not worsened by the interconnection of the DG installation. For example, in the REC system, the voltages of the unfaulted phases during a single line to ground fault with no DG installation will be the limit of the voltages of the same unfaulted phases during a single line to ground fault with the DG installation.
- The DG installation shall follow the REC system frequency with the range of 59.3 Hz to 60.5 Hz (on a 60 Hz nominal value). The DG installation shall disconnect from the REC system within 0.16 seconds if the frequency goes outside of the range specified.
- The DG installation shall synchronize with the REC system without causing a voltage fluctuation at the PCC greater than $\pm 5\%$ of the operating voltage. Synchronism shall be automatically performed by hardware and software.
- The DG installation shall be equipped with a disconnect by means of which the DG installation and all protective devices and control apparatus are able to be disconnected entirely from the circuits supplied by the DG installation accessible by both REC and the member. The disconnect shall provide means for the placement of a REC padlock to lock out accidental closure.

- Interconnection system response to abnormal voltages shall include disconnecting from the REC system within the following limits.

Voltage Range (Volts, 120V nominal)	Clearing Time (sec)
$V < 60$	0.16
$60 < V < 106$	2.0
$132 < V < 144$	1.0
$V > 144$	0.16

- The DG installation shall disconnect from the REC system in the case of a fault condition on the line to which it is connected.
- The DG installation shall individually be coordinated with the REC protection schemes that are utilized on the line to which it is connected.
- The DG installation shall not inject DC current greater than 0.5% of the full rated output current at the point of interconnection.
- The DG installation shall not create voltage flicker outside of industry accepted voltage flicker curves and in no case shall the flicker exceed 5% unless agreed to by REC.
- The DG installation shall not inject harmonic currents into the REC system outside the limits as stated in IEEE 519-1992. In no cases shall the Total Demand Distortion (TDD) of the current be above 5%.
- The DG installation shall in no way create electromagnetic interference that causes misoperation of REC system components.
- The DG installation shall have the capability to withstand voltage and current surges in accordance with the environments defined in IEEE/ANSI C62.41 or IEEE C37.90 as appropriate.
- Islanding is not acceptable with the DG installation. Islanding is when a DG installation keeps a portion of the REC system energized when power has been disconnected for some reason.
- The DG installation shall produce power at a minimum 95% power factor whether leading or lagging. The DG installation shall strive to produce power at unity power factor.