Alarm Management

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PUGET SOUND ENERGY
The Energy To Do Great Things

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Overview

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- About PSE
- PSE's Alarm Management Plan Progress
- Natural Gas Industry Concerns

Company Overview

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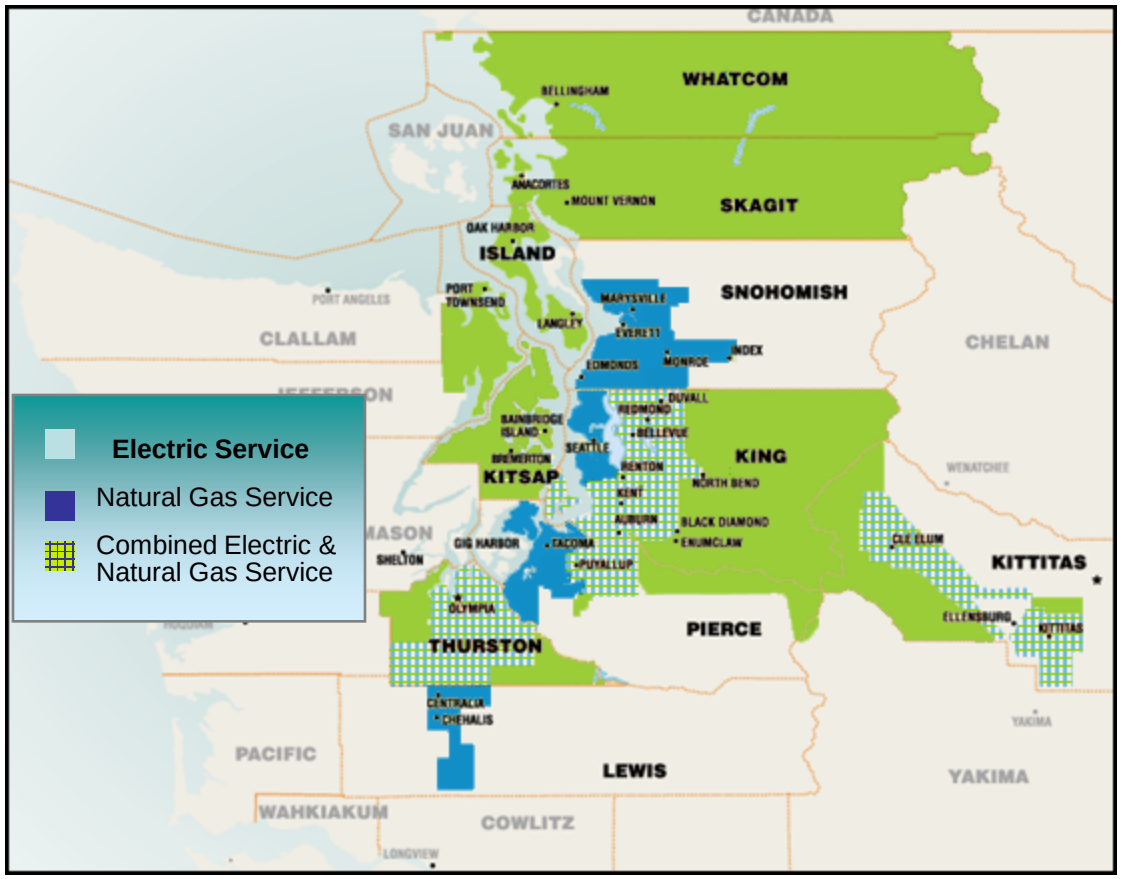
- Puget Sound Energy (PSE) is a combined gas and electric distribution utility
- Approximately 750,000 natural gas and 1,000,000 electric customers
- Monitor and control ~350 RTUs, ~12,000 SCADA Points
- 5 Shift Controllers, 1 Senior Controller, 1 Analyst
- Hiring Gas Control Supervisor and 2 additional shift controllers



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PSE Approach: Alarm Management

- *(e) Alarm Management. Each operator using a SCADA system must have a written alarm management plan to provide for effective controller response to alarms*
  - Engaged a consultant to assist with writing our CRM plan and the Alarm Management Plan
  - Implementing new SCADA system including Alarm Management software
  - Assembled a team of PSE subject matter experts to assist in development of the plan
  - Mapping the alarm process flow
    - Defining “safety related” alarms
    - Benchmarking current alarm system
    - Conducting inventory of stations
    - Creating Master Alarm Database

PSE Approach: Alarm Management

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- *(1) Review SCADA safety-related alarm operations using a process that ensures alarms are accurate and support safe pipeline operations*
  - Developing our Alarm Philosophy
    - Will define how alarms are developed, designed, implemented and managed
    - Defining Future State
      - Analysis of tags
      - Define Alarms: safety related alarms vs. alerts
      - Establish standardized priority levels
      - Establish expectations for response
      - List recommendations, define path forward
        - How to fix bad actors
        - Alarm flood resolution
  - Master Alarm Database
    - Alarm Definitions
    - Settings
    - Priorities
    - Document Changes

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- *(2) Identify at least once each calendar month points affecting safety that have been taken off scan in the SCADA host, have had alarms inhibited, generated false alarms, or that have had forced or manual values for periods of time exceeding that required for associated maintenance or operating activities*
  - New SCADA system has this capability
  - Creating reports and processes to audit alarm system

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- *(3) Verify the correct safety-related alarm set-point values and alarm descriptions at least once each calendar year, but at intervals not to exceed 15 months;*
  - Utilize master alarm database to document initial settings
  - Change management plan to include documentation of changes to field equipment that affect alarm set-point values
  - Change management plan to include documentation of SCADA changes that affect set-point values
  - Report and review changes to master alarm database as required

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- (4) Review the alarm management plan required by this paragraph at least once each calendar year, but at intervals not exceeding 15 months;
  - Creating a process flow document for reviewing the plan to include:
    - Documenting the review process
    - Identifying deficiencies
    - Documenting actions taken to address any deficiencies found during the review process
    - Reviewing findings with control room staff

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- *(5) Determine the effectiveness of the plan; Monitor the content and volume of general activity being directed to and required of each controller at least once each calendar year, but at intervals not to exceed 15 months, that will assure controllers have sufficient time to analyze and react to incoming alarms*
  - Define key performance indicators and targets
  - Document all tasks associated with control room operations
  - Methodology to monitor and document general activity
    - Phone calls
    - E-mails
    - Faxes
    - Visitors to the control center
    - Reports

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- *(6) Address deficiencies identified through the implementation of paragraphs (e)(1) through (e)(5) of this section.*
  - On-going effort as identified
  - Part of annual review documentation

Industry Concerns

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- Operators believed they would have time to have their plans reviewed by state regulators and the implementation timeframe originally outlined would have allowed sufficient time to address any gaps and still meet the implementation date
- Schedules, resources and budgets have been created and will have to be rescaled as possible
- Many operators have multiple pipelines and multiple SCADA systems. Developing and implementing an alarm management plan including creating the necessary tools and obtaining sufficient resources may not be possible within the expedited timeframe
- Field equipment and SCADA changes required will be difficult to achieve with the expedited timeframe
- Evaluation and analysis in the area of remote valve installation will be a multiple year project

Industry Concerns

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- Operators feel the assumption that developing a plan and implementing it are not the same thing. Development does not mean that all the “bugs” will be worked out and that all the necessary training and process implementation will be completed at the same time that the initial plan is developed
- Change management will need to be implemented not just in Gas Control, but to all field operations impacting Gas Control. This is a huge internal change management initiative. Having the additional 18 months to implement the plan would have provided adequate time to cascade all the process changes throughout organizations
- Data supporting existing alarm metrics are from the process industries, not natural gas pipelines
- Implementation of a robust and optimal alarm management system takes time

Questions?

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