IEEE Standards Interpretation for IEEE Std C57.12.44™-2005 IEEE Standard Requirements for Secondary Network Protectors

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Interpretation Request #1
Topic: IEEE Std C57.12.44-2005 Clause 4.1.4 -- Statement of Fact Clause 4.1.4 is a statement of fact.

Inherent in the application of network protectors is that they open on reverse current flow. Should generation be in operation on the secondary that exceeds the power consumed on the secondary, then current will reverse through the protector(s). Should this occur for a period longer than the set time delay, then the protector will attempt to open. Protectors are tested to interrupt currents with an X/R ratio between 6.6 and 8. This is suitable for power supplied through network transformers, but is not suitable for power supplied directly by generators. The requirements in IEEE Std C57.12.44-2005 do not assure that the network protector will successfully interrupt power supplied from a generator, hence the presence of clause 4.1.4.

Now does the above mean that NO generation could be applied to a secondary system? Of course, it does not. As long as the generation is suitably controlled or is suitably small enough so that at all times the generation is less than the power consumed, then the protectors will never see a reverse current from the generator and will operate as designed. Between the two manufacturers of network protectors there are about six models of protectors in normal use. Of these six, one model is designed and tested to meet the circuit breaker standard as well as the network protector standard. If this model was employed to supply the network, then the protectors would be assured of successfully interrupting a reverse current flow from a generator. This, of course, would still not allow the export of power from the secondary network. Again, export of power from a secondary network is inherently incompatible.

Interpretation Response
As there is no working group for IEEE Std C57.12.44-2005, the above was reviewed and accepted by the Underground Transformers and Network Protectors Subcommittee.