DOCKETED	
Docket Number:	19-ERDD-01
Project Title:	Research Idea Exchange
TN #:	226466
Document Title:	QinetiQ North America Comments Use of distribution grid sensors in combination with MILES software to identify fire hazard on the distribution grid
Description:	N/A
Filer:	System
Organization:	QinetiQ North America
Submitter Role:	Public
Submission Date:	2/5/2019 8:35:48 PM
Docketed Date:	2/6/2019

Comment Received From: QinetiQ North America
Submitted On: 2/5/2019
Docket Number: 19-ERDD-01

Use of distribution grid sensors in combination with MILES software to identify fire hazard on the distribution grid

The LineWatch current and voltage sensor product family can be utilized in combination with powerful software to help in the effort of detecting and preventing ignition of wildfires by the electrical infrastructure. As highly accurate (0.5%) native DNP3 devices, Linewatch sensors can be quickly installed on the grid and integrated into an existing SCADA system to provide feedback on the existing of the distribution grid providing the utility with an additional grid monitoring device in their control system.

LineWatch L is a low voltage (secondary side) smart grid sensor system that directly monitors voltage and current on the secondary side of distribution transformers. Together with the MILES algorithm developed by Hydro Quebec (IREQ) and currently being commercialized by CGI, LineWatch L has the ability to detect the encroachment of vegetation, loose connections, degraded insulators, and errant contact between conductors caused by wind/earthquakes and other environmental conditions. The MILES system has been developed using data generated from four or five LineWatch L sensors strategically located on a distribution feeder to detect faults using voltage sags. The LineWatch L devices continuously monitors the feeder, and when an event occurs it records the waveforms and transmits them to the MILES head-end. The MILES system then analyzes the timing of the event across the feeder, localizing the fault and characterizing it based on the waveform characteristics.

LineWatch M, a medium voltage sensing system, hangs directly on the primary conductor and can measure voltage and current to 0.5% accuracy, and power and energy to 1%. The sensors can detect and record fault events that occur on the primary, capturing a 2kHz waveform of the event and making it available for retrieval by a SCADA head end system. Voltage and current harmonics to the 13th are monitored and calculated as well. LineWatch M also calculates an estimate of fault impedance, and together with the fault amplitude and waveforms allows a FLIR system to quickly locate and isolate a potential ignition source. The LineWatch M sensors also provide an accurate picture of load flows on the primary, allowing for quick identification of overloaded lines and hot spots that may occur on the distribution grid, unseen by substation telemetry.