

## **Energy Policy Act 2005 PURPA Standards Interconnection**

### **Staff Comments**

**Standard:** INTERCONNECTION -- Each utility shall make available, upon request, interconnection service to any electric consumer that the electric utility serves. For purposes of this paragraph, the term “interconnection service” means service to an electric consumer under which an on-site generating facility on the consumer’s premises shall be connected to the local distribution facilities.

Interconnection services shall be offered based upon the standards developed by the Institute of Electric and Electronics Engineers (IEEE): IEEE Standard 1547 for Interconnecting Distributed Resources with Electric Power Systems, as they may be amended from time to time. In addition, agreements and procedures shall be established whereby the services offered shall promote current best practices of interconnection for distributed generation, including but not limited to, practices stipulated in model codes adopted by associations of state regulatory agencies. All such agreements and procedures shall be just and reasonable, and not unduly discriminatory or preferential.

**Recommendation:** TVA Staff recommends that the Board adopt the following modified version of this standard:

TVA shall make available, upon request, interconnection service, for generators with output of 20 MW or less, to any electric consumer that it serves. For purposes of this paragraph, the term “interconnection service” means service to an electric consumer under which an on-site generating facility on the consumer’s premises shall be connected to the local distribution facilities.

TVA shall make such interconnection service available based upon codes and standards to be specified in small generator interconnection procedures, which procedures shall include the standards developed by the Institute of Electric and Electronics Engineers: IEEE Standard 1547 for Interconnecting Distributed Resources with Electric Power Systems, as they may be amended from time to time.

Power distributors served by TVA shall also make available, upon request, such small generator interconnection services to any electric consumers that the power distributor serves. In providing such service, the power distributor may at its option adopt procedures comparable to the TVA procedures discussed above, or

other, comparable procedures which address distributor-specific safety, reliability, operating, and cost-recovery requirements.

In addition, agreements and procedures shall be established whereby such interconnection services offered by TVA and power distributors shall promote current best practices of interconnection for distributed generation. All such agreements and procedures shall be just and reasonable, and not unduly discriminatory or preferential.

**Basis for the Recommendation:** The interconnection services addressed by the PURPA Interconnection Standard are based on IEEE Standard 1547. Any generator requesting to interconnect with a utility system must meet a number of technical requirements to ensure the safety of personnel and equipment and the stability of the utility's system. IEEE Standard 1547 has been developed to provide minimum functional technical requirements for the safe and reliable interconnection of small distributed resources to utility systems; and accordingly, Standard 1547 only covers generators with aggregate output of 10 MW or less.

TVA's Small Generator Interconnection Procedures will address the interconnection procedures for generators with aggregate output of 20 MW or less. TVA's Board of Directors has previously approved the current Large Generator Interconnection Procedures which are applicable to interconnecting generators with output of 20 MW or more. With both TVA's Small Generator Interconnection Procedures and TVA's Large Generator Interconnection Procedures in place, there will be interconnection procedures applicable for generators with output of all sizes.

Small generators may be more likely connect to power distributors' systems than to TVA's transmission system. Accordingly, Distributors would have the option of (1) adopting TVA's Small Generator Interconnection Procedures, (2) adopting procedures developed by other organizations such as NARUC, or (3) developing other comparable procedures which address distributor-specific safety, reliability, operating, and cost-recovery requirements.

Since generating resources connected to distributor systems may adversely impact the TVA transmission system, TVA will work with distributors to establish criteria for joint coordination to ensure safe and reliable operation of each party's system.

**Background:** In 1999, the IEEE began work to develop a consensus interconnection standard for small distributed resources that could be used nationwide. Development of the standard involved the input of hundreds of representatives in the power industry including utility experts, regulators, and manufacturers. IEEE Standard 1547 was approved in 2003. It is the first of a family of IEEE interconnection standards for distributed resources. In 2005, the

first addition to the standard (IEEE Standard 1547.1) was approved. Work is currently ongoing on five other additions (1547.2 through 1547.6).

The IEEE standards are intended to provide a more uniform approach of providing interconnection services, thereby lowering costs of interconnection and encouraging the installation of distributed resources. Should this occur, utilities could receive the following benefits:

- Eliminating or delaying expensive investments in transmission and distribution system upgrades
- Delaying the construction of new lines
- Providing customers with more reliable energy services.

While TVA has received numerous requests in recent years from independent power producers to connect generating facilities to TVA's transmission system, none have been of the size for which IEEE Standard 1547 would be applicable. However, under the Federal Power Act, TVA is legally obligated to interconnect generating facilities with the TVA transmission system under terms and conditions that address safety and reliability concerns and assign to the generating facility developer the cost responsibility for the interconnection.

Since 1998, TVA has used a written interconnection process to provide for the orderly, nondiscriminatory interconnection of generators to the TVA transmission system. In 2003, FERC issued Order 2003 that established a Standard Large Generator Interconnection Procedure. The standardized procedure applies when interconnecting generators with output of 20 MW or more. TVA's current Large Generator Interconnection Procedures were approved by the TVA Board in March 2006.

Similarly in 2005 FERC issued Order No. 2006 requiring jurisdictional utilities to adopt standardized interconnection procedures applicable to generators with output of 20 MW or less. TVA's Small Generator Interconnection Procedures will implement standardized processes to interconnect generators of this size (20 MW or less) on an expedited timeline.

IEEE Standard 1547 is incorporated as a relevant standard in FERC Order 2006 and is also included by the National Association of Regulated Utility Commissioners (NARUC) in its "Model Interconnection Procedures and Agreement for Small Distributed Generation Resources" and the National Rural Electric Cooperative Association in its "Distributed Generation Interconnection Tool Kit."