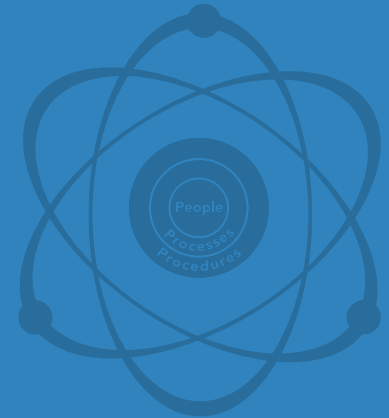


# FENOC Fleet Overview

## NRC Senior Management Briefing

September 26, 2012



# Agenda

- **Opening Remarks**

*Jim Lash – President FE Generation and Chief Nuclear Officer*

- **FENOC Overview**

*Pete Sena – President FENOC and Chief Operating Officer*

- **Fleet Perspective**

*Eric Larson – Vice President, Nuclear Support*

*Ken Sturtecky – Executive Director, Fleet Outages*

- **Fleet Engineering and Projects**

*Dan Pace – Senior Vice President, Fleet Engineering*

- **Site Performance Review**

**Beaver Valley:** *Paul Harden – Vice President*

**Davis-Besse:** *Barry Allen – Vice President*

**Perry:** *Vito Kaminskas – Vice President*

- **Fleet Oversight and Assessment**

*Kevin Ostrowski – Vice President, Oversight*

- **Closing Remarks**

*Jim Lash*

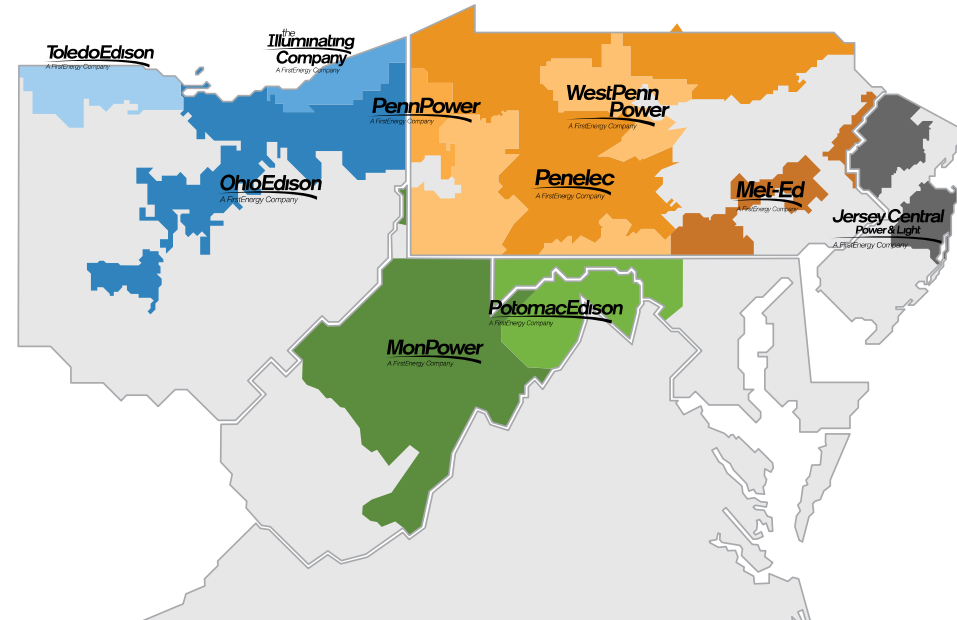
# Desired Outcome

## Demonstrate that FENOC is:

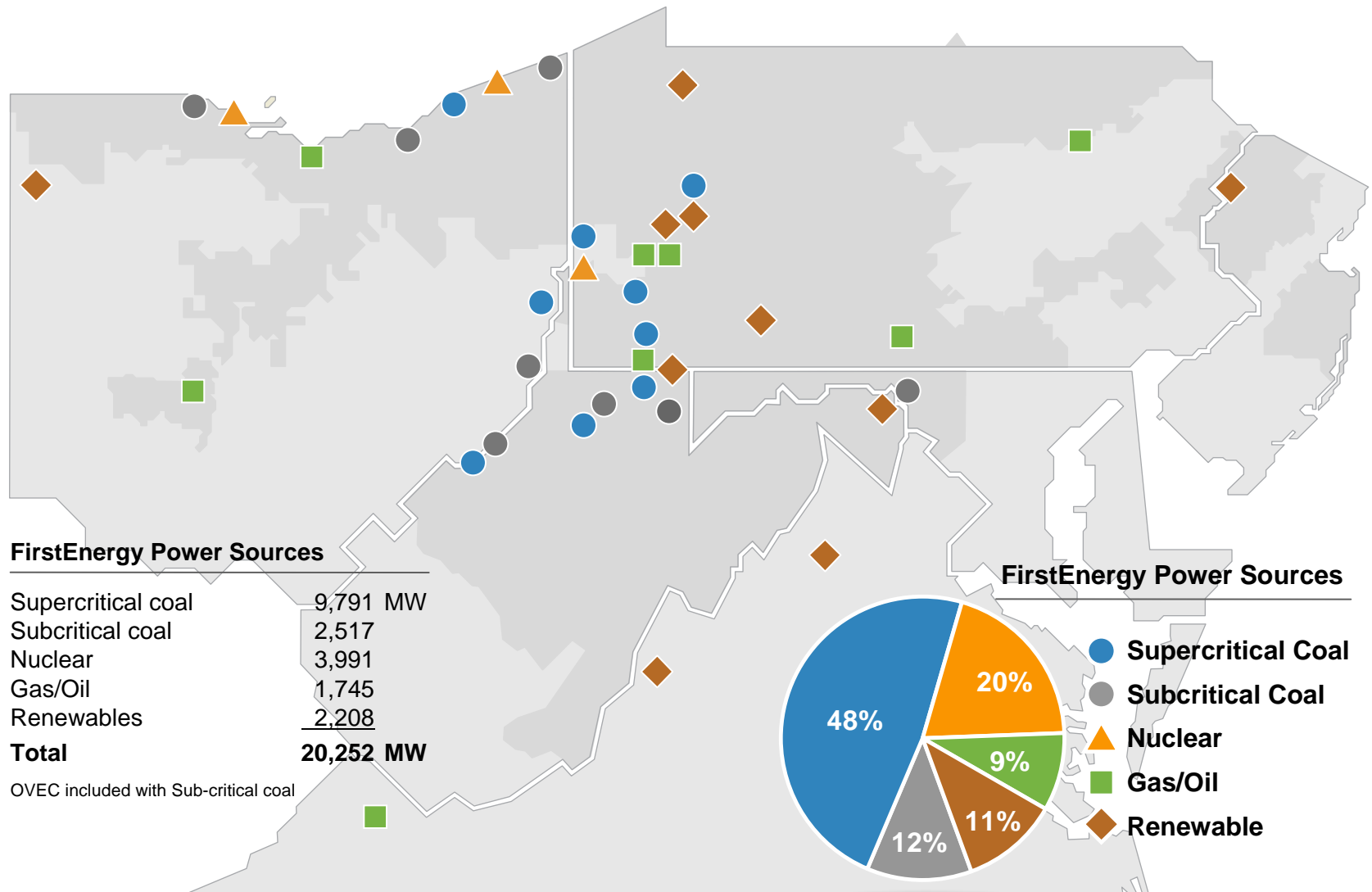
- **Committed to the safety and protection of the public, employees, and the environment**
- **Committed to safe, secure, reliable, cost-effective operations**
- **Focused on fleet operations and is having positive effects on site performance**
- **Addressing challenges and adjusting actions where needed**
- **On track for top fleet industry operating performance**

# About FirstEnergy (FE)

- Headquartered in Akron, Ohio
- One of the largest investor-owned electric systems in the U.S. based on six million customers served
- Nearly \$46 billion in assets
- \$16 billion in annual revenues
- Over 20,000 megawatts of generating capacity
- 10 electric utility operating companies in seven states
- 65,000-square-mile service territory
- 20,000 miles of high-voltage transmission lines and approximately 194,000 miles of distribution lines
- Approximately 17,000 employees



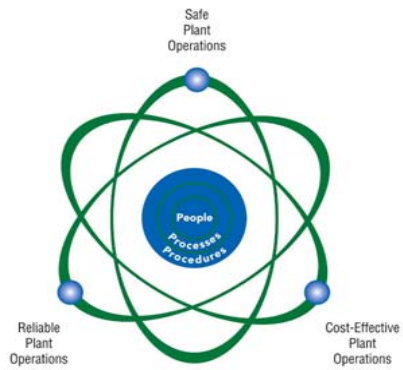
# FirstEnergy Diverse Generating Sources



# FirstEnergy Generation

## An Integrated Fossil and Nuclear Generation Fleet

- **One common vision and approach to safety, human performance and business practices**
- **Leverage operational and maintenance expertise**
- **Implement “best practices” across the generation fleet**
- **Apply nuclear approach to certain practices/events (e.g., outage management)**
  - New Executive Director – Fleet Outages; for both nuclear and fossil improvement
- **Share resources and knowledge across the generation fleet**



*FENOC Vision*

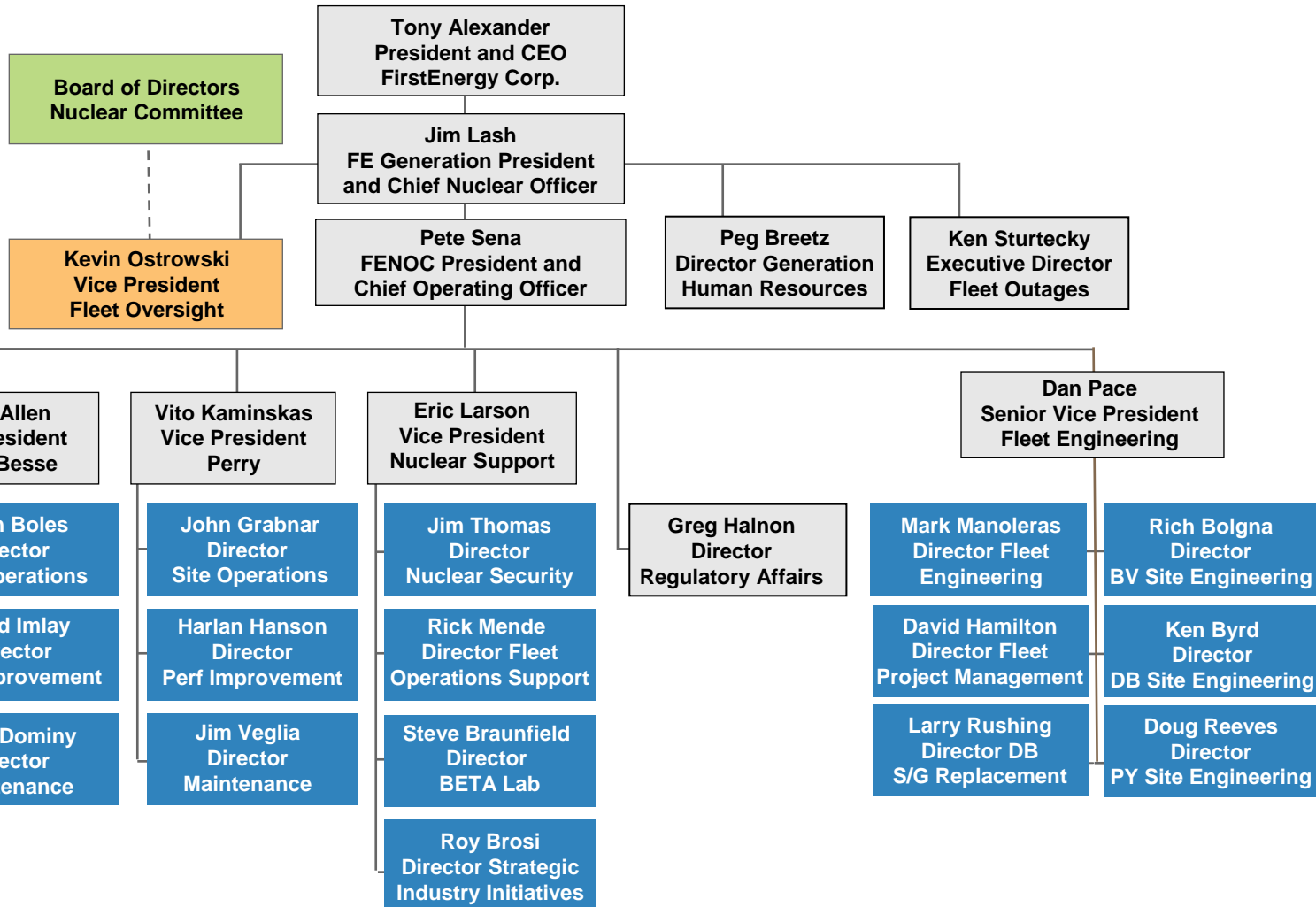
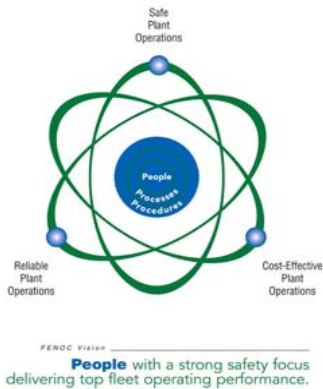
**People** with a strong safety focus delivering top fleet operating performance.

# FENOC Overview

## Pete Sena



# FENOC Organization

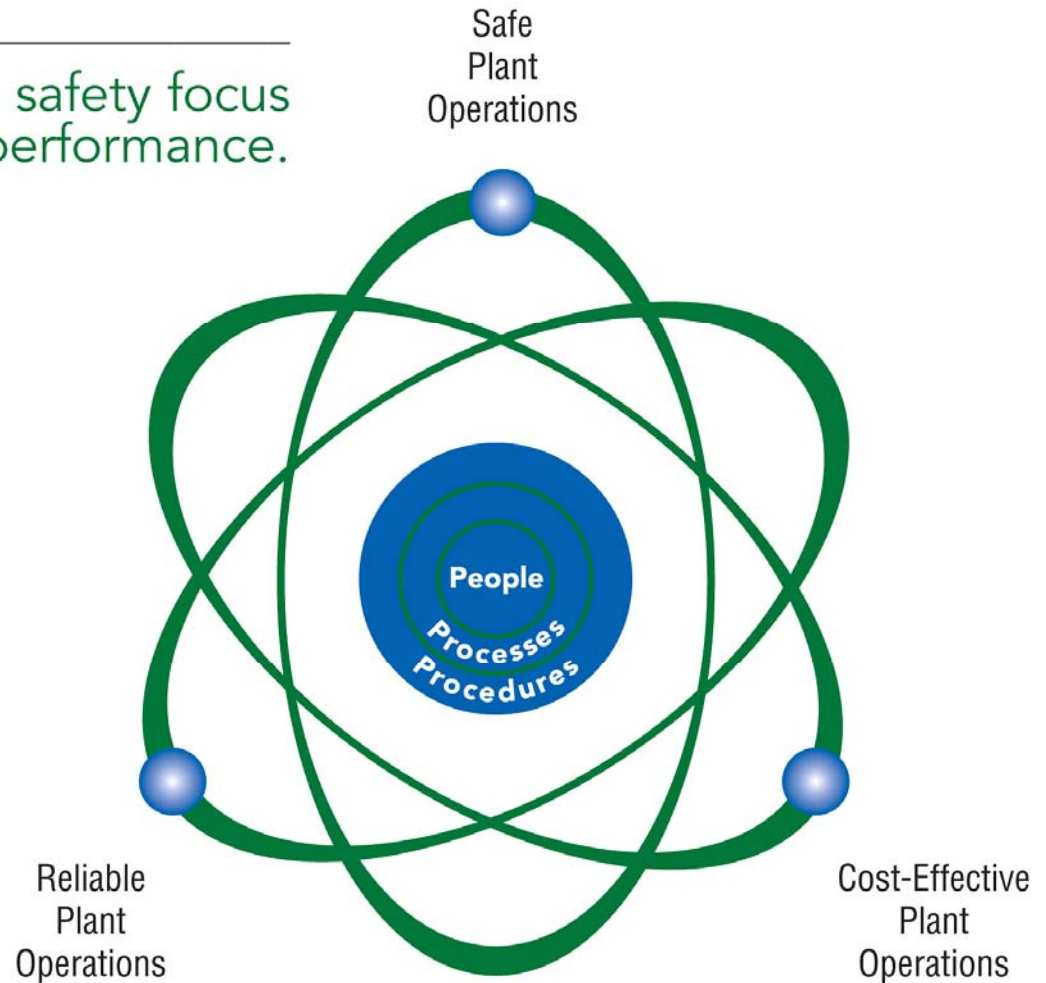




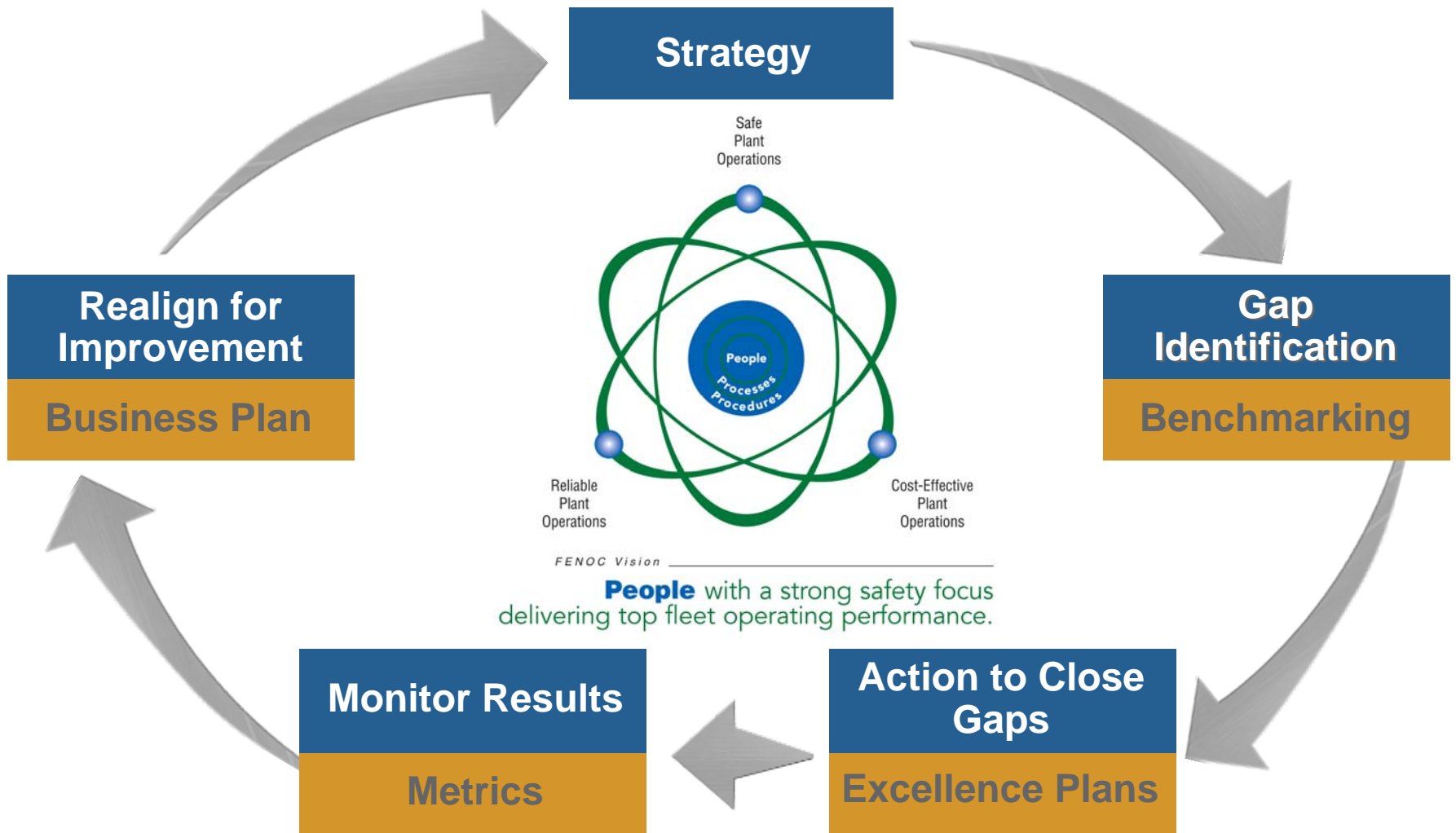
# FENOC Vision and Strategies

*FENOC Vision* \_\_\_\_\_

**People** with a strong safety focus  
delivering top fleet operating performance.



# Continuous Improvement Process



# Fleet Results – 2012 in progress

## ■ Personal safety

- Fleet OSHA Rate = 0.26
- Maintaining focus on safe and reliable day-to-day operations
- 91.0% Fleet Capability Factor (year-to-date)
- 1.01% Fleet Forced Loss Rate (year-to-date)

## ■ Fleet benchmarks

- Strengths
  - Fleet Forced Loss Rate
  - Unplanned scrams
  - Fleet Equipment Reliability Index
  - Chemistry effectiveness indicator
- Opportunities
  - Outage duration
  - Collective radiation exposure

# FENOC Strategic Direction

## Fleet Focus Areas Drive Improved Performance

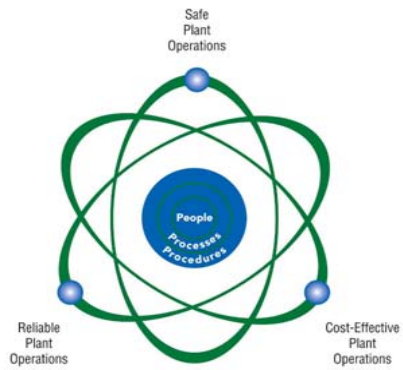
### Focus Areas:

- Personal Safety
- Leadership Fundamentals
- Outage Planning & Execution
- Key Strategic Projects



# Fleet Focus Area – Leadership Fundamentals

- **Individual Leadership Assessments**
- **Team Alignment and Effectiveness Assessments**
- **Team Alignment Sessions**
- **Targeted Organizational Effectiveness Training for managers and above**
- **Leaders teaching leaders through engagement in FENOC-specific New Supervisor/Manager and Continuing Training**
- **INPO rotations for development of select high potentials**



*FENOC Vision*

**People** with a strong safety focus delivering top fleet operating performance.

# Fleet Perspective

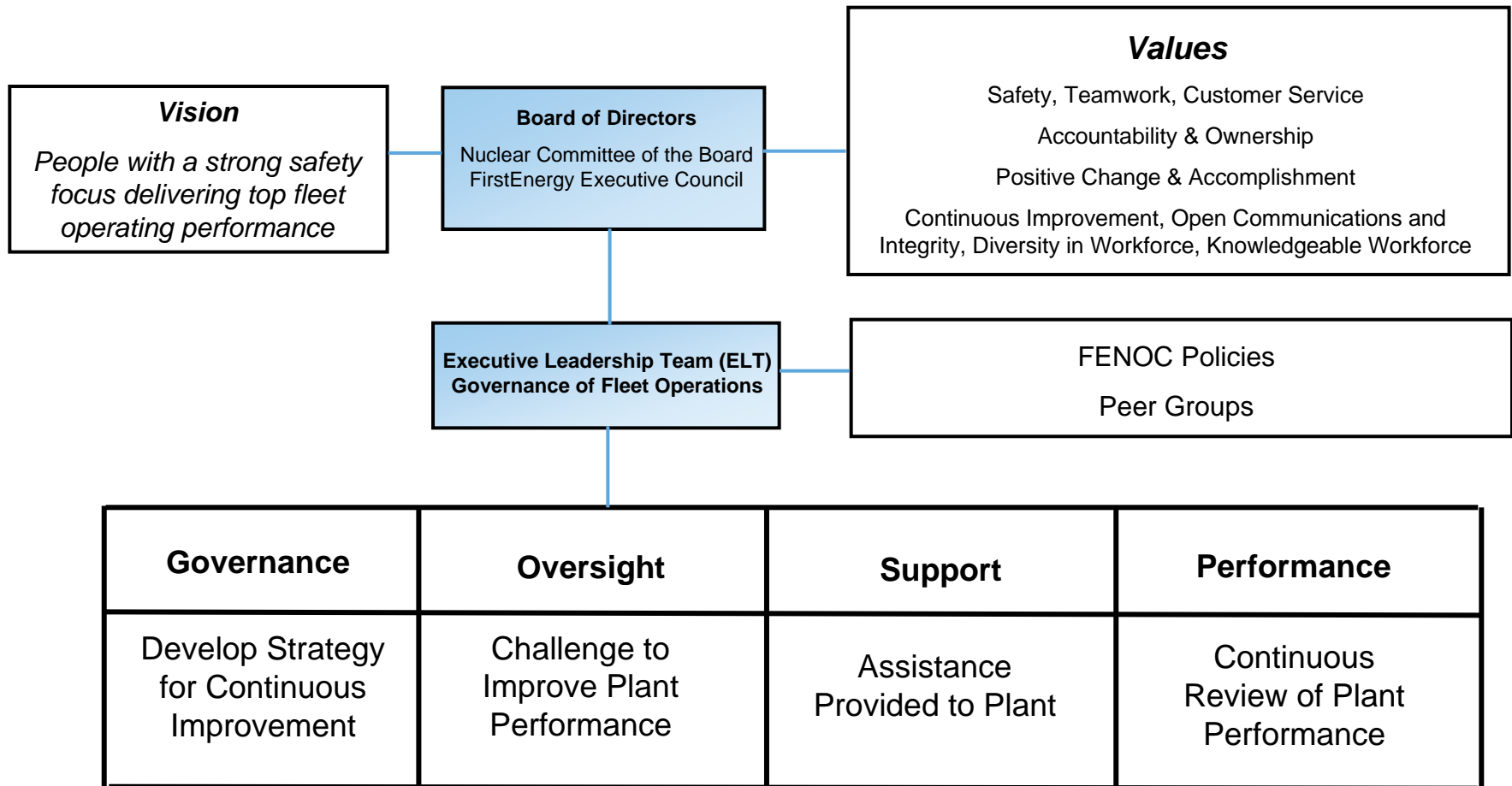
## Eric Larson

## Ken Sturtecky



# FENOC Management Model

The FENOC Management Model depicts how FENOC conducts business by outlining the responsibilities of the Executive Leadership Team for Governance, Oversight, Support, and Performance and the relationships among individual activities.





# Fleet Focus Area – Personal Safety

- **Engaged with a leader in Industrial Safety – “DuPont”**
- **Changing from a compliance basis to a caring FELT focus**
- **Focus is on the supervision interaction with employees on behaviors**
- **Long term investment for the future with program implementation over approximately three years**



# Emergency Preparedness Improvements

- **New Emergency Operations Facilities for each site**
- **New Emergency Preparedness rule on track for implementation**
- **Siren upgrades**
- **Fleet Common Emergency Plan**
- **Central Joint Information Center**
- **Pilot security integrated exercise**

# Fleet Focus Area – Outage Planning & Execution

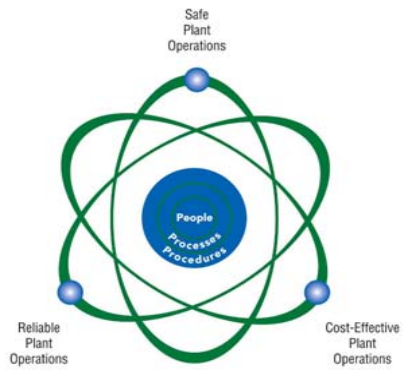
## Ken Sturtecky – Executive Director, Fleet Outages

- **Benchmark data reflects outage performance**
- **Outage performance improvements have been incremental over the last five years**
- **Created new Executive Director – Fleet Outages position**
- **Developed focus on outage planning and execution**

# Fleet Focus Area – Outage Planning & Execution

## Ken Sturtecky – Executive Director, Fleet Outages

- **Consistent, predictable performance**
- **Outage improvement areas**
  - Outage planning and readiness process
  - “Five Outage” business plans
  - Strengthening alliances
  - Outage expertise and resources
  - Execution



*FENOC Vision*

**People** with a strong safety focus delivering top fleet operating performance.

# Fleet Engineering and Projects

## Dan Pace



# Fleet Engineering

- **Managing demographics**
- **Engineering Human Performance improvements**
- **Design support of major projects**
- **Completion of Maintenance Strategy**
- **Equipment Reliability improvements**
- **Improvements in Safety Assessment Capability**

# PRA Current Status

- **Level 1 / Level 2**

- BV1, BV2, PY complete, DB complete by December 2012
- Next Updates: BV1, BV2, PY – 2014, DB – 2017

- **Internal Flooding: All scheduled to be complete by March 2013**

- **Seismic: Models under development; scheduled for 2014**

- **External Events: Scheduled for end of 2014**

- **Fire: NFPA 805 transitions**

- Beaver Valley submittal – extension request in progress
- Davis-Besse submittal – scheduled for 2014
- Perry – no submittal currently scheduled

# Regulatory Guide 1.200

## ■ PRA Upgrade Project to Regulatory Guide 1.200

- Rev 1 compliance
  - Beaver Valley and Perry: December 2012
  - Davis-Besse: March 2013
- Rev 2 compliance: currently December 2014 (NFPA 805 transitions)

# Fleet Focus Area – Key Strategic Projects

## Major Projects Update

- **Davis-Besse Shield Building**
- **Dry Fuel Storage**
- **License Renewal**
- **Major Component Replacements**
- **Fukushima Response**



# Davis-Besse Shield Building

- **Root Cause activities complete**
- **Building mapping complete**
- **Concrete testing complete**
- **Coating in progress**
- **Design Basis updates on track**
- **Addressing Shield Building open item in License Renewal Safety Evaluation Report**



# Dry Fuel Storage

- **Organization in place**
- **Perry initial loading in progress**
- **Address need for stackup support in 2013**
- **Beaver Valley initial loading planned for 2014**
- **Davis-Besse commence re-loading planned for 2016**



# License Renewal

- **Beaver Valley Units 1 and 2 licenses renewed in 2009**
  - Extended period program work on track
- **Davis-Besse Safety Evaluation Report (SER) issued**
  - SER open item responses submitted
  - Addressing License Renewal Contentions
- **Perry project startup initiated – submittal planned for 2015**

# Major Component Replacements

- **Beaver Valley Unit 1 replacements complete - 2006**
- **Davis-Besse head replaced - 2011**
- **Davis-Besse steam generator - 2014**
- **Beaver Valley Unit 2 Steam Generator / Reactor Head - 2017**



# Fukushima Response

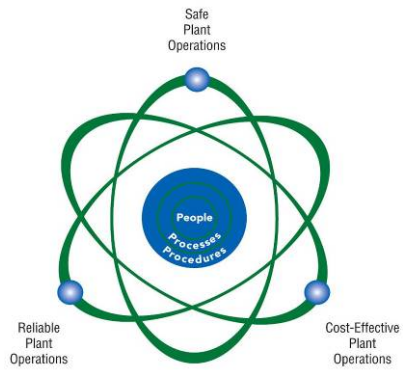
## Engagement

- **Developed a dedicated group very early**
  - Take all appropriate actions based on lessons learned
  - Support the industry – domestically and internationally
- **Engaged at every level and on nearly every industry working group and taskforce including substantive interaction with NRC Staff**
- **Responded to industry initiatives (INPO IERs)**
- **Early contracting of specialized technical support in 2011 for Seismic and Flooding**
- **Developed and maintain a strong industry peer team**

# Fukushima Response

## Seismic / Flooding / Emergency Preparedness

- **Seismic walkdowns in progress with outage scopes identified**
  - Proceeding with the timely development of Seismic PRA
- **Flooding walkdowns in progress and support the November 2012 submittal**
- **Flooding analysis with new methodology (includes dam failures)**
  - Probable Maximum Precipitation Analysis
  - Probable Maximum Flood Analysis is in progress
- **EP Communication walkdowns are complete and support the October 2012 submittal**
- **EP Staffing (multi-unit)**
  - Assessment to support the new Emergency Preparedness Rule is in progress
  - 10 CFR 50.54(f) Staffing Assessment will follow and be informed by Mitigation Strategies



FENOC Vision  
**People** with a strong safety focus delivering top fleet operating performance.

# Beaver Valley

## Paul Harden





# 2012 Site Priorities

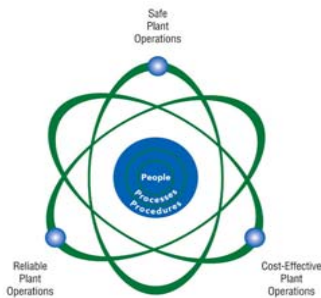
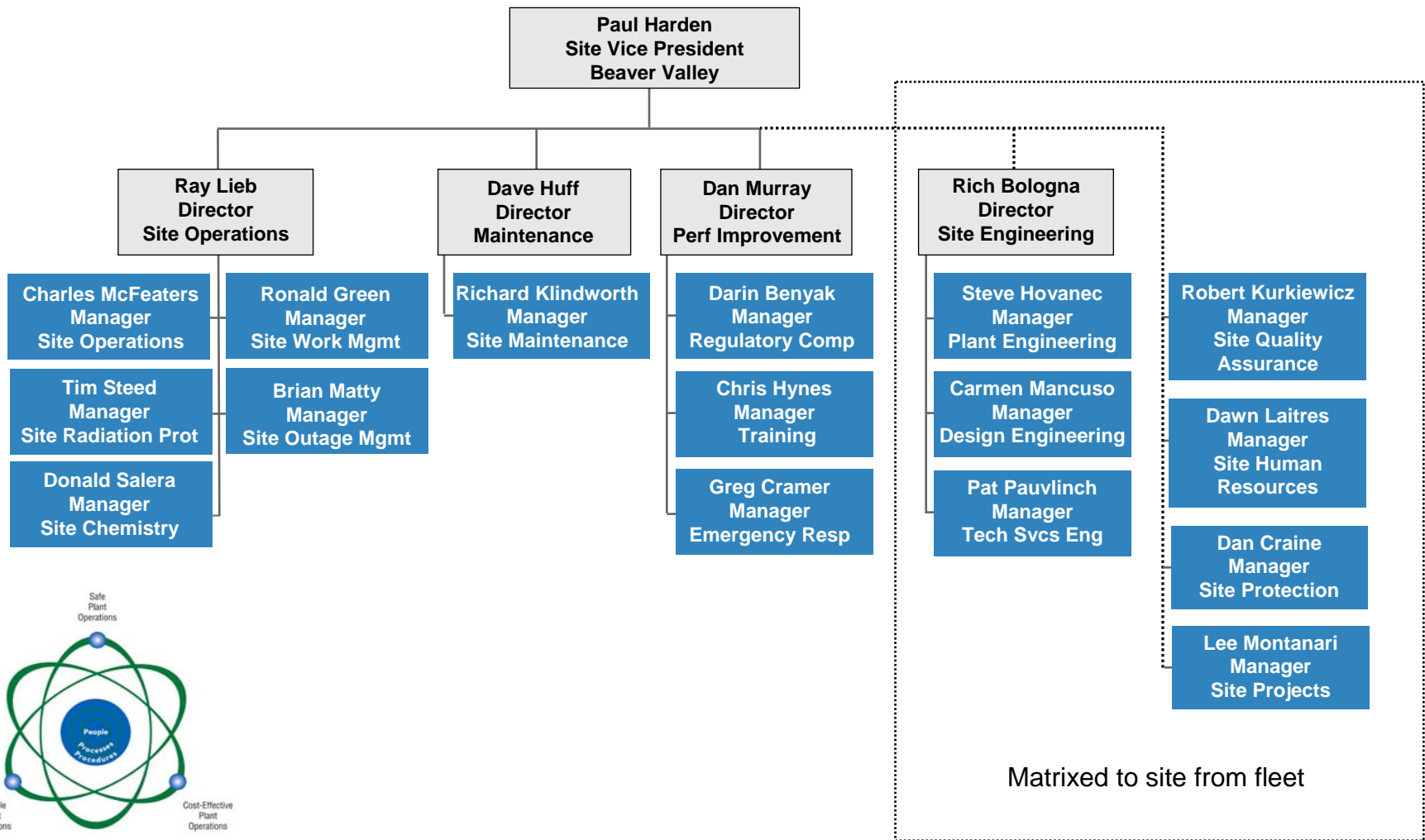
## Beaver Valley

- **Safe, secure, reliable, cost effective plant operations**
- **Safe and successful completion of 1R21 and 2R16**
- **Successful completion of emergency preparedness improvements and evaluated exercise**
- **Successful completion of Maintenance and Technical Training accreditation renewal**
- **Successfully complete Unit 2 spent fuel re-rack to increase storage capacity (complete re-rack in 2013)**





# Beaver Valley Organization



FENOC Vision  
**People** with a strong safety focus  
 delivering top fleet operating performance.

Matrixed to site from fleet

# Performance Snapshot

## Beaver Valley

- **Personal Safety Performance (both units)**
  - Over 6 million hours without a lost-time accident
- **Operating Performance (18 month average through August)**
  - BV1 INPO Index: BV1 = 100.0 / BV2 = 100.0
  - BV1 Forced Loss: BV1 = 0.00% / BV2 = 0.09%
  - Capability Factor: BV1 = 92.92% / BV2 = 93.26%
  - Chemistry Effectiveness Index:  
BV1 = 0.00 / BV2 = 0.15
  - Equipment Reliability Index:  
BV1 = 93 / BV2 = 96
  - BV1 1<sup>st</sup> Quartile Collective Exposure
  - BV2 2<sup>nd</sup> Quartile Collective Exposure



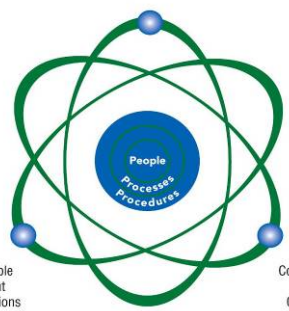
# Continuing Plant Improvement Initiatives

## Beaver Valley

- **Unit 2 Steam Generator Replacement**
- **Unit 2 Reactor Vessel Closure Head Replacement**
- **Low Pressure Turbine Rotor Replacements**
- **National Fire Protection Act (NFPA) 805**
  - Risk Informed Modifications
- **Unit 2 Spent Fuel Pool Re-rack**
- **Independent Spent Fuel Storage Facility**
- **Digital Instrumentation & Control Upgrades**
- **Workforce Replenishment**
- **Operator Pipeline**



Safe  
Plant  
Operations



Reliable  
Plant  
Operations

Cost-Effective  
Plant  
Operations

FENOC Vision

**People** with a strong safety focus  
delivering top fleet operating performance.

# Davis-Besse

## Barry Allen



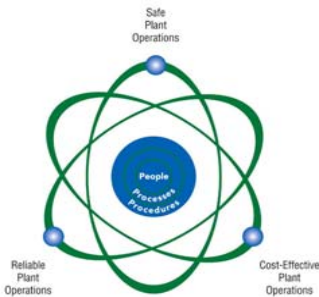
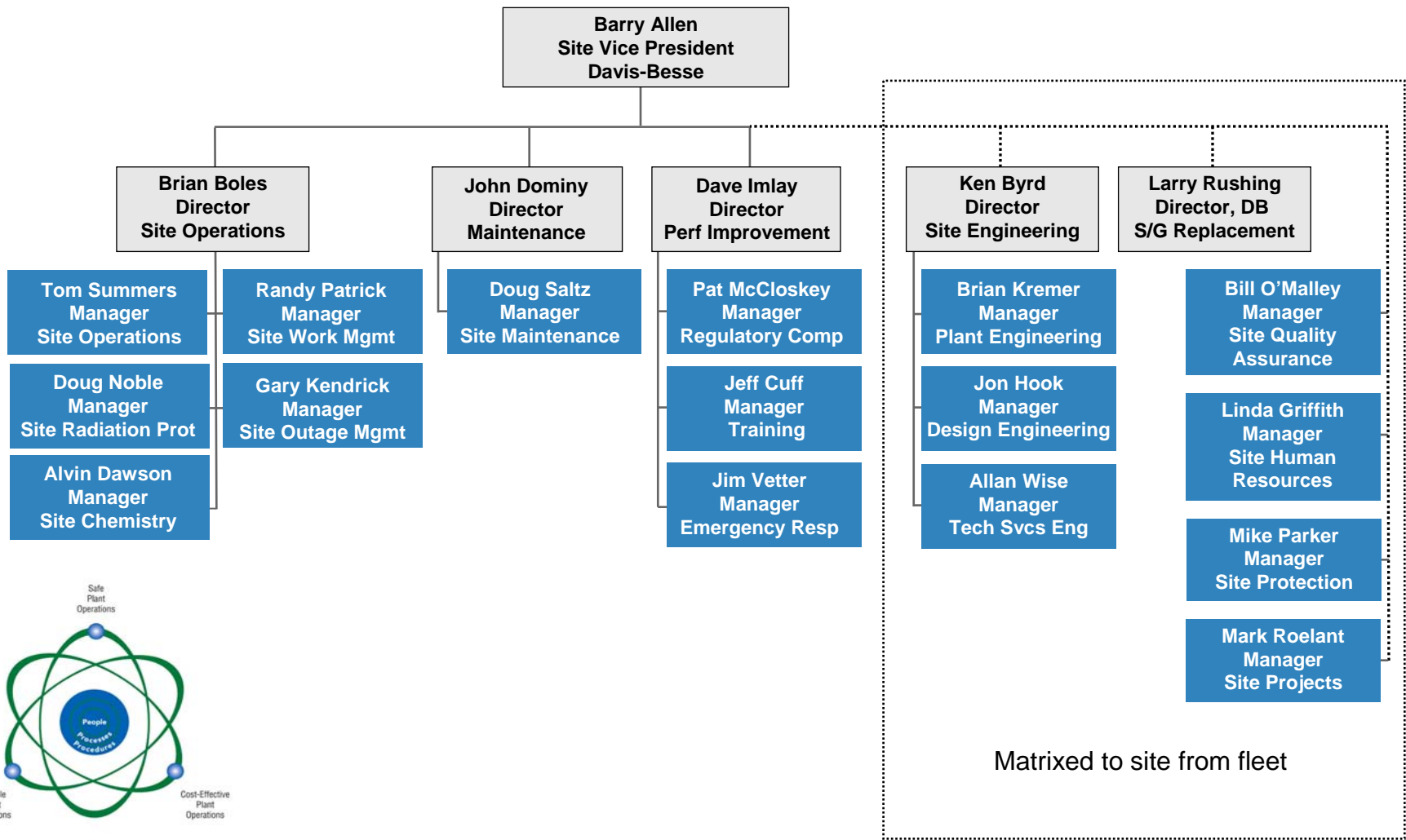
# 2012 Site Priorities

## Davis-Besse

- **Safe, Reliable, Cost-Effective Operations through People, Processes & Procedures**
- **Excellent Personal Safety Behaviors**
- **Consistent Reinforcement of Standards**
- **Improve Performance through Training & the Corrective Action Program**
- **Consistent Execution of Clearance & Plant Status Control**
- **18th Refueling Outage Preparation & Execution**
- **Recognize and Celebrate Success**



# Davis-Besse Organization



FENOC Vision  
**People** with a strong safety focus  
 delivering top fleet operating performance.

Matrixed to site from fleet



# Performance Snapshot

## Davis-Besse

### ■ Personal Safety Performance

- 5 million hours without a lost-time accident

### ■ Operating Performance (two year average through August)

- INPO Index = 94.4
- Forced Loss = 0.31%
- Capability Factor = 84.84%
- Chemistry Effectiveness Index = 0.00
- Equipment Reliability Index = 92
- 3<sup>rd</sup> Quartile Collective Exposure



# Continuing Plant Improvement Initiatives

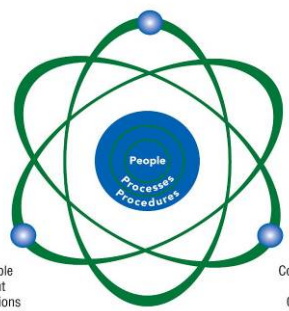
## Davis-Besse

- **Steam Generator Replacement**
- **License Renewal**
- **Digital Electro-Hydraulic Control**
- **Reactor Coolant Pump Motor Replacement**
- **Turbine Plant Cooling Water Heat Exchanger Re-tube**
- **Workforce Replenishment**
- **Operator Pipeline**





Safe  
Plant  
Operations



Reliable  
Plant  
Operations

Cost-Effective  
Plant  
Operations

FENOC Vision

**People** with a strong safety focus  
delivering top fleet operating performance.

# Perry

## Vito Kaminskas



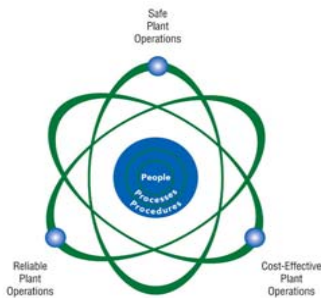
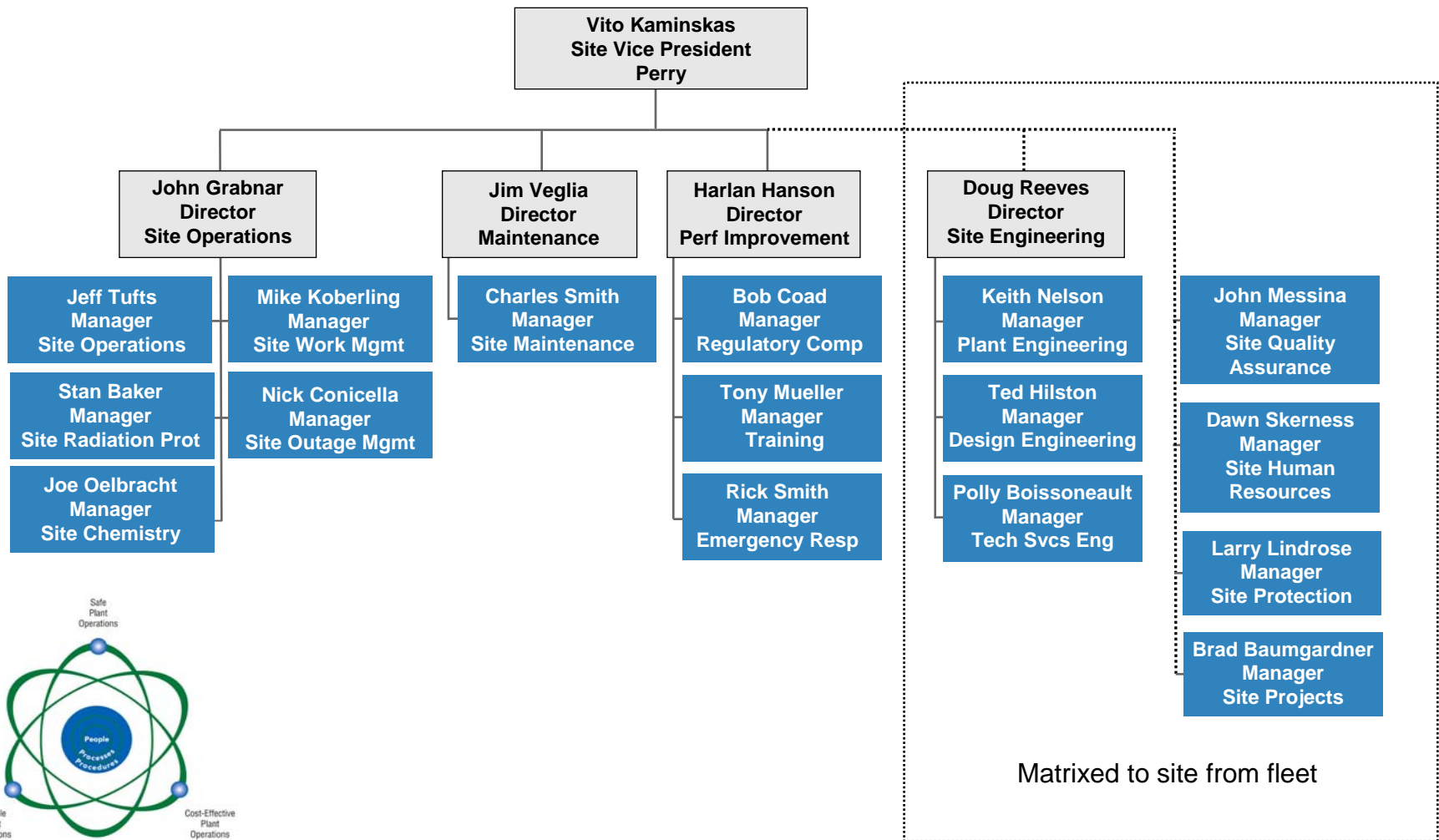
# 2012 Site Priorities

## Perry

- **Safe, secure, reliable, cost effective plant operations**
- **Reinvigorate implementation of the Corrective Action Program**
- **Perform radiological work error-less and event-free**
- **Rigorously plan and prepare for 1R14**
- **Execute Dry Cask Storage campaign**
- **Renew Accreditation of Operations Training Programs**
- **Successfully complete Emergency Response Evaluated Exercise**
- **Demonstrate performance warranting closure of Substantive Cross-Cutting Issues and return to Column 1 of the NRC Reactor Oversight Process**



# Perry Organization



FENOC Vision  
**People** with a strong safety focus  
 delivering top fleet operating performance.

Matrixed to site from fleet

# Performance Snapshot

## Perry

- **Personal Safety Performance**

- Over 600,000 hours without a lost-time accident

- **Operating Performance (current performance)**

- Perry INPO Index = 64.8
- Perry Forced Loss = 2.12%
- Perry Capability Factor = 93.12%
- Chemistry Effectiveness Index = 15.36
- Equipment Reliability Index = 81
- 4<sup>th</sup> Quartile Collective Exposure



# Continuing Plant Improvement Initiatives

## Perry

- **Independent Spent Fuel Storage Facility**
- **Low Pressure Turbine Rotor Replacements**
- **Backwash Receiving Tank Level Transmitter Replacement**
- **Digital Electro-Hydraulic Control**
- **Plant Radiation Monitor Digital Upgrade**
- **Feedwater Valve Replacements**
- **Workforce Replenishment**
- **Operator Pipeline**



# Radiation Protection Performance

## Perry

### ■ Improving oversight of radiological work

- High radiological risk = Infrequently Performed Test or Evolution (IPTE)
- RP technicians attend pre-job brief for high risk work
- Work supervisors attend radiological briefs for high radiological risk and Locked High Radiation Area (LHRA) entries
- Director and RP Manager approval required for emergent LHRA entries

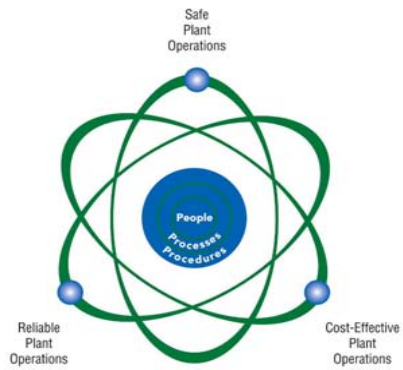
### ■ Radiation Protection Procedures

- Single, comprehensive survey maps
- Comprehensive High Radiological Area (HRA) briefs include all accessible areas
- Improved control of high dose areas where access not required
- Radiological hold points, critical steps and contingency plans

### ■ Radiation worker engagement

- Work supervisor reviews of high radiation area entries
- Interactive radiological briefs for HRA entries
- Radiologically controlled area trip cards
- Procedure use and adherence
- Radiation technician/supervisor training (dynamic learning activity, oral boards)





FENOC Vision

**People** with a strong safety focus delivering top fleet operating performance.

# Fleet Oversight

## Kevin Ostrowski



# Fleet Oversight

## ■ **Compliance auditing - 2012**

- 8 audits completed; 4 planned
- 18 Industry technical specialists used from 17 plants/utilities

## ■ **Individual site performance assessment**

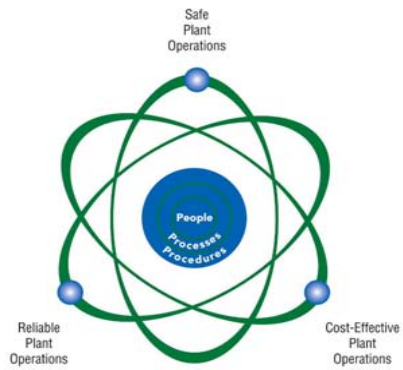
- Organizational Effectiveness now included in assessments
- Beaver Valley – Refueling outage focus
- Davis-Besse – Oversight of reactor head / replacement S/G work
- Perry – Focus on oversight of improvement activities

## ■ **Corporate Assessments**

- Safety Culture/NEI Safety Culture Assessment Process

## ■ **Employee Concerns Program**





FENOC Vision

**People** with a strong safety focus delivering top fleet operating performance.

# Closing Remarks

## Jim Lash

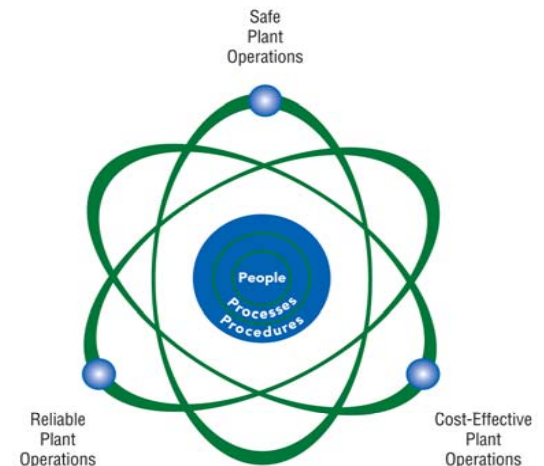


# Closing Remarks

*Our vision:*

*People with a strong safety focus delivering top fleet operating performance.*

- **Safe Plant Operations**
- **Reliable Plant Operations**
- **Cost-Effective Plant Operations**
- **Effective use of People, Processes and Procedures**



FENOC Vision \_\_\_\_\_  
**People** with a strong safety focus  
delivering top fleet operating performance.

# FENOC Fleet Overview

---

## NRC Senior Management Briefing

September 26, 2012

