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on Community Energy Resilience Investment Program

Additional submitted attachment is included below.

From:	Joe Weiss
To:	Energy - Docket Optical System
Subject:	Response to Docket number 22-ERDD-01 and "Community Energy Resilience Investment Program
Date:	Thursday, August 18, 2022 2:51:39 PM

I am the Managing Director of the international standards on control system cyber security and helped start the control system cyber security program for the electric utilities in 2000. While at EPRI, I also managed many of the monitoring and control system programs. I have extensive expertise in instrumentation (monitoring), controls, and cyber security of control systems.

I am pleased to submit this response to the California Energy Commission's information request relating to the Community Energy Resilience Investment (CERI) Program. I understand that CERI will be the California program that implements and provides subgrants to utilities within the State of California, pursuant to and based on Section 40101(d) of the Infrastructure Investment and Jobs Act (IIJA), also known as the **"*Preventing Outages and Enhancing the Resilience of the Electric Grid*** Formula Grants to States and Tribes" program.

The CEC CERI PowerPoint presentation identifies the need to improve the all-hazards resilience of the electric grid against disruptive events. It also mentions the importance of **monitoring and control technologies** as well as **advanced modeling technologies**.

All utilities and equipment suppliers use process sensors as monitoring to measure pressure, level, flow, temperature, voltage, current, valve position, chemistry, etc. Process measurements are the input for resilience, predictive maintenance, digital transformation, Industry4.0, smart manufacturing, smart grid, renewables, etc. Numerous studies have quantified the disruptions associated with inaccurate or compromised process sensors. These include cases in California.

Utility equipment suppliers use Windows-based operator displays (Human-Machine Interfaces-HMIs) for collecting process sensor measurements. In a recent test done for product quality and resilience, the Windows-based HMI was not effective and, in fact, provided misleading information on the status of the process sensors measuring pressure, level, flow, temperature, and valve position. This is common to every industrial/manufacturing process including in all types of power plants, substations, and for manufacturing of renewable equipment. Using raw unfiltered process sensor monitoring and machine learning, the plant now has the potential to demonstrate a significant return on investment (ROI) from improved plant operation as well as improving cyber security protection– all hazards. More details will be included in the November 2022 issue of the IEEE Computer Society's Computer magazine (https://www.controlglobal.com/blogs/unfettered/windows-based-hmis-are-too-slow-for-monitoring-process-sensors-or-plant-equipment-anomalies). One of the authors is from the Naval Postgraduate School in Monterey.

Conclusions and recommendations

All control system automatic decisions and all operator decisions are based on process sensor inputs. Yet process sensors are not as accurate nor secure as has been assumed. The lack of availability or accuracy of the process sensors has contributed to reduced availability and in some cases catastrophic failures. Consequently, I am proposing that utilities commit to spending portions of their grants on raw, unfiltered process sensor monitoring with associated machine learning as a means to improve resilience, reliability, predictive maintenance, safety, and cyber security.

Thank you for your interest. Please put me on your mailing list for updates as to the CERI subgrant program.

Respectfully,
Joe

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