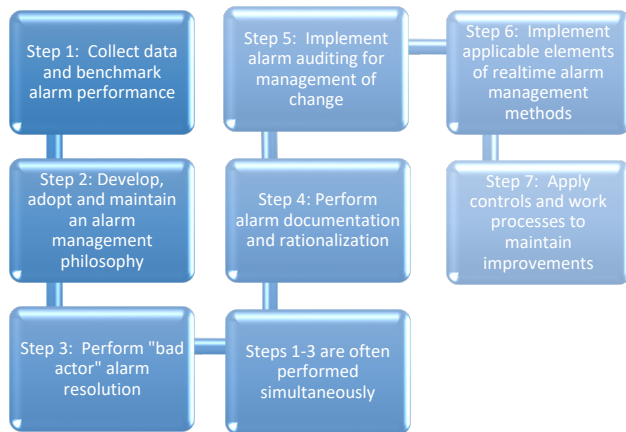


Improving Distribution Control Center Situational Awareness with New Alarm Management Philosophies and Rationalizations



Alarm Management Process

Background, Objectives, and New Learnings

The volume and complexity of alarms received in a utility's distribution control center have been increasing as grid modernization activities have added new devices and sensors. Today there is no clear guidance on how to manage these alarms resulting in operators being overwhelmed or alarms being ignored.

To address these challenges, EPRI created an Alarm Management Philosophy Guide¹ to provide guidance toward implementing more effective alarm systems. The Guide presents a comprehensive philosophy to properly document how to define, design, implement, maintain, and monitor an alarm system. The philosophy ensures that the distribution management system (DMS) alarm system acts as a tool to always and effectively help the distribution system operator take the correct action at the correct time.

This is true if:

- Alarms are properly chosen and implemented
- Alarms are clear, and understandable
- Alarms are configured consistently in accordance with best practices
- Alarms are presented at a rate that the operator can effectively manage

Project Highlights

- Improve situational awareness for distribution system operators
- Guide SCADA/DMS engineers with tools and processes to define actionable alarms
- Equip the distribution system operator to manage the influx of alarms from new remotely monitored and controlled devices
- Reduce nuisance alarms and their associated distractions to the distribution system operator
- Reduce operating errors and improve safety

- Operators can rapidly assess the location and relative importance of alarms
- Operators can process alarm information during high alarm frequency events
- Alarm systems are properly controlled, monitored, and maintained

The objective of this project is to implement the philosophy described in the Guide with individual utilities in new or existing systems to create a consistent and optimum basis for alarm definition, alarm system performance, alarm rationalization, alarm prioritization, and alarm annunciation—leading to enhanced situational awareness for the distribution system operator, which in turn can result in fewer operating errors, improved reliability, and improved safety.

Benefits

Participation in this supplemental project is expected to generate the following benefits:

Reduction in the number of nuisance alarms requiring the attention of the operator, thereby reducing operator errors and improving safety.

Clear definition and rationalization of actionable alarms and the actions they must generate.

¹ Alarm Management Philosophy Guide (3002015266)

Clear agreement between planning and operations of the settings for analog alarms.

Project Approach and Summary

This supplemental project intends to work with participating utilities to accomplish Tasks 1-5 of the proven approach to alarm management, as detailed in Figure 1.

Task 1: Collect historical alarm data from utility SCADA/DMS.

Task 2: Analyze historical SCADA/DMS alarm data and baseline alarm performance using EPRI's Alarm Visualization and Assessment Tool (AVAT).

Task 3: Conduct WebEx training with utility subject matter experts about the alarm management process, alarm philosophy, bad actor resolution, and alarm rationalization.

Task 4: Conduct a WebEx workshop with utility subject matter experts to review and validate key alarm philosophy decisions, enabling EPRI to develop an alarm philosophy guide customized for the utility.

Task 5: Analyze the baseline performance from Task 2 and the alarm philosophy guide from Task 4 to perform "bad actor" alarm resolution.

Task 6: Conduct a two-day workshop with the utility to perform alarm rationalization.

Deliverables

Each participating utility will receive the following deliverables:

- Alarm baselining report
- Training on alarm management for SMEs
- Customized alarm philosophy guide
- Alarm rationalization report

A web workshop will be provided to all participants, following the completion of utility projects, summarizing the common results and findings.

The non-proprietary results of this research will be incorporated into EPRI's Distribution Operations and Planning R&D Program and made available to the public for purchase or otherwise.

Price of Project

The project is priced at \$125,000.

This project qualifies for Self-Directed Funding (SDF) or Tailored Collaboration (TC) funds. Funding can be split across two years.

Project Status and Schedule

This project is expected to begin in January 2020 and run for 24 months.

Who Should Join

Any distribution utility that has deployed SCADA or a DMS that have not already implemented a formal alarm management process.

Contact Information

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