

# September 8, 2011 Southwestern Outage

Member Representatives Meeting  
November 2, 2011  
Dave Nevius, Senior Vice President

**RELIABILITY | ACCOUNTABILITY**



- Extended over Southern CA, parts of AZ, and Northern Baja California Mexico
- Over two million customers affected
- Loss of ~7,800 MW of customer load and ~5,000 MW of generation
- FERC and NERC conducting joint inquiry into event

- Interviews conducted with four entities to date:
  - Arizona Public Service
  - California Independent System Operator
  - Imperial Irrigation District
  - WECC Reliability Coordinator
- Data/information gathering from impacted entities
  - SCADA/EMS
  - PMU/DFR
  - Voice recordings
  - Logs
  - Interview results
  - Etc.

- Sequence of events
- System simulation/modeling
- Root cause and human performance analysis
- Operations tools, SCADA/EMS, communications, operations planning
- System planning, design, and studies
- Frequency/ACE analysis
- Transmission and generation performance, system protection and control, maintenance, damage
- System restoration
- Lessons learned and recommendations

- Our experience with events of this magnitude is that it takes a number of months to complete the analysis and prepare appropriate recommendations
- Timing of this inquiry will depend on what we learn as we get deeper into the analysis.

# February 2011 Cold Snap Report and Recommendations

Member Representatives Meeting  
November 2, 2011

Earl Shockley, Director of Reliability Risk Management

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- There were a total of 26 electric recommendations issued:
  - Planning and reserves (5)
  - Coordination with generator owners/operators (5)
  - Winterization (10)
  - Communications (4)
  - Load Shedding (2)
- There were also six gas recommendations

## 3 Key Findings - Summary

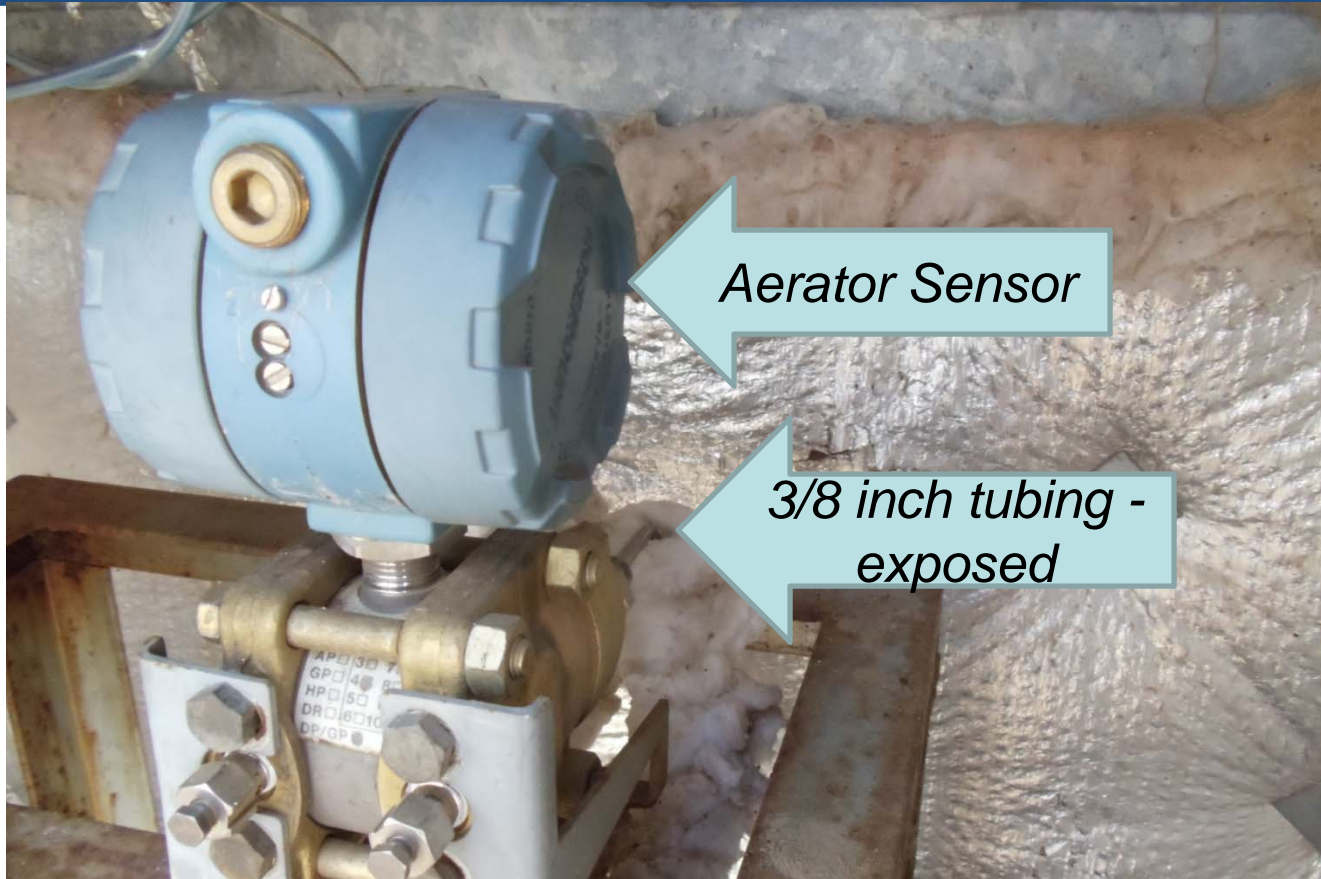
- Many generators failed to adequately apply and institutionalize knowledge and recommendations from previous severe winter weather events
- Generators failed to adequately prepare the plants for winter and were generally reactive as opposed to proactive
- Balancing Authorities, Reliability Coordinators and generators often lacked adequate knowledge of plant temperature design limits and the equipment most effected by freezing



# Supporting Recommendations

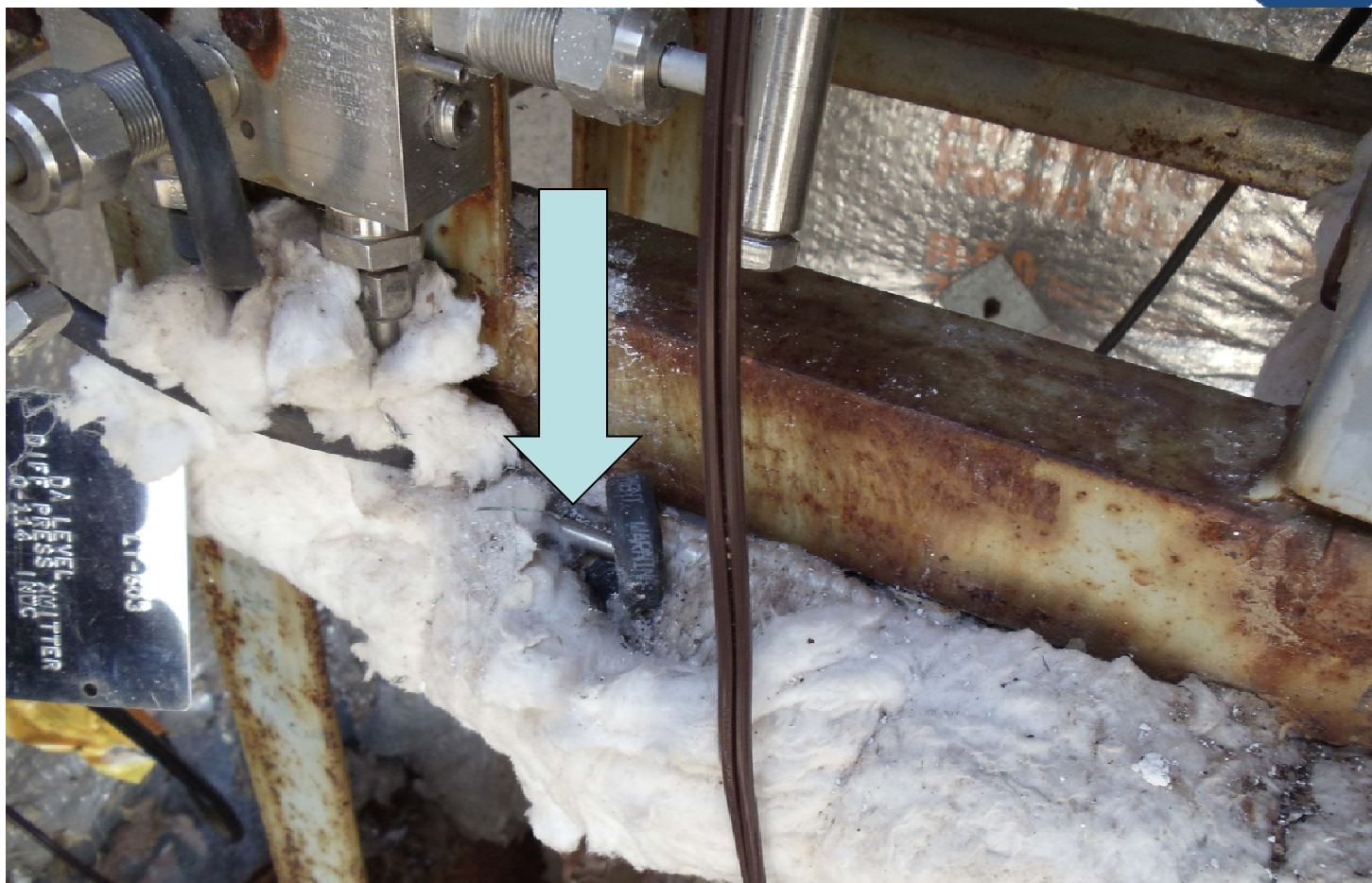
- R1 - BAs, RCs, and GO/GOPs – Consider winter peak season preparations as critical as summer peak season preparations
- R6 - TOs, BAs, and GO/GOPs – Verify that units that have fuel switching capabilities can periodically demonstrate those capabilities
- R8 - BAs, RCs and TOPs – Require GO/GOPs to provide accurate ambient temperature design specifications and keep current

# Frozen Sensor



*R 14 - GO/GOPs – Ensure that adequate maintenance and inspection of freeze protection elements is conducted on a timely and repetitive basis.*

# Inadequate Insulation



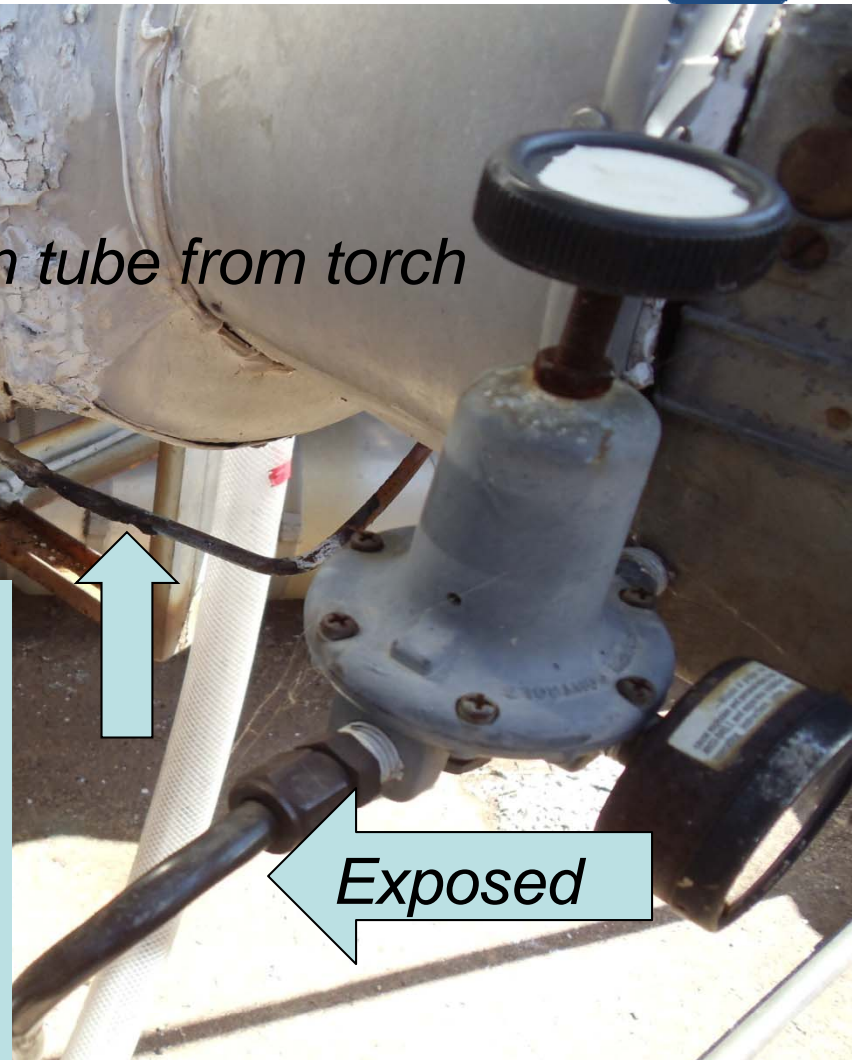
*R – 16 GO/GOPs – Inspect and maintain thermal insulation on all units.*



# Lack of Insulation

*Notice burn marks on tube from torch*

*R – 18 GO/GOPs –  
Develop and annually  
conduct winter-specific  
and plant-specific  
operator awareness and  
maintenance training.*



# Wind Break Design

*Wind break Was  
too Short*

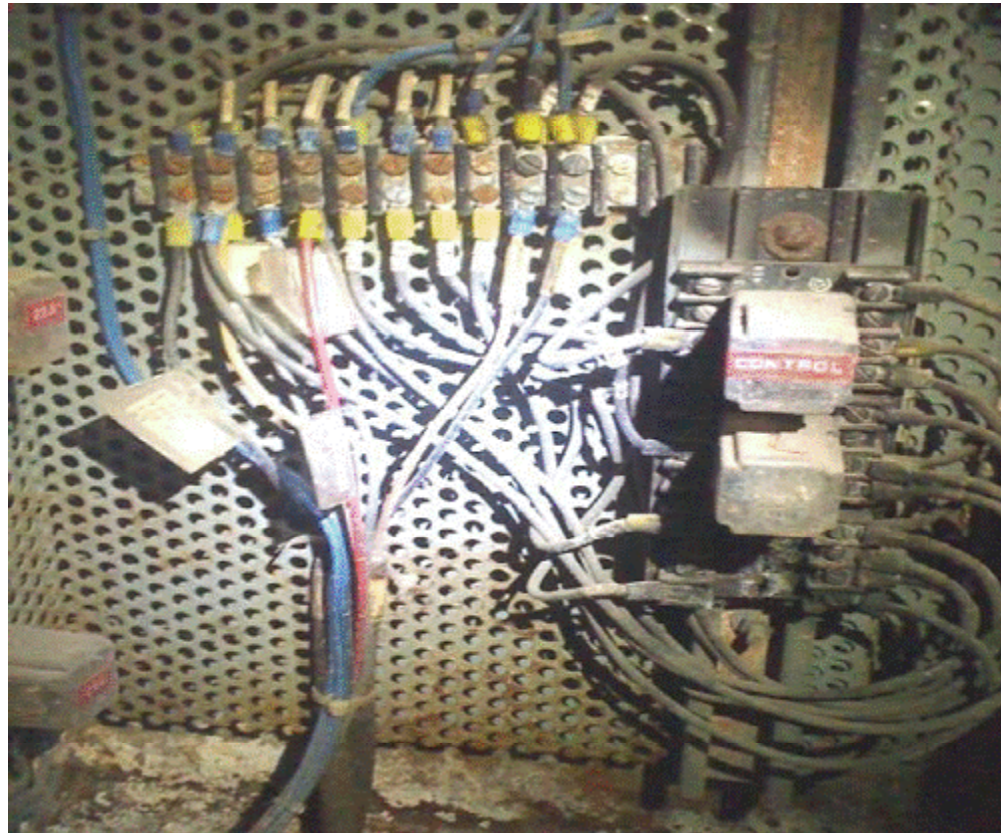
*Feedwater Sensor  
Froze*

*R – 17 GO/GOPs – Plan to  
erect adequate wind breaks  
and enclosures, where needed.*

*Wind Break*



# Corroded Freeze Protection Panel



*R – 15 GO/GOPs – Inspect and maintain heat tracing equipment on all generating units.*

# Oil Burning Wands



***R – 6** TOs, BAs, and  
GO/GOPs – Verify that  
units that have fuel  
switching capabilities can  
periodically demonstrate  
those capabilities*

# Fuel Transfer Valves





# Compliance Application Notice (CAN) Update to MRC

Member Representatives Meeting

November 2, 2011

Michael Moon, Director Compliance Operations

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- BOT guidance
- CAN Process
- CAN-0016 Sabotage Reporting Procedure
- Status of revisions to the remaining CANs currently posted as final

- Address CANs to Compliance Enforcement Authorities (auditors, investigators, enforcement staff, compliance enforcement authority staff)
- CANs are not to expand upon the standard or add requirements
- Avoid words such as “must”
- Provide a higher level of review for industry to access to contest a CAN
- Repost for industry comment

# Industry Feedback on Process

- Provide more detail on the CAN development process to include vetting
- Post all industry comments for transparency
- Provide the feedback mechanism to Standards for issues not dealt with in the CAN
- Provide detail for the higher level review process, format and timelines
- Provide detail regarding the higher level reviewer(s) options

- Create a systematic method for prioritizing CANs
  - Will solicit input from the Standards Committee and the Compliance and Certification Committee
- Track and provide requestor segment/source
- Provide more detail in responses to comment groups
- Provide appendix templates for industry use:
  - Appendix 1 – Can Template (currently provided on the NERC web site)
  - Appendix 2 – Industry Prioritization Recommendation Form
  - Appendix 3 – CAN Comments Template
  - Appendix 4 – Standards Issues Database Submittal Form
  - Appendix 5 – Higher Level of Review Submittal Form

- Ballot Compliance Application Notices
  - Comments are sought and will be considered in the drafting phase
- Respond to every CAN comment individually
  - Comments will be grouped and answered in more detail
- Webinars prior to CAN development
  - Prioritization Form, Appendix 2, provides for input prior to drafting
  - Solicit input on prioritization and issues refinement from the Standards and Compliance and Certification Committees

Revised CAN Process and appendices were approved by the BOTCC and reposted as final on October 14

- [CAN Process \(Clean\)](#)
- [CAN Process \(Redline\)](#)
- [CAN Process Appendix 1 - CAN Template](#)
- [CAN Process Appendix 2 - Industry Prioritization Form](#)
- [CAN Process Appendix 3 - CAN Comment Form](#)
- [CAN Process Appendix 4 - Standards Suggestion Form](#)
- [CAN Process Appendix 5 - CAN High-Level Review Request Form](#)

- Fundamental difference – documentation versus implementation of procedure
- Whether all employees must be aware of the entity's sabotage reporting procedure or only the operating personnel must be aware of the procedure
- Implementation would create an evidentiary burden
  - Documentation of events
  - Training
- Revised CAN did not answer the original question



- Implementation is required
- All employees must be aware of the entity's sabotage reporting procedure
- Implementation would create an evidentiary burden
  - Documentation of events – not looking for documentation of every potential sabotage event but examples of where/how the process was utilized
  - Training – changed to awareness
- Revised CAN did not answer the original question
  - A CEA is to verify that facilities that may affect the bulk power system are not excluded

- Completed Industry Review and are in Analysis
  - CAN-0005 CIP-002-3 R3 Critical Cyber Asset Designation for System Operator Laptops
  - CAN-0006 EOP-005-1 R7 Verification of Restoration
  - CAN-0007 CIP-004-2 R4.2 & CIP-004-3 R4.2 Revocation of Access to CCAs
  - CAN-0008 PRC-005-1 R2 Basis for First Maintenance and Testing Date
  - CAN-0018 FAC-008 R1.2.1 Terminal Equipment
  - CAN-0009 FAC-008 and FAC-009
  - CAN-0010 Definition of Annual
  - CAN-0011 PRC-005-1 R2 New Equipment
  - CAN-0012 Completion of Periodic Activity Requirements Prior to a Registered Entity's Effective Date for a Standard
  - CAN-0013 PRC-023-1 R1 and R2 Effective Dates for Switch-On-To-Fault Schemes
  - CAN-0015 Unavailability of NERC Software Tools
  - CAN-0022 VAR-002-1.1b R1 and R3 Generator Operation in Manual Mode
  - CAN-0026 TOP-006 R3 Protection Relays
  - CAN-0028 TOP-006 R1.2 Reporting

- Where compliance monitoring is not explicitly addressed by a standard:
  - Whether a range of acceptable compliance actions may be defined or
  - Whether compliance is to be monitored according to each entity's interpretation of the standard?
- What is the appropriate level of industry involvement in the determination of a range of acceptable compliance actions?
- Where a standard requires a procedure or process but does not specify implementation is implementation implied?

## CANs with changes suggested by industry under consideration:

- CAN-0006 EOP-005-1 R7 Verification of Restoration
- CAN-0012 Completion of Periodic Activity Requirements Prior to a Registered Entity's Effective Date for a Standard
- CAN-0013 PRC-023 Switch on to Fault Schemes
- CAN-0016 CIP-001 R1 Sabotage Reporting Procedure
- CAN-0018 FAC-008 R1.2.1 Terminal Equipment
- CAN-0022 VAR-002-1.1b R1 and R3 Generator Operation in Manual Mode
- CAN-0024 CIP-002-1 R3.1 Routable Protocols and Data Diode Devices
- CAN-0030 Attestations
- CAN-0031 CIP-005, -006 Acceptable Opening Dimensions

- Have revised the Process per BOT guidance and Industry feedback
- Reposted CAN-0016 as final per BOT guidance and with consideration of industry feedback
- Anticipate reposting by the end of the year:
  - all CANs previously posted as final plus
  - 11 additional CANS currently in process
- Will implement posting all industry comments with CANs under development that were not previously posted as final
- Will implement all new process steps with new CANs



*Questions?*



Posted on September 1, 2011 with comments due September 21, 2011. Industry comments are currently being analyzed.

- CAN-0005 CIP-002 R3: Critical Cyber Asset Designation for System Operator Laptops
- CAN-0006 EOP-005: Verification of Restoration
- CAN-0007 CIP-004 R4: Revocation of Access to CCAs
- CAN-0008 PRC-005 R2: Pre-June 18, 2007 Evidence
- CAN-0018 FAC-008: Terminal Equipment

Posted on September 23, 2011 with comments due October 14, 2011.

- CAN-0009 FAC-008 and FAC-009: Facility Ratings and Design Specifications
- CAN-0017 CIP-007 R5: Technical and Procedural System Access and Password Controls
- CAN-0029 PRC-004 R1, R2 and Re: Protection System Misoperations
- CAN-0031 CIP-006 R1: Acceptable Opening Dimensions
- CAN-0039 EOP-004 Filing DOE Form OE-417 Event Reports



## Approved by CAN Executive Approval Team

- CAN-0010 Multiple Standards: Definition of “Annual”
- CAN-0011 PRC-005-1 R2: New Equipment
- CAN-0012 CIP-002 through CIP-009: Completion of Periodic Activity by Effective Date
- CAN-0013 PRC-023 R1 and R2: Switch on to Fault Schemes
- CAN-0015 Multiple Standards: NERC Software Tools
- CAN-0022 VAR-002 R1: Generator Operation in Manual Mode
- CAN-0026 TOP-006 R3: Protection Relays
- CAN-0028 TOP-006 R1.2: Reporting

# Project 2010-17 Definition of Bulk Electric System

Member Representatives Meeting  
November 2, 2011

Peter Heidrich, FRCC – BES Definition Drafting Team Chair  
Carter Edge, SERC – ROP Drafting Team Chair

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- Expanded project plan
- Bulk Electric System (BES) Definition
  - Initial ballot results
  - Clarifications
- Rules of Procedure exception process (Appendix 5C)
- Exception application form
  - Initial ballot results
  - Industry concerns
- Implementation plan
- Near-term project milestones

# Project Plan - Phased Approach

- Phase 1 - Addresses directives from Orders No. 743 and 743-A
- Phase 2 - Addresses concerns identified through the Standards Development Process

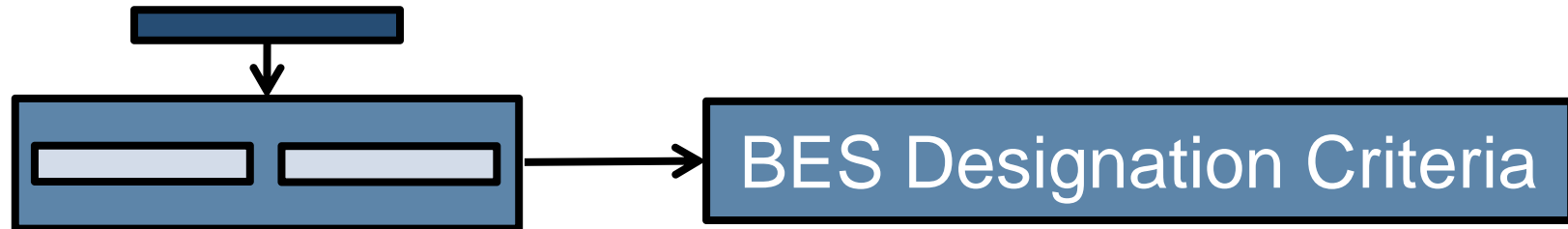
(DRAFT Standard Authorization Request and the *Bulk Electric System Definition Project - Fact Sheet* has been posted for informational purposes.)

- NERC Standards Committee
  - Approved the multi-phased approach
  - Committed to keeping this project on its “High Priority” project list
  - Committed to continuing development work with the current SDT through completion of Phase 2
  - Committed to supplying resources to complete technical research

- BES definition ballot results
  - Quorum: 92.97%
  - Approval: 71.68%
- Comments from 255 different people from 156 companies representing 10 of the 10 industry segments

- Transformer designations
- Generation threshold values
- Reactive resources
- Behind the meter generation
- Local networks

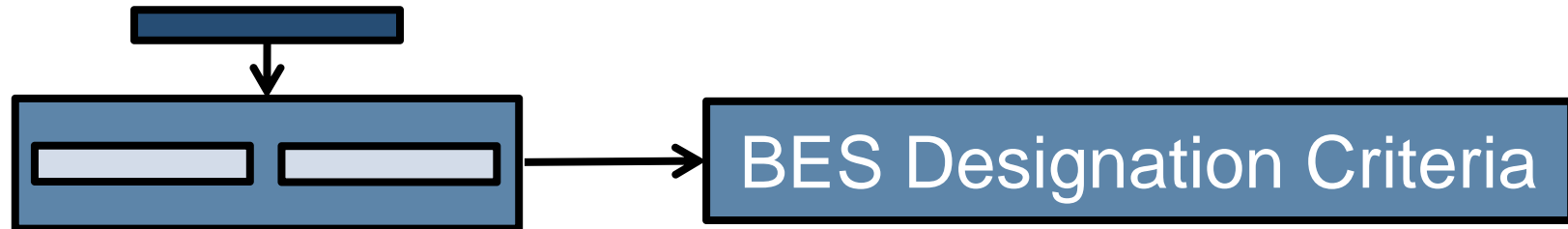
# BES Designation Criteria Inclusions



**I1** - Transformers with **the** primary **terminal** and **at least one** secondary terminal operated at 100 kV or higher unless excluded under Exclusion E1 or E3.

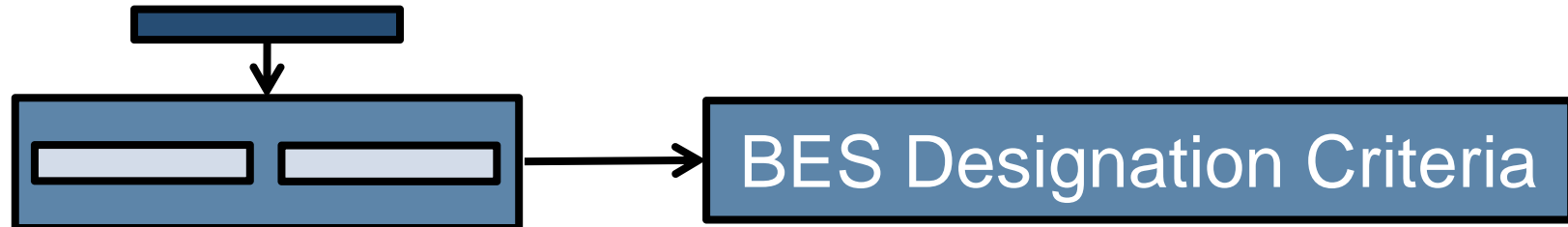


# BES Designation Criteria Inclusions



**I2** - Generating resource(s) with gross individual **nameplate rating greater than 20 MVA** or gross **plant/facility** aggregate nameplate rating **greater than 75 MVA** including the generator terminals through the high-side of the step-up transformer(s) connected at a voltage of 100 kV or above.

## BES Designation Criteria Inclusions

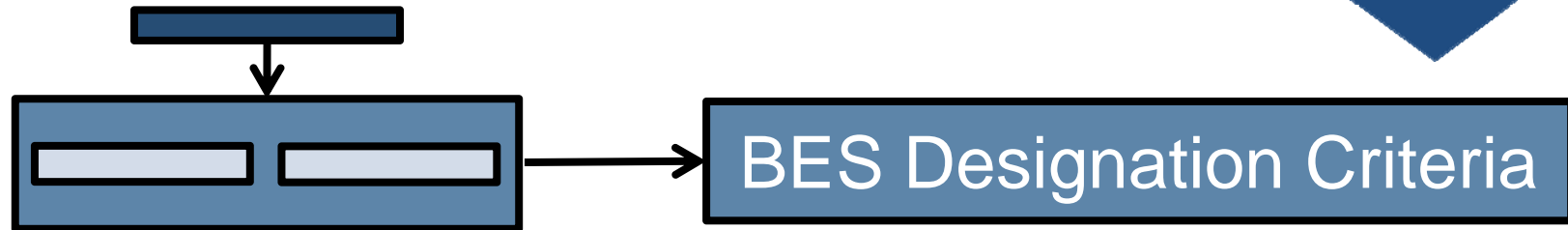


I5 –Static or dynamic devices (**excluding generators**) dedicated to supplying or absorbing Reactive Power that are connected at 100 kV or higher, or through a dedicated transformer with a high-side voltage of 100 kV or higher, or through a transformer that is designated in Inclusion I1.

# BES Designation Criteria Exclusions



**E2** - A generating unit or multiple generating units **on the customer's side of the retail meter** that serve all or part of **the** retail Load with electric energy if: (i) the net capacity provided to the BES does not exceed 75 MVA, and (ii) standby, back-up, and maintenance power services are provided to the generating unit or multiple generating units or to the retail Load by a Balancing Authority, or provided pursuant to a binding obligation with a Generator Owner or Generator Operator, or under terms approved by the applicable regulatory authority.

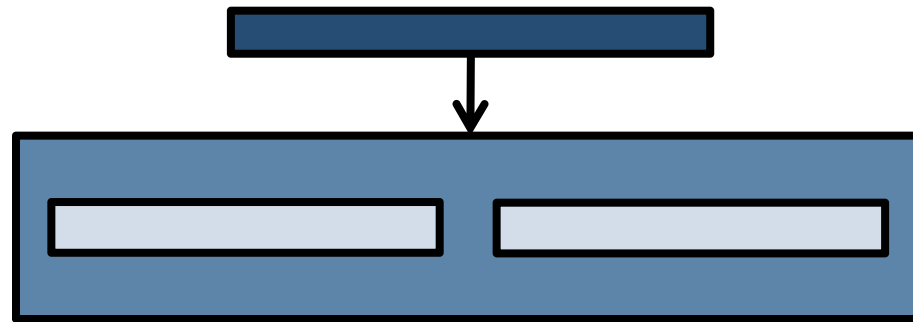


## **E3 – Local networks (LN):**

The LN is characterized by all of the following:

- a) Limits on connected generation
- b) Power flows only into the LN **and** the LN does not transfer energy originating outside the LN for delivery through the LN
- c) Not part of a Flowgate or transfer path

# Bulk Electric System Definition



Note - Elements may be included or excluded on a case-by-case basis through the Rules of Procedure exception process.

- What's Posted (Through October 27, 2011)
  - For Comment
    - New Rule 509
    - New Rule 1703
    - New Appendix 5C
  - For information
    - Process flow diagrams
    - Exception Request Form (Sample)

- New Rule 509 - Exceptions to the Definition of the Bulk Electric System

“Appendix 5C sets forth the procedures by which (i) an entity may request a determination that an Element that falls within the definition of the Bulk Electric System should be exempted from being considered a part of the Bulk Electric System, or (ii) an entity may request that an Element that falls outside of the definition of the Bulk Electric System should be considered a part of the Bulk Electric System.”

- New Rule 1703 - Challenges to NERC Determinations of BES Exception Requests under ROP
  - Leverages existing (proposed) appeals process
  - NERC's decision to Approve, Disapprove, or Terminate
  - 30 days to appeal
  - 90 days for review panel to decide
  - May request BOTCC review panel decision



- New Appendix 5C
  - Entity determination of status is a prerequisite for requesting an exception
  - Section 4: Who's and What's
    - Who can submit and who to submit a request to
    - What to submit
    - Who “approves”
    - What happens if I disagree
  - Section 5: What to expect

- Initial screening
  - Region “accepts or rejects” the request for substantive review
    - Eligible submitter?
    - Request for exception?
    - Required information provided?

- Substantive review
  - Region recommends “approval or disapproval” of request to NERC based on:
    - “necessary for the reliable operation of the interconnected bulk power transmission system as evidenced by required information provided”.

- NERC decision
  - NERC receives the request record with a recommendation from the Regional Entity
    - States the basis for the recommendation
    - Includes information considered by the Regional Entity in arriving at its recommendation
  - Submitting Entity or Owner has opportunity to comment in support or opposition to the recommendation
  - NERC decision final if not appealed

- Implementation plans for requests
  - Status “as is” when going through the process
  - Some implementation may be necessary for:
    - New inclusion exceptions
    - Denials of exception requests for exclusion
      - Newly-constructed or installed element
      - Was not included in the bulk electric system under the bulk electric system definition in effect

- Comments from first formal posting
- Reliability benefits of an element cannot be determined by a single study or analysis of a single parameter
- Not feasible to establish continent-wide values and/or limits

- The Standard Drafting Team has adopted a new approach:
  - “Detailed Information to Support an Exception Request” application form
  - Targeted questions for transmission and generation addressing the facility characteristics with guidance on the type of supporting evidence to accompany request
  - No hard numbers to guide the evaluation
  - Engineering judgment will be utilized to perform the evaluation of the evidence in a consistent, repeatable, and verifiable process

- Detailed information to support an Exception Request application form ballot results:
  - Quorum: 89.53%
  - Approval: 64.03%
- Comments from 137 different people from 83 companies representing 10 of the 10 industry segments



- Industry concerns:
  - Desire “hard” and “fast” guidance
  - Limited role in process
  - Impact of “yes” or “no” response to questions
  - What is the benchmark for evaluation?
  - Will phase 2 examine process results?

- Standard Drafting Team response:
  - Individual variables, extenuating circumstances
  - Open and transparent exception process
  - Professional experience
  - No single answer will determine outcome
  - Necessary for the reliable operation of the grid
  - Phase 2 will examine process results

- Effective dates:
  - This definition shall become effective on the first day of the second calendar quarter after applicable regulatory approval or Board of Trustees adoption as applicable
- Compliance obligations:
  - For elements included by the definition – 24 months after the applicable effective date of the definition
  - Standard Drafting Team believes that the timeframe is needed to:
    - Effectively produce reasonable transition plans
    - Submit any necessary registration changes
    - File for exceptions
    - Provide training

- Recirculation Ballot (November 14, 2011)
  - Revised bulk electric system definition with designations (inclusions and exclusions)
  - Implementation plan
  - “Detailed Information to Support an Exception Request” application form
- Post Phase 2 SAR (December 2011)
- File with the Commission (FERC) by January 25, 2012



# Question and Answer

Website: [http://www.nerc.com/filez/standards/Project2010-17\\_BES.html](http://www.nerc.com/filez/standards/Project2010-17_BES.html)

# Adequate Level of Reliability

MRC BES/ALR Policy Group

Member Representatives Committee  
November 2011

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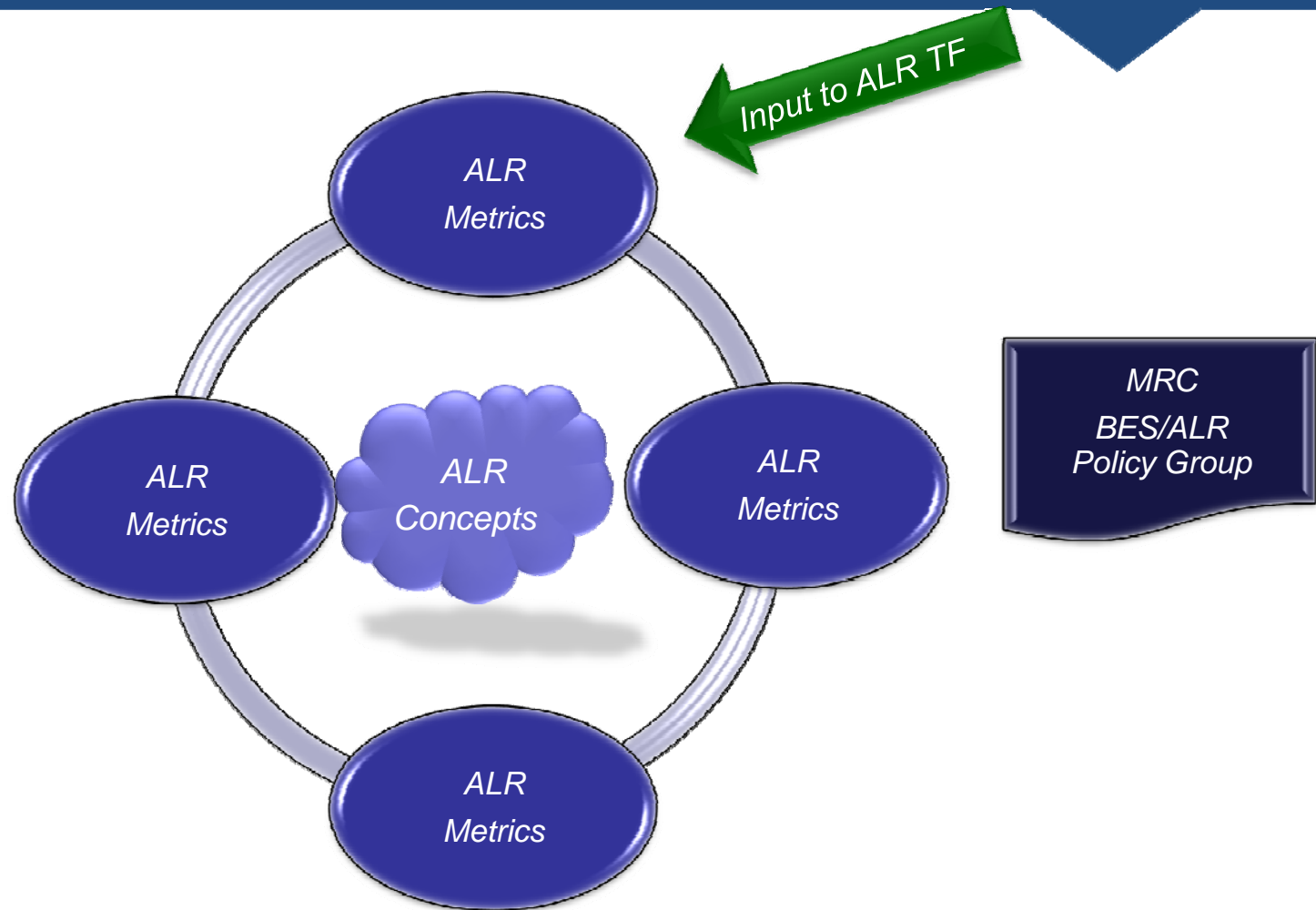
- Three policy questions addressed
- Ad hoc subgroup developed responses
- Followed specific format:
  - Issue Statement
  - Recommendations
  - Background
  - Options and analysis (*advantages and disadvantages*)

- How should cost/benefit be factored into ALR? How and by whom should those decisions be made? [jurisdictional issues]:
  - **Recommendation:** *Assess the reliability objectives of ALR criteria and provide an explicit recognition of high-level macro cost-effectiveness of requirements within a reliability standard to meet the reliability objectives.*
- How should “cascading” be defined?
  - **Recommendation:** *No change to the definition of Cascading.*



- Is the impact of all load loss equal? For example, is the impact of “X” MWs of load loss in a major metropolitan area the same as “X” MWs in a rural area?
  - **Recommendation:** *Revise ALR defining criteria to differentiate among the different characteristics of loss of supply, transmission and load loss as a function of planning design, operator preparations and ability to control outcomes from events; and refine the incorporation of resilience and recovery in the ALR elements.*

# Policy Input from MRC on ALR



- ALR Task Force has met monthly since June 2011
- ALTF began with fundamental BES reliability objectives and target outcomes to achieve “ALR”
  - Occam’s Razor
  - Only now comparing ALRTF working definition with current ALR definition
- ALR Definition must be:
  - Concise, yet self-contained
  - Self-explanatory to BES planners and operators
  - Meaningful to policy-makers – placing a premium on translation in the ALRTF Report

- Discussions include:
  - System characteristics (performance objectives and target outcomes)
    - Prevent BES instability, uncontrolled separation, cascading, and voltage collapse when subjected to predefined initiating events
    - Maintain system frequency and voltage within parameters
    - Positive damping and stability after initiating events
    - Sufficient transfer capability and resources to serve load
    - Minimize scope and duration of disturbances and ensure rapid restoration (resiliency)

- Measurement of characteristics
  - Capability and resources to meet load obligations
  - Common mode failure - caused by related events
  - TADS: non-automatic/automatic outages
  - Uncontrolled versus unnecessary tripping



*Questions?*



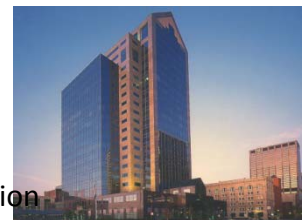


# Compliance Excellence

*Ed Staton*  
*Vice President, Transmission*

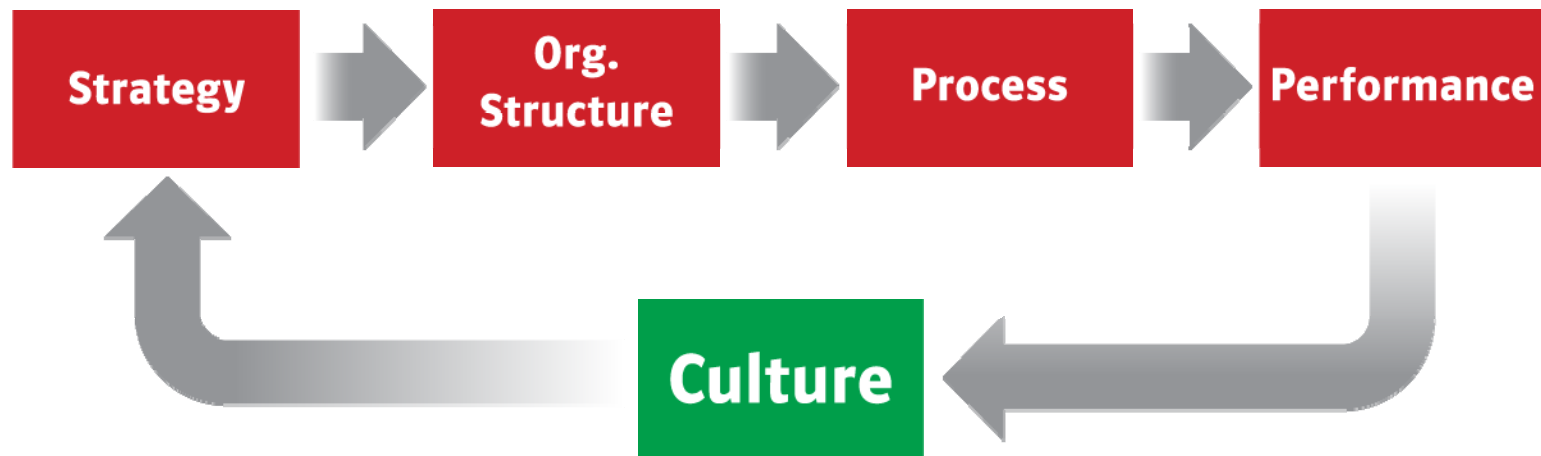
November 2011

MRC Presentation  
November 2, 2011

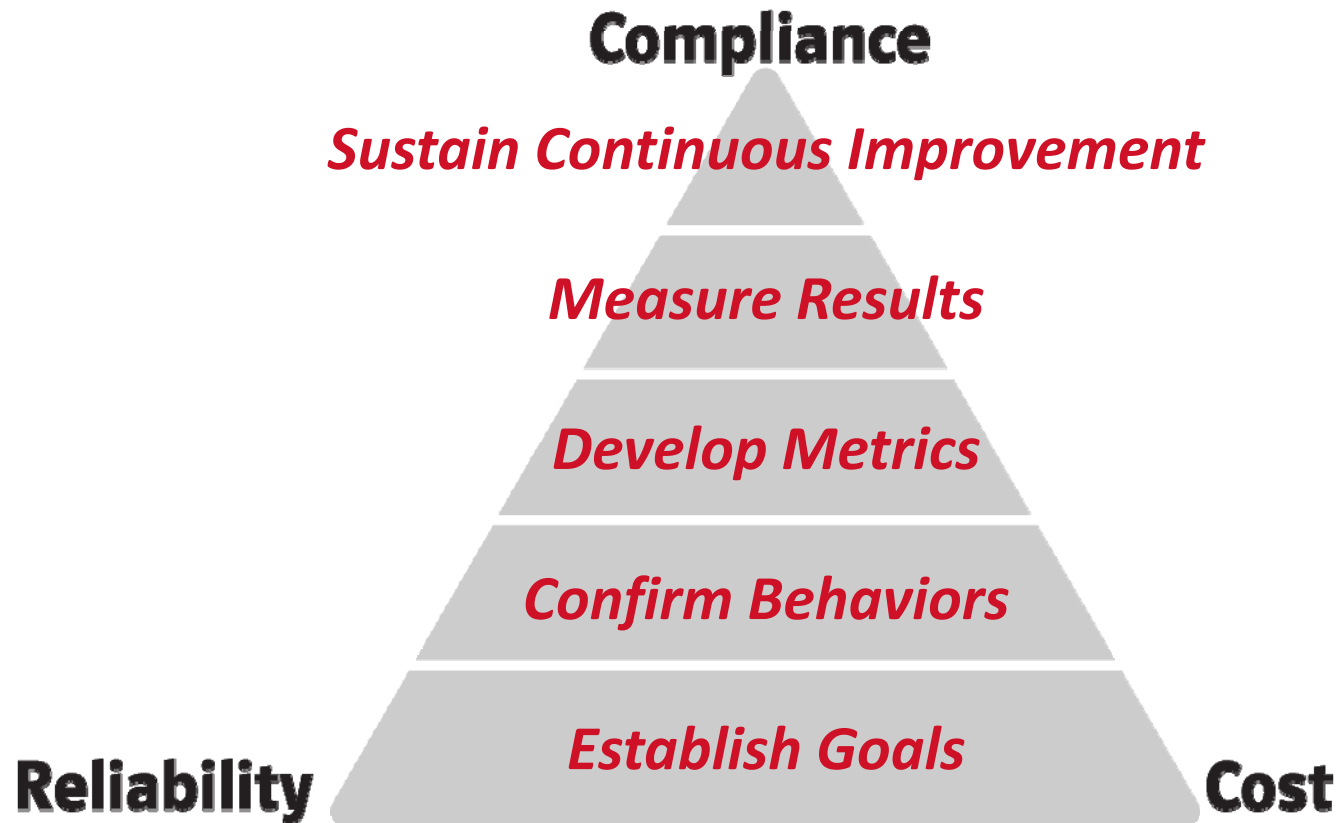




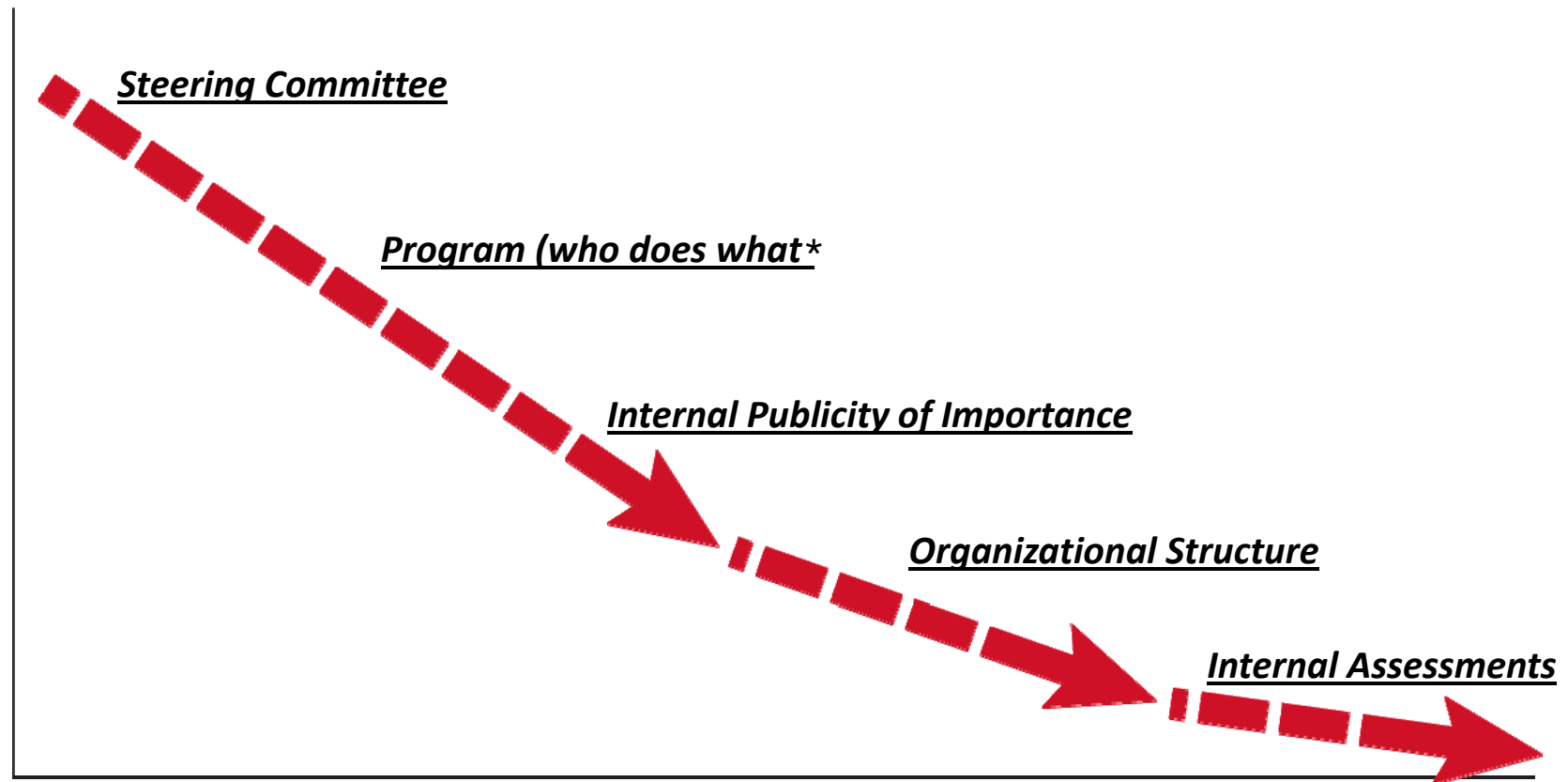
# The Components of the Strategic Agenda



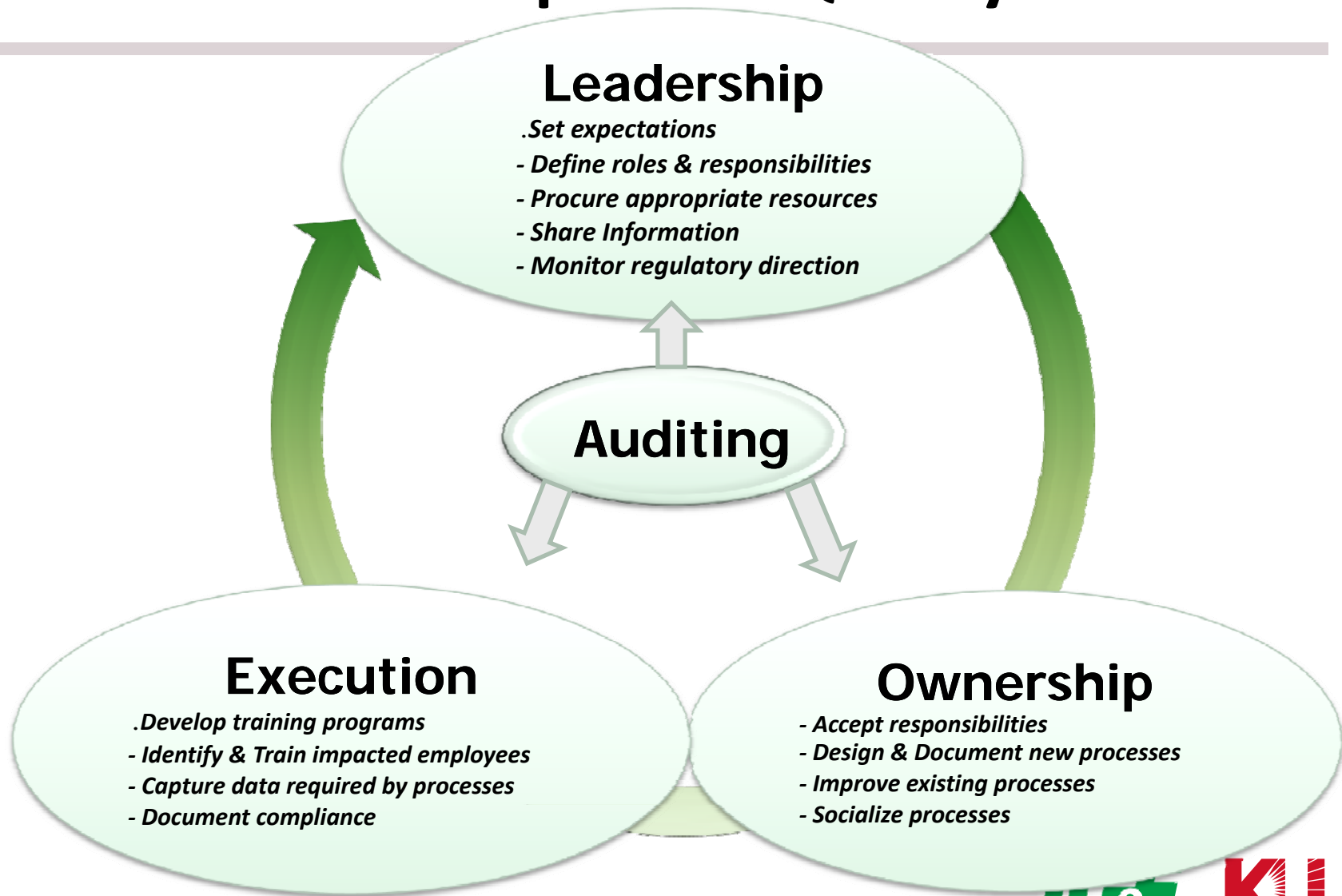
# Compliance Pyramid



# Building a Culture of Compliance Within LG&E and KU



# Elements of Compliance Quality



# Rules of Procedure Revisions

Member Representatives Committee Meeting  
November 2, 2011

Rebecca Michael, Associate General Counsel

**RELIABILITY | ACCOUNTABILITY**



# Non-Substantive Revisions

- Capitalization and definition revisions to the Rules and Appendices
  - The proposed revisions are in the NERC Rules of Procedure and all existing Appendices to the Rules of Procedure (3A, 3B, 3C, 4A, 4B, 4C, 4D, 4E, 5A, 5B, 6 and 8), as well as proposed new Appendix 2, Definitions of Terms Used in the Rules of Procedure.
  - These revisions are being made in response to the RDA Order at PP 92-93
  - These are intended to be non-substantive revisions and the objectives are:
    - To place all definitions of defined terms used anywhere in the Rules of Procedure in a single, readily-accessible location (proposed Appendix 2)
    - To capitalize defined terms throughout the Rules of Procedure where they are intended to be used in their defined meanings (as well as proper nouns and similar terms normally capitalized)
    - To lower-case other terms that are currently capitalized in the Rules of Procedure but are not defined terms
    - Definitions from the NERC *Glossary of Terms* were used where appropriate

# Non-Substantive Revisions

- The revisions were posted for public comment on September 2, 2011
- Public comments were submitted to NERC on October 17, 2011
- Further revisions have been made based on the comments
- These will be presented to the Board of Trustees for approval on November 3, 2011
- They will be filed with Applicable Governmental Authorities for approval thereafter

- Timeline for Board of Trustees approval
  - There are two sets of substantive revisions
    - On June 30, 2011, proposed revisions to Sections 100-1600 and Appendices 4B and 4C were posted for public comment
      - Comments were submitted on August 15, 2011
    - In November 2011, additional revisions will be posted
      - In addition to changes in response to comments, these will include, among other things, new revisions to Sections 1002, new Section 1800 on administrative fines (originally posted as Section 414), Sections 807/808 and Appendix 8 regarding Events Analysis, Appendix 6 deleted and material moved to Section 600 – a summary of all revisions is included in agenda materials



# Substantive Revisions

- Following the November Board meeting, a revised, consolidated set of proposed revisions will be posted for a 45-day comment period
- They will be submitted for Board of Trustees approval at the February 2012 meeting

- A new administrative fine provision, Section 1800, will apply only to failure to provide information in response to Level 2 (Recommendations) and Level 3 (Essential Actions) notifications
- Two proposed hearing provisions have been eliminated
  - One would have allowed NERC to reach down to take a case
  - The other would have allowed the Hearing Body to increase a penalty due to frivolous filings, dilatory tactics, *etc.*

- Section 300, Reliability Standards Development
- Personnel Certification, Appendix 6 deleted, materials moved to Section 600
- Event Analysis, Section 800 and Appendix 8
- Procedure for Coordinating Reliability Standards Approvals, Remands, and Directives, Appendix 3C
- Compliance Monitoring and Enforcement Program, Appendix 4C, at new Section 5.11, Participation by RTO/ISO members in enforcement action
- Organization Registration and Certification, Section 500 and Appendix 5A