Supplemental Project Notice

NATIONWIDE RESILIENT COMMUNICATIONS SYSTEM (NRCS)

Phase 1: Requirements Definition and Design Specification

PROJECT HIGHLIGHTS

- Defines a communications system that will be available during black sky events.
- Uses commercial off-the-shelf technologies.
- Completely independent of commercial service providers.
- Able to interoperate with terrestrial service providers and internet when and if available.
- Phase one (this project) will produce design specification and determine go/no go to next phase (deployment).

Background, Objectives, and New Learnings

The business-as-usual approach has the bulk electric (BES) reliant on commercial communications service providers (CSPs) for primary and backup communications. The consequence of this is an interdependency between energy and communications sectors as detailed in Presidential Policy Directive/PPD-21.

In addition, this interdependency and the black sky hazard has been recognized as a key vulnerability by the DOE OE and in part is being addressed by the North American Energy Resilience Model (NAERM) project. While the NAERM will give planners and system operators information that they can use before and during an event, the key outcome resulting from completion of the NRCS is the elimination of the interdependency.

The BES will always be vulnerable to impacts from extreme weather, wildfire, or natural disasters; however, the NRCS by taking a modern and innovative approach that intentionally avoids reliance on CSPs, will mitigate the consequences of these types of events. In addition, the resilience provided by NRCS extends to other types of incidents to include EMP, cyber, and coordinated physical attacks.

The project objectives are to develop a technical specification and a business operations plan suitable for procurement and sustainment of a Nationwide Resilient Communications System (NRCS) that provides an interoperable solution to the black sky communications challenge at the scale of the North American grid interconnections.

The project will use commercial off the shelf (COTS) technologies. The system will consist of hardware of the three technology types: (1) satellite communications (satcom), (2) high frequency (HF) radio, and (3) interoperability platform. This equipment will be designated for permanent installation at control centers, RTOs, and other sites that are critical for controlling and restoring the BES.

The innovative and key characteristic is the intentional design of the system to be resilient (i.e., the ability to operate completely independent of commercial CSPs and other terrestrial infrastructure) but also able to interconnect with them as they recover from the event.

Benefits

Public benefits include increased resiliency of the bulk electric system due to reduced likelihood of major communications outages. The secure and reliable communications provided by the NRCS will enable quicker restoration and recovery of the system from black sky events. Improved communications during recovery of the grid protects the safety of utility workers, the public and safeguards utility infrastructure and assets.

Funder benefits include increased understanding of requirements and the technology necessary to provide an NRCS capability. The project improves utilities' ability to demonstrate NERC/CIP compliance with regulations and standards around emergency and alternative communications.

Project Approach and Summary

The phase 1 project will define requirements for an NRCS along with determination of a minimum viable system (a set of particular critical facilities). Next, an RFI/RFP and design specification will be developed. If go/no-go determination is positive, then a follow-on phase two would move the system into implementation.

Deliverables

The project plans include producing the following deliverables and documents:

- Requirement definition
- Minimum viable system identification
- Vendor/supplier RFIs and RFPs
- Design specification
- Government grant applications as applicable

Price of Project

The per member price of the project is $45,000. A minimum of eight funders are required to execute the scope as defined.

Project Status and Schedule

The launch is anticipated in 2025 when funder commitments are executed with an anticipated duration of 9 months.

Who Should Join

Any utility that is a participant in the bulk electric system, but in particular ISO and balancing authorities are needed to ensure success.

Contact Information

For more information, contact the EPRI Customer Assistance Center at 800.313.3774 (askepri@epri.com).

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