Lesson Learned
Power Line Communications Failure

**Primary Interest Groups**
Generation Owners
Generator Operators
Transmission Owners

**Problem Statement:** Analysis of a protection system misoperation revealed that the misoperation resulted from the power line communications system antenna not being connected.

**Details:** The protection system misoperation event occurred at a generating facility when a circuit breaker at the generating facility substation failed. Signals of the circuit breaker were not received at the interconnection substation and, as a result, the generating facility was isolated from the bulk electric system when circuit breakers at the interconnection substation tripped. Analysis of the event revealed that the signals of the circuit breaker failure were not transmitted to the interconnection substation because the power line communications system antenna was not connected. Further analysis revealed that the antenna had not been connected for an extended period of time. The Generator Owner/Operator believed the antenna was disconnected for testing and either not reconnected or the antenna cable lock was not fastened correctly and became disconnected on its own.

**Corrective Actions:** Upon discovering that the antenna was not connected, it was promptly reconnected. Signal verification and testing demonstrated that the interruption to the power line communications system signal was corrected and that the system was operating within specifications. In addition, a data collection point is being created in the Plant Information software to continuously monitor the status of the system and to trigger an alarm when the communications system becomes disconnected.

The antenna cable was located in an overhead location with other wiring and cables. It was not possible to visually inspect and see that the cable was not connected. The generator owner has placed the connection in a more visible location so that the connection can now be visually seen.

**Lesson Learned:** Power line communications system equipment should be continuously monitored to ensure proper operation. When possible, the equipment should be located such that a visual check can determine proper connection.
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This Lesson Learned was prepared by the SPP Registered Entity that experienced the event.
Company specific identifiers were removed to maintain confidentiality.