

IV. Spare Equipment Philosophy for Bulk Electric System Facilities & Interfaces

Spare equipment is critical to the continued integrity of the bulk electric system. Failure to maintain adequate spare equipment can lead to unnecessary higher operating costs and unnecessarily long outage times, consequently compromising transmission reliability. Interconnected Transmission Owners (ITOs) need to be able to support any local interconnection agreements. The purpose of this philosophy is to ensure that thought is given to maintaining adequate spare equipment. Any new facility connecting to the bulk electric system shall observe this philosophy.

Equipment critical to the integrity of the grid known to have long lead times should be supported by a spare. Particular focus should be placed on unique “one of a kind” equipment (i.e.: new technology). The expectation is that the ITOs would not be reliant on another party or even the vendor for immediate spare support.

ITOs maintain spare levels consistent with their risk tolerance for contingency events. When electing option to build, an Interconnection Customer (IC) may be required to obtain spare equipment and /or special tooling necessary for operation and maintenance of the equipment in line with ITO spare requirements. Thus, if equipment not normally utilized by the ITO is selected by an IC, then the IC will encounter “but for” costs on the spare equipment and specialty tooling. Contact the ITO for their spare requirements and standard equipment types.

These requirements include but are not limited to the following pieces of equipment and parts:

- Circuit breakers and parts (compressors, poles, bushings, interrupting medium [i.e.: SF6 gas]);
- Power transformers;
- Bushings;
- Surge arresters;
- Relays (electromechanical, solid state and microprocessor);
- Central processing units (CPU), programmable logic controllers (PLC) and circuit boards for communication equipment, substation integration equipment and circuit breakers (if equipped with controlled switching, breaker monitoring, etc.);
- Remote terminal units (RTU);
- Batteries & chargers;
- Stand alone potential transformers (PT) and current transformers (CT);
- Station service transformers;
- Critical auxiliary system support components;
 - Automatic Transfer Switches
 - Battery Chargers
 - Low Voltage Circuit Breakers (Molded Case, Insulated Case, Power, etc.)
 - MCC Plug In “Buckets”
 - Air Conditioning / Space conditioning equipment
 - Etc.
- Switches and components;

- Line and bus insulators and fittings (connectors, couplings, etc.);
- Underground transmission cables and accessories;
- SF6 equipment and tube (GIB and GIL);
- Overhead transmission structures;
- Communication cabling (fiber optics);
- Capacitor cans & associated specialty transmission capacitor rack equipment;
- Bus (Tube / Pipe, Flat Bar, Angle (UABC), Integral Web, etc.);
- Wire;
- Line Traps (with & without power line carrier capability);
- Reactors (Current Limiting and/or Harmonic Filtering); and
- Etc.

New facilities should be designed with sufficient land to allow for necessary spare storage and installation, in accordance with applicable regulatory and compliance standards.