DELIVERING THE NUCLEAR PROMISE

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Delivering the Nuclear Promise: Key Engineering Initiatives

NRC Headquarters
Rockville, MD
October 13, 2016

Agenda

- Introductions and Overview — 10 min
- ENG-003: Standard Design Process — 35 min
  - Objective of the SDP
  - Process Overview
  - Implementation
- Questions — 10 min
- ENG-001: Critical Component Reduction — 15 min
- Questions — 10 min
- Stakeholder Interaction — 10 min
- Wrap up and Adjourn

Delivering the Nuclear Promise

3 Strategic Focus Areas

Maintain Operational Focus

- Safety remains our top priority
- Advancing safety, reliability is foundational
- Fundamental to continued operations

Increasing Value

- Generating additional revenue
- Value for unrecognized attributes
- Electricity market reform
- Clean Power Plan benefits

Improve Efficiency

- Industry-identified focus areas
- Improve efficiency of industry oversight
- Evaluating enablers for cost reductions
- Industry target: 30% cost reduction
- Companies determine pace/breadth of reductions

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Standard Design Process

Purpose of SDP

- Implement a standard plant modification process to promote efficient use of resources and streamlined engineering changes
  - Simplified design process common to all stations
  - Industry-wide training applicability
  - Standardized process software
  - Facilitate sharing of information between stations

SDP Team Structure

- Executive Oversight Committee
  - SNC Sponsored
  - Engineering VPs (6)
- Steering Committee
  - All domestic utilities represented
  - INPO
  - NEI
  - Engineering Vendor Representative

Dominion	**STARS**
Duke	**SCANA**
Entergy	**SNC**
Exelon	**TVA**
FENOC	**USA**
NextEra	

SDP Overview

- SDP Procedure – IP-ENG-001
  - Includes organizational expectations & behaviors
  - Supporting Resource Manual – Examples, FAQs
  - Industry owned procedure with industry oversight & governance
- Standard engineer training and qualification
- Industry standard performance metric
- Software capable of interface with site platforms

Regulatory Adherence

- Adherence to Regulatory Requirements
  - Development phase maintained focus on regulatory requirements
  - Design Control is maintained where required
- Commitment Management
  - Pilot Plants reviewed commitments during change management plan implementation
  - Efficiency Bulletin will contain required action to review commitments
  - Commitments managed in Utility interface procedures

SDP Procedure Methodology

- Cafeteria Approach to Design Changes
  - Design Authority establishes documentation and support necessary to support the change
  - Endorses a graded approach to design changes
- Moves Lower Complexity Changes to Lower Complexity Processes
  - Design Equivalent
  - Commercial

SDP Procedure Structure

- Procedure
  - Includes cross-functional organizational expectations and behaviors as facilitators for successful implementation
  - Supporting Resource Manual includes examples, process/job aids, Frequently Asked Questions

Utility Interface with SDP

- Provides interface roadmap to utility specific processes
- Integrates IP-ENG-001 into Utility Specific Programs
  - Endorses IP-ENG-001, SDP Procedure
  - Includes site specific interfaces and cross-references
  - Ensures utility procedure change processes are used to manage future changes
  - Ensures compliance with utility QA requirements and commitments

SDP Schedule

- SDP Procedure & lesson materials issued to Pilot Plants for Implementation – August 2016
- Pilots - McGuire, Surry, Sequoyah, Vogtle, NextEra
  - September 2016 through February 2017
  - Validating Procedure, Training, Change Management Plans
  - Monitor Effectiveness in Monthly Conference Calls
- February 2017 – Roll up comments and issue procedure to industry
  - Industry to implement by July 2017
- July 2018 – Software implemented

Sustained Oversight

- Design Oversight Working Group - Industry Owned
  - Executive Oversight Committee – Industry Engineering VPs
  - Monitoring for effectiveness - Metrics
  - Procedure revision control
  - Industry lessons learned
  - Training and Knowledge Transfer

QUESTIONS?

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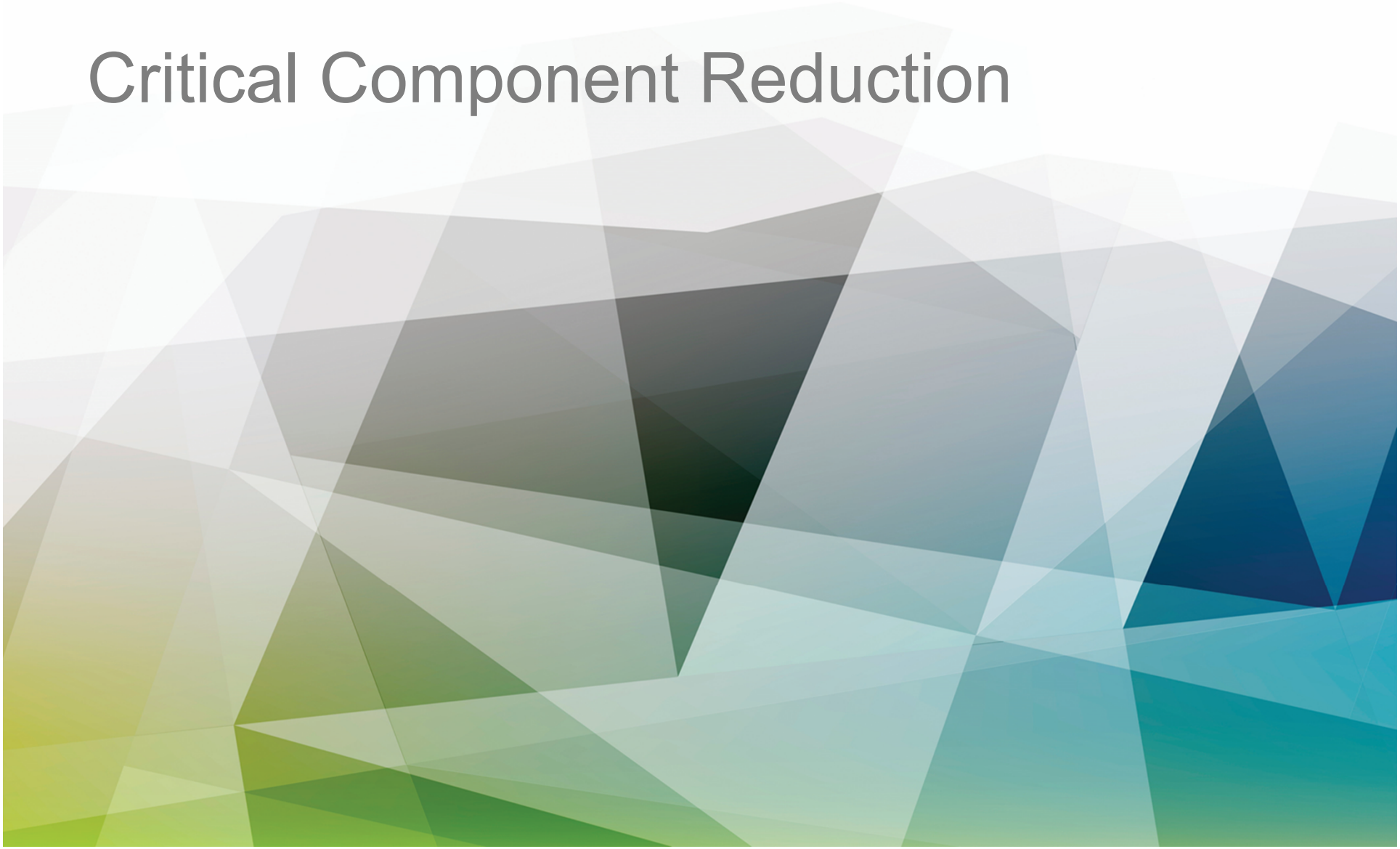
Critical Component Reduction



Objective

- Reduce the number of plant components classified as “Critical” in the preventive maintenance program; and
- Focus maintenance resources on those components most important to plant safety and reliability.

Issue

- Current AP-913 definition of “Critical” is conservative in that it includes some conditions that are undesirable, but are not unacceptable:
  - 5% up to ≤ 20% Power reductions
  - Entry into an unplanned shutdown LCO < 72 hour
  - Half Scram/Trip
  - ESFAS Actuation
  - Loss of redundant HSS/Risk Significant component
- Result: Number of components classified as “Critical” has become excessive in relation to their importance.

New AP-913 (Revision 5) Definition

Critical Components:

- Reactor scram/trip (single point vulnerability)
- Significant power transient of > 20 percent plant transient [operational loss event (OLE)]
- MSPI monitored component failure
- Any single failure that causes a complete loss of any of the following critical safety functions:
  - Core, reactor coolant system or spent fuel pool heat removal
  - Containment isolation, temperature, pressure
  - Reactivity control
  - Vital AC electrical power
- A single equipment failure that results in the loss of a Maintenance Rule high-safety-significant or risk-significant function.

Implementation

- Implementation of AP-913, Revision 5 ongoing industry-wide through mid-2017
- Companion guidance on preventive maintenance program enhancements to be issued late 2016 for implementation through late 2018.
- Change management guidance and implementation oversight by INPO and Engineering VPs.

QUESTIONS?