Administrative Bulletin No. 1
To Policy No. 106

Date Effective: October 29, 2001

Interconnection Standard for Small Power Producers

The purpose of this bulletin is to set forth the administrative guidelines and procedures to be used by cooperative personnel for implementation of the Interconnection Standard for Small Power Producers.

Metering and Avoided Cost (Price paid by NLI for energy)

All member-generators will be equipped with bi-directional metering that can measure and record the flow of power in two directions. This type of metering is capable of measuring both the electrical power used by the member [kilowatt-hours (kWh) in] and the excess member-generated power [kWh out] that is supplied to NLI's electrical system. These meters will be equipped with a detent device or equivalent to prevent reverse operation. Additional metering for kVA and kVAr will be determined by the requirements of the individual installation. Any special metering required that is more than the typical NLI house meter (form 2S) will be installed at the member's expense.

The kilowatt-hours supplied by the cooperative to the member and the kilowatt-hours supplied by the member-generator to the cooperative will be recorded each month. The net energy (the difference between kWh-out and kWh-in) shall be multiplied by NLI's avoided cost with the amount credited on the member's next bill.

The avoided cost shall be defined as the forecasted annual rate per kWh for power purchased by NLI. The avoided cost shall be calculated for each calendar year as:

Avoided cost per kWh=

[PNGC-forecasted annual billing – transmission charges – non-power charges]
Divided by
[NLI forecasted kWh load – forecasted Lake Creek kWh production]

(Avoided cost per kWh = forecasted annual billing from PNGC, minus transmission charges, minus other non-power charges) divided by (forecasted total NLI kWh load, minus forecasted Lake Creek kWh production)

The avoided cost for the period from October 31, 2011 to December 31, 2012 will be $.03097 per kilowatt-hour.

In December of each year, after the November billing, any net-credit balance on the account of the member-generator shall be cleared by issuing a check in the amount of the credit balance to the member-generator.

Technical

The requirements for this class are based upon a low density of parallel generation on the NLI circuits. Additional conditions or restrictions may be imposed on existing or new generators if the density exceeds a tolerable limit or 1 percent of NLI's total system peak demand requirement.

The member's generation facility will have a maximum output of twenty-five kilowatts (25kW). The facility shall be located on the member's premises, will operate in parallel with NLI's electric power system, and primarily is intended to offset part of the member's own electric power requirements presently supplied by NLI.

The member will supply NLI with the information required in the Small Generation Interconnection Agreement Exhibit A. No modifications or revision to the member's installation shall be made without prior notification and approval by NLI.

The member shall provide the electrical interconnection on the member's side of the meter. At the member's expense, NLI shall make reasonable modifications to NLI's electrical system to accommodate the generation facility. Modifications to NLI's system will be billed at NLI's actual cost. NLI will provide a cost estimate before the work is started. Estimated costs shall be received by NLI in advance of the start of any work on the system. After the project accounting has been completed, if the costs are under the estimate the difference will be refunded to the member. If the costs are over the estimate the member will pay this additional cost incurred to NLI.

Except for the bi-directional metering equipment owned and maintained by NLI, all the equipment on the member's side of the meter, including the required disconnecting switch, shall be provided and maintained in satisfactory operating condition by the member and shall remain the property and responsibility of the member. NLI shall bear no liability for the member's equipment or its operation.

At the member's expense, the generation facility shall include all equipment necessary to meet applicable safety, power quality, and interconnection requirements of NLI. The electrical facility shall be designed and installed in accordance with prudent electrical industry practices and applicable portions of the latest edition of the National Electrical Safety Code (NESC), the National Electrical Code (NEC), Institute of Electrical and Electronics Engineers (IEEE), and Underwriters Laboratories (UL).

The member shall furnish and install a manual disconnect device capable of fully disconnecting and isolating the generation facility from NLI's electrical system. The disconnect device will be of the visible break type in a metal enclosure located next to NLI's meter, between the meter and the generation. This device will enable NLI to disconnect the member's generation from NLI's electric system for personnel safety while working on the co-op's equipment. This disconnect must be accessible by NLI personnel 24 hours a day and have the provision for NLI to padlock the switch in the open position.

The member shall furnish, install, operate, and maintain in good order and repair all equipment required for the safe operation of the generation operating in parallel with NLI's electrical system. This shall include, but not be limited to, equipment necessary to (1) establish and maintain automatic synchronism with NLI's electric system; (2) disconnect the generation automatically from NLI's electrical system in the event of overload or outage on NLI's electrical system; (3) prevent the generation from being connected to or attempt to close onto a de-energized or single-phased (if normally three-phase) NLI electrical system.

Typical protection devices, which may be required to satisfy the above requirements, are:

Phase overcurrent relays. (50/51)
In certain cases these will have to be voltage-restrained or voltage-controlled to provide coordination with NLI's protective devices.

Residual overcurrent or overvoltage relays to trip for ground faults. (51N or 59N)

Under/over voltage relays. (27/59)

Under/over frequency relays. (81)

Phase sequence/under-voltage relay. (47/27)
To permit paralleling when the voltage and phase sequence are normal.

The member's generation system shall not introduce harmonics into the cooperative's electrical system that affect other members. Present industry practice is to limit total voltage harmonic distortion to less than 5% THD. However, any interference to the electrical or communications systems (including telephone, radio, television, carrier) resulting from the member's equipment will be grounds for termination of the interconnection until the member corrects the condition in the generation system to the satisfaction of NLI. This correction may require the installation of filters to bring the harmonic output to an acceptable level.

At NLI's request, the member shall provide and pay for a phone line to be used for communications between NLI's main office and the bi-directional metering at the member's facility. This phone line will be used for automated meter reading where required. NLI has the right to request this phone line as long as the Small Generation Interconnection Agreement is in force. (This phone line may be the same line as the member's personal phone.)

NLI has the right to review the installation prior to energizing. The member will correct any deficiencies noted in the interconnection equipment prior to energizing. This review by the cooperative will not be an inspection or check of the member's equipment and will not relieve the owner of any liability.

Insurance

The member should have appropriate general liability insurance for the connected generation.

Interconnection Agreement

The member-generator will be required to sign the Small Generation Interconnection Agreement before Northern Lights will accept delivery of the energy.

Authorized NLI employees shall have the right to enter the member's property at any time, with or without notice, for the purpose of observing and testing the interconnection, disconnecting device and bi-directional metering equipment.

Revised: April 2002
October 1, 2004
May 22, 2006
July 2007
August 2008
June 27, 2011
November 28, 2011