INNOVATION STRATEGY – END OF PROJECT REVIEW

PROJECT TITLE	Scada Digital Polling Radio
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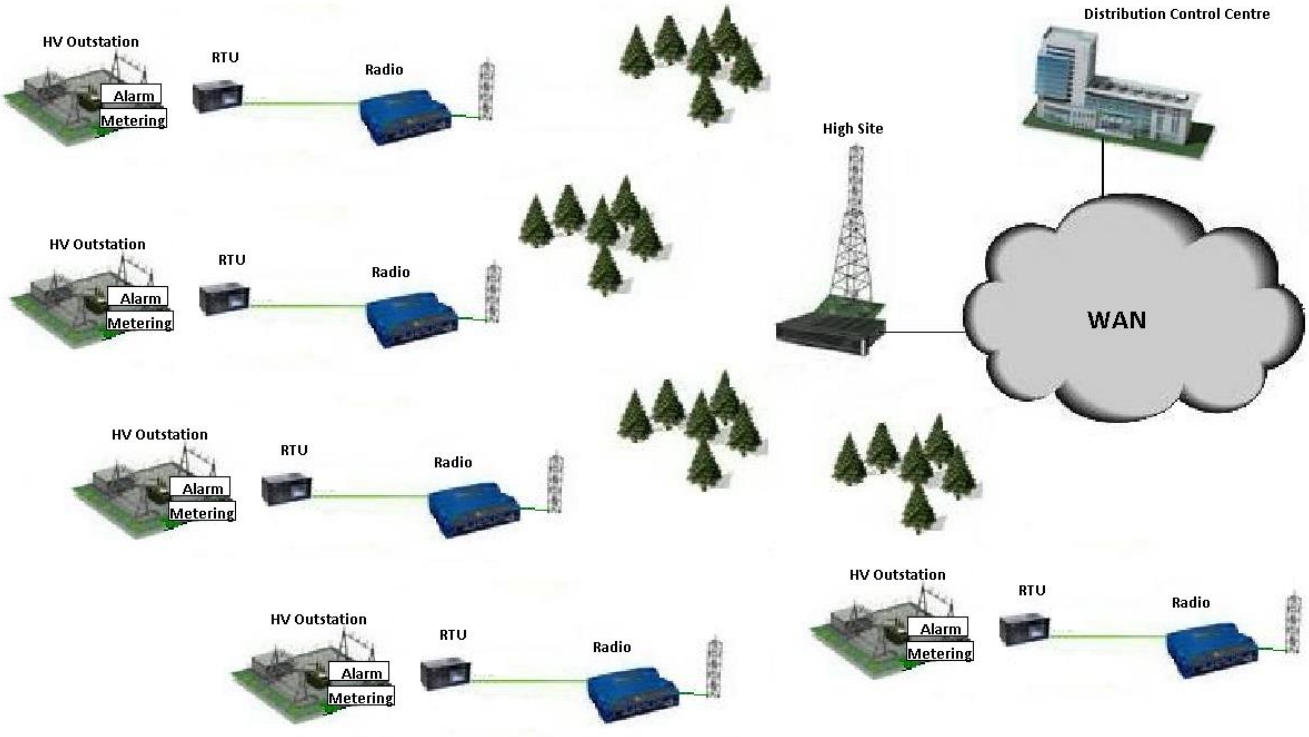
BRIEF OVERVIEW OF PROJECT & EXPECTED BENEFITS

Project Overview:

- Procure and rollout a digital polling radio system for Supervisory Control and Data Acquisition (SCADA) communications to provide nationwide resilient and secure Ultra High Frequency (UHF) radio communications. This is achieved by connecting 564 High Voltage (HV) sub-stations via 80 radio base stations, which are co-located on Networks Telecoms Wide Area Network (WAN) with Distribution Control Centres (DCC).

- Implement a National Institute of Standards and Technology (NIST) approved cyber security standard which is the specification for the encryption for electronic data for all wireless 'over air' communications traffic.

- Procure, install and commission a SCADA Network Management System (NMS) to provide remote monitoring and management from the Networks Telecoms Control Centre (TOC) of the full suite of deployed infrastructure.



SCADA Digital Polling Radio Overview

Expected Benefits:

- Improve resilience and real time response for SCADA control between distribution control centres and HV sub-stations.
- Maximise availability of SCADA control systems in particular during storms.

- Increase capacity and throughput for SCADA traffic.
- Replace obsolete analogue un-managed, un-secure and overloaded polling radio systems.
- Migrate services from less resilient satellite communication.
- Introduce encryption on SCADA radio communications to address cyber security shortcomings on legacy analogue radio systems.
- Enable migration of SCADA traffic towards Transmission Control Protocol/Internet Protocol (TCP/IP), which is more scalable towards smart grid applications.
- Enable reliable communications with remote HV sub-stations connecting Independent Power Producers (IPP). No alternative reliable communications services are available on many of these sites.

RESULTS

The project rollout has been completed.

The cyber security has been implemented.

System performance through winter storms of 2017 and 2018 has been exemplary with a loss of SCADA communications at the height of storms in the order of 1% or less (5 HV outstations or less with a SCADA communications link failure) while alternative public 3G services had failures in the order of 20% or higher.

LEARNINGS

Work by third party contractors in live HV stations is difficult to manage from a health and safety perspective and requires well considered and tight processes and procedures.

Emerging technology changes throughout any rollout extending over a number of years will always result in the requirement to make technology choices while the project is in progress. The timing of these choices/decisions will have associated risks and benefits.

BENEFITS REALISED/VALIDATED

- System throughput is eight times faster than the legacy system that was replaced.
- The NIST approved cyber security standard has been implemented. Data is sent with the highest level of encryption available.
- System performance is exemplary and deemed fully fit for critical utility SCADA communications.

- Obsolete analogue systems have been replaced with a managed digital system with increased capacity and throughput for SCADA traffic.
- The new polling radio system enables migration of SCADA traffic towards Transmission Control Protocol/Internet Protocol (TCP/IP), which is more scalable towards smart grid applications.
- The new polling radio system enables reliable communications with remote HV sub-stations connecting Independent Power Producers (IPP) where no alternative reliable communications services were available.
- The new system uses the latest in radio hardware. There is less expertise, time and specialised equipment required to set the equipment up and there are lower radio failure rates. The new system is fully managed remotely from a control centre, faults can be pinpointed instantaneously without the need to despatch operatives to locate the fault.

NEXT STEPS – BAU, TRANSFER OF OWNERSHIP

- NMS configuration to be fully implemented by Q4 2019.
- De-commissioning works of the legacy system to be completed by Q4 2019.
- Financial closing and reporting of project to be completed by Q4 2019.

FINAL TIMELINES (REASONS FOR ANY DELAYS IF THEY OCCURRED)

Minor outstanding works on NMS and de-commissioning to be completed by end Q4 2019.

FINAL COSTS

2019 - Total project to close at €8.7m.