



# WECC AUDITS

2015 Northwest Hydro Operators Forum

Cathy Leone-Woods | May 19, 2015

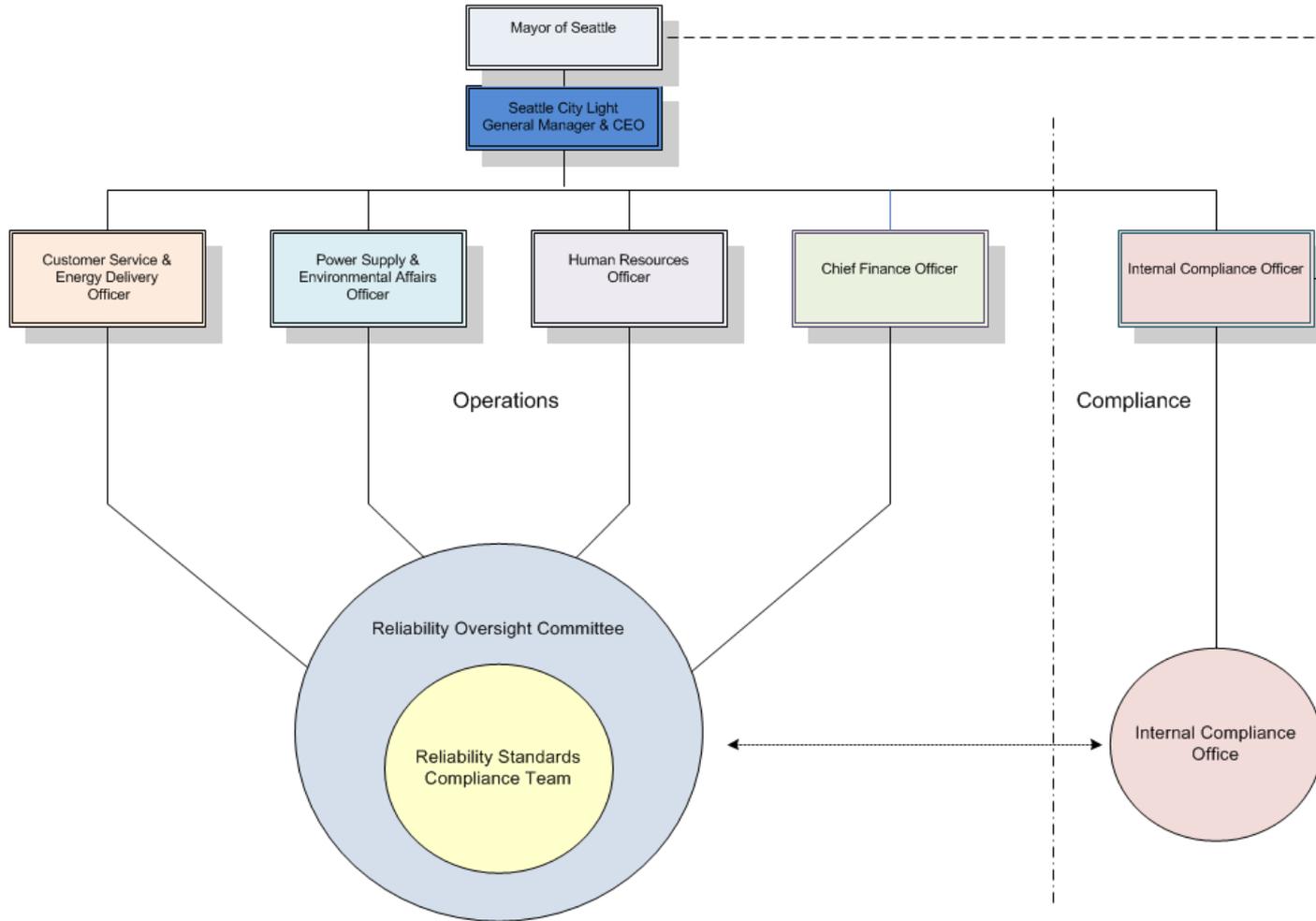


# CITY LIGHT

- Department of the City of Seattle
  - Mayor and City Council
    - Appoint General Manager & CEO
    - Provide legislative and budgetary oversight
  - Employs approximately 1,800
- Nation's 10<sup>th</sup> largest municipal electric utility (customers served)
  - Service area: 131 square miles
  - Area population: 776,000
  - Customers: 403,000
  - Historical System Peak (1990): 2050 MW
  - Generation: 1,810 MW (capacity)
  - Transmission: 650 miles (250 kV & 115 kV)
  - Major Substations: 14



# COMPLIANCE PROGRAM STRUCTURE



# FUNCTIONAL REGISTRATIONS

- Balancing Authority
- Transmission Operator
- Generation Operator
- Distribution Provider
- Generation Owner
- Transmission Owner
- Load Serving Entity
- Planning Authority
- Transmission Planner
- Resource Planner



# AUDIT OVERVIEW

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- When: July 28, 2014 – August 8, 2014
  - 90 Notice: April 25, 2014
  - Evidence Due: June 30, 2014
  - Data Requests start: July 7, 2014
- Audit Team of 15
  - Operations & Planning: 6
  - Critical Infrastructure Protection: 9
- Audit Scope
  - Period: August 13, 2011 – April 28, 2014
  - Registrations: BA – TO – TOP - PA
  - Standards: 36 (245 Requirements)
  - Technical Feasibility Exceptions: 66
  - Pre-Audit Data Requests: 19



# THE RESULTS



|       | Data Requests | Areas of Concern | Recommendations | Possible Violations |
|-------|---------------|------------------|-----------------|---------------------|
| O&P   | 25            | 1                | 0               | 0                   |
| CIP   | 31            | 0                | 2               | 3                   |
| Total | <b>56</b>     | <b>1</b>         | <b>2</b>        | <b>3</b>            |

# HOW DID WE GET THERE - PRINCIPLES

- Support WECC Audit Staff
  - Make Compliance Easy to Find
    - Evidence is sufficient, accurate, precise & timely
  - Build Relationships
    - City Light is responsive & assertive
      - neither aggressive nor timid
    - Open communication
- City Light Cultivates Compliance
  - Through transparency, forthrightness & integrity
    - Abides by the letter & the spirit of Standards
  - It's a Partnership
    - Standard Owners & Compliance succeed together



# HOW DID WE GET THERE - LOGISTICS

- Prepare – Prepare – Prepare
  - Starts 1 year prior Audit start
- Key Elements
  - The 139 Task Check-List
    - Milestones & Check-ups
  - 3<sup>rd</sup> Party Assessment
  - Preparation & Training
    - RSAW 1:1 review & training
    - SO/SME group preparation
    - 3<sup>rd</sup> Party Interview Preparation
  - PDF Portfolios

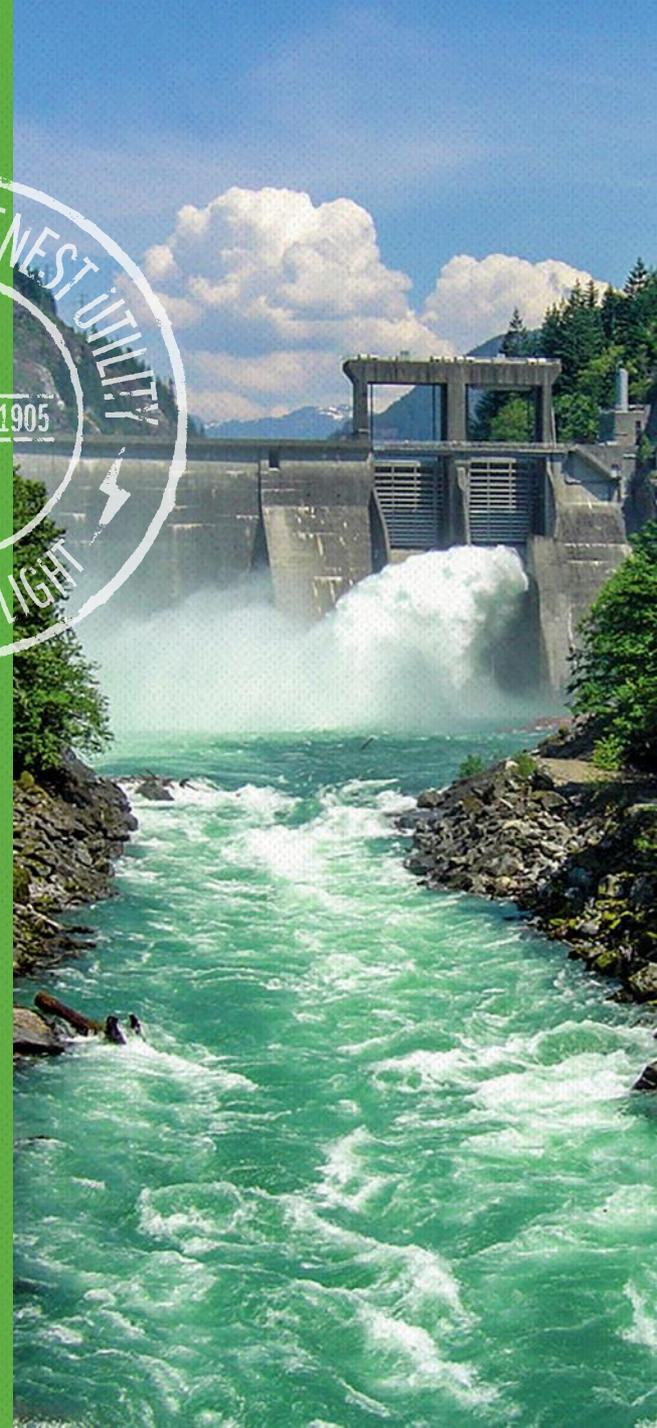
| Task Name   | Duration | Start        | Finish       |
|---|----------|--------------|--------------|
| <b>Phase I - PreAudit Preparation</b>               | 208 days | Wed 5/1/13   | Fri 2/14/14  |
| Third-Party Pre-Audit Assessment                    | 157 days | Wed 5/1/13   | Thu 12/5/13  |
| Prepare & Conduct solicitation                      | 109 days | Wed 5/1/13   | Mon 9/30/13  |
| Select Consultant                                   | 6 days   | Fri 10/4/13  | Fri 10/11/13 |
| Execute Contract                                    | 6 days   | Thu 11/7/13  | Thu 11/14/13 |
| Consultant Kick-Off                                 | 3 days   | Tue 12/3/13  | Thu 12/5/13  |
|   |          |              |              |
| <b>Internal Process</b>                             | 204 days | Tue 5/7/13   | Fri 2/14/14  |
| RSCT Preliminary Notice                             | 1 day    | Tue 8/13/13  | Tue 8/13/13  |
| Internal Kick-off Meeting                           | 1 day    | Tue 10/8/13  | Tue 10/8/13  |
| Operating Section Submit RSAW                       | 1 day    | Mon 12/16/13 | Mon 12/16/13 |
| Compliance review RSAW                              | 6 days   | Mon 12/16/13 | Mon 12/23/13 |
| Consultant Review & Interview                       | 25 days  | Tue 5/7/13   | Thu 1/23/14  |
| Final Reports                                       | 6 days   | Fri 2/7/14   | Fri 2/14/14  |
|   |          |              |              |
| <b>Phase II - Pre Audit Notice Preparation</b>      | 87 days? | Thu 2/20/14  | Fri 6/20/14  |
| Pre-Audit Assessment RSAW Gap Review                | 1 day    | Thu 2/20/14  | Thu 2/20/14  |
| Preliminary Audit preparation Schedule              | 1 day    | Thu 2/20/14  | Thu 2/20/14  |
| Establish ICO Standard assignments; SO and SME List | 46 days  | Mon 3/3/14   | Mon 5/5/14   |
| Assignments   | 6 days   | Mon 4/28/14  | Mon 5/5/14   |
| Backups   | 21 days  | Mon 3/3/14   | Mon 3/31/14  |
| Contact numbers                                     | 21 days  | Mon 3/3/14   | Mon 3/31/14  |
| Compliance - SME                                    | 21 days  | Mon 3/3/14   | Mon 3/31/14  |
| Vacation Hold                                       | 1 day    | Thu 3/6/14   | Thu 3/6/14   |
| Targeted Training Schedule                          | 5 days   | Mon 5/12/14  | Fri 5/16/14  |
| Communications Topic & Schedule                     | 5 days   | Mon 3/10/14  | Fri 3/14/14  |
| Data Tracking & Recording                           | 41 days? | Fri 2/28/14  | Fri 4/25/14  |
| Data Tracking & Recording                           | 0 days?  | Fri 4/25/14  | Fri 4/25/14  |
| Tools & Schedule                                    | 10 days  | Mon 3/24/14  | Fri 4/4/14   |
| Folder mapping                                      | 25 days  | Mon 3/24/14  | Fri 4/25/14  |
| encryption  | 10 days  | Fri 2/28/14  | Thu 3/13/14  |
| Contact Other Utilities Audited                     | 24 days? | Tue 5/20/14  | Fri 6/20/14  |
| Contact Other Utilities Audited                     | 0 days?  | Tue 5/20/14  | Tue 5/20/14  |
| Contact Other Utilities Audited                     | 0 days?  | Fri 6/20/14  | Fri 6/20/14  |
| PGE - Xcel/Colorado - Grant - PSE                   | 24 days  | Tue 5/20/14  | Fri 6/20/14  |
|   |          |              |              |
| <b>Phase III - WECC Initiates Audit Process</b>     | 7 days   | Fri 4/25/14  | Mon 5/5/14   |
| Receive WECC Audit Notification & Data Request      | 6 days   | Fri 4/25/14  | Fri 5/2/14   |
| Receive WECC Audit Notification & Data Request      | 1 day    | Fri 4/25/14  | Fri 4/25/14  |
| Review notification/Data Request                    | 4 days   | Fri 4/25/14  | Wed 4/30/14  |
| Coordinate any modifications/corrections with WECC  | 3 days   | Wed 4/30/14  | Fri 5/2/14   |
| RSAW & Data Request kick-off                        | 1 day    | Mon 5/5/14   | Mon 5/5/14   |
| Schedule & Expectations                             | 1 day    | Mon 5/5/14   | Mon 5/5/14   |
|   |          |              |              |
| <b>Phase IV - Data Preparation &amp; Submission</b> | 46 days  | Fri 4/25/14  | Fri 6/27/14  |
| Operating Unit: Data Preparation                    | 15 days  | Mon 5/5/14   | Fri 5/23/14  |
| Attachment D RSAW                                   | 15 days  | Mon 5/5/14   | Fri 5/23/14  |
| Attachment G Data Request                           | 15 days  | Mon 5/5/14   | Fri 5/23/14  |
| Data Due  | 1 day    | Fri 5/23/14  | Fri 5/23/14  |
| Internal Compliance: Pre-Audit Survey               | 24 days  | Fri 4/25/14  | Wed 5/28/14  |
| Internal Compliance: Pre-Audit Survey               | 24 days  | Fri 4/25/14  | Wed 5/28/14  |
| Attachment F Pre-Audit Survey - Draft               | 19 days  | Fri 4/25/14  | Wed 5/21/14  |
| Final Review  | 4 days   | Thu 5/22/14  | Tue 5/27/14  |
| Internal Compliance Data Submission                 | 1 day    | Wed 5/28/14  | Wed 5/28/14  |
| Internal Compliance: RSAW & Data Sufficiency Review | 40 days  | Mon 5/5/14   | Fri 6/27/14  |
| Attachment D RSAW                                   | 19 days  | Tue 5/27/14  | Fri 6/20/14  |
| Attachment E Certification                          | 35 days  | Mon 5/5/14   | Fri 6/20/14  |
| Attachment G Data Request                           | 19 days  | Tue 5/27/14  | Fri 6/20/14  |
| Data Due - Final                                    | 5 days   | Mon 6/23/14  | Fri 6/27/14  |



IN THE WORDS OF MONTY PYTHON:

“NOW FOR SOMETHING  
COMPLETELY DIFFERENT”

Risk-Based Compliance Monitoring

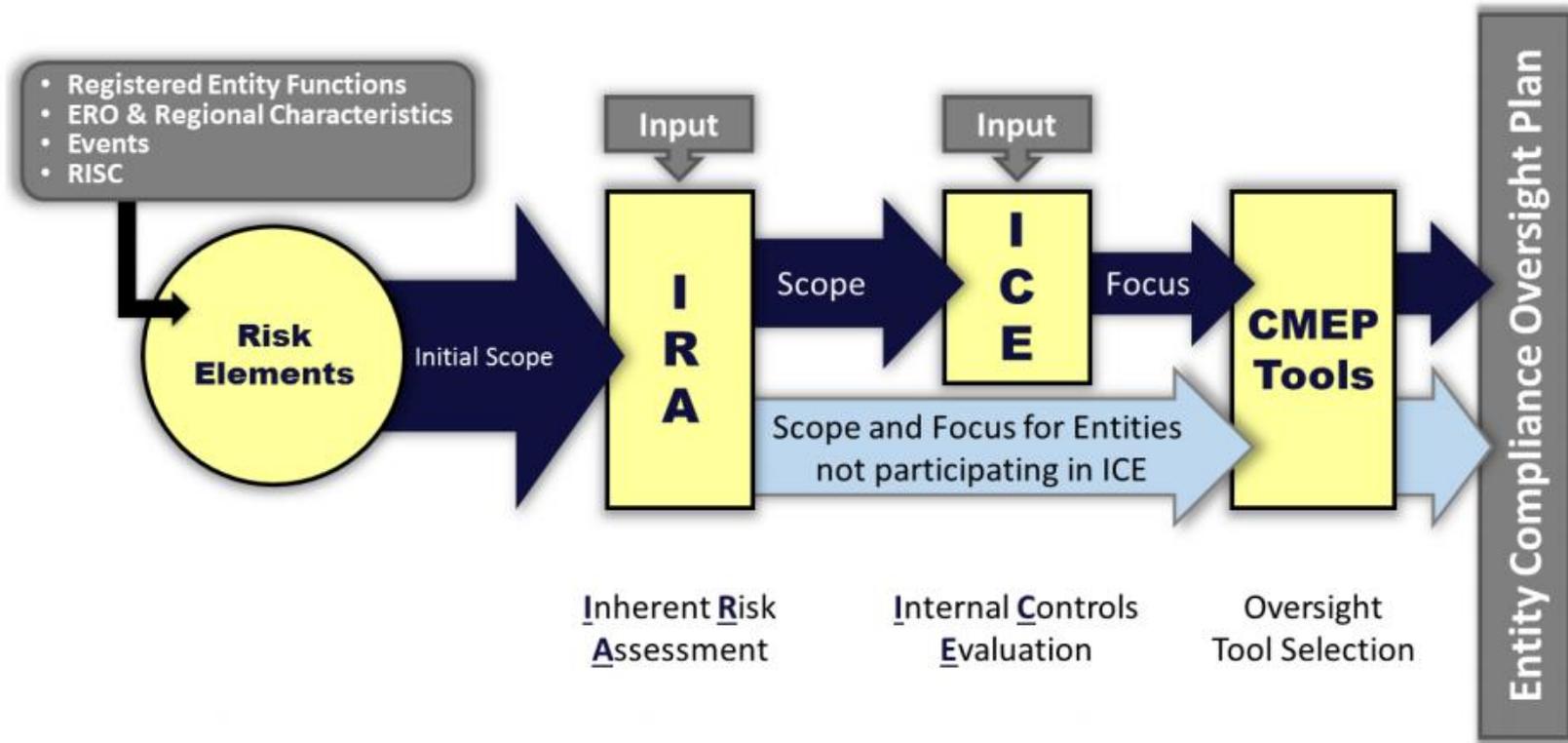


# NERC RELIABILITY ASSURANCE INITIATIVE

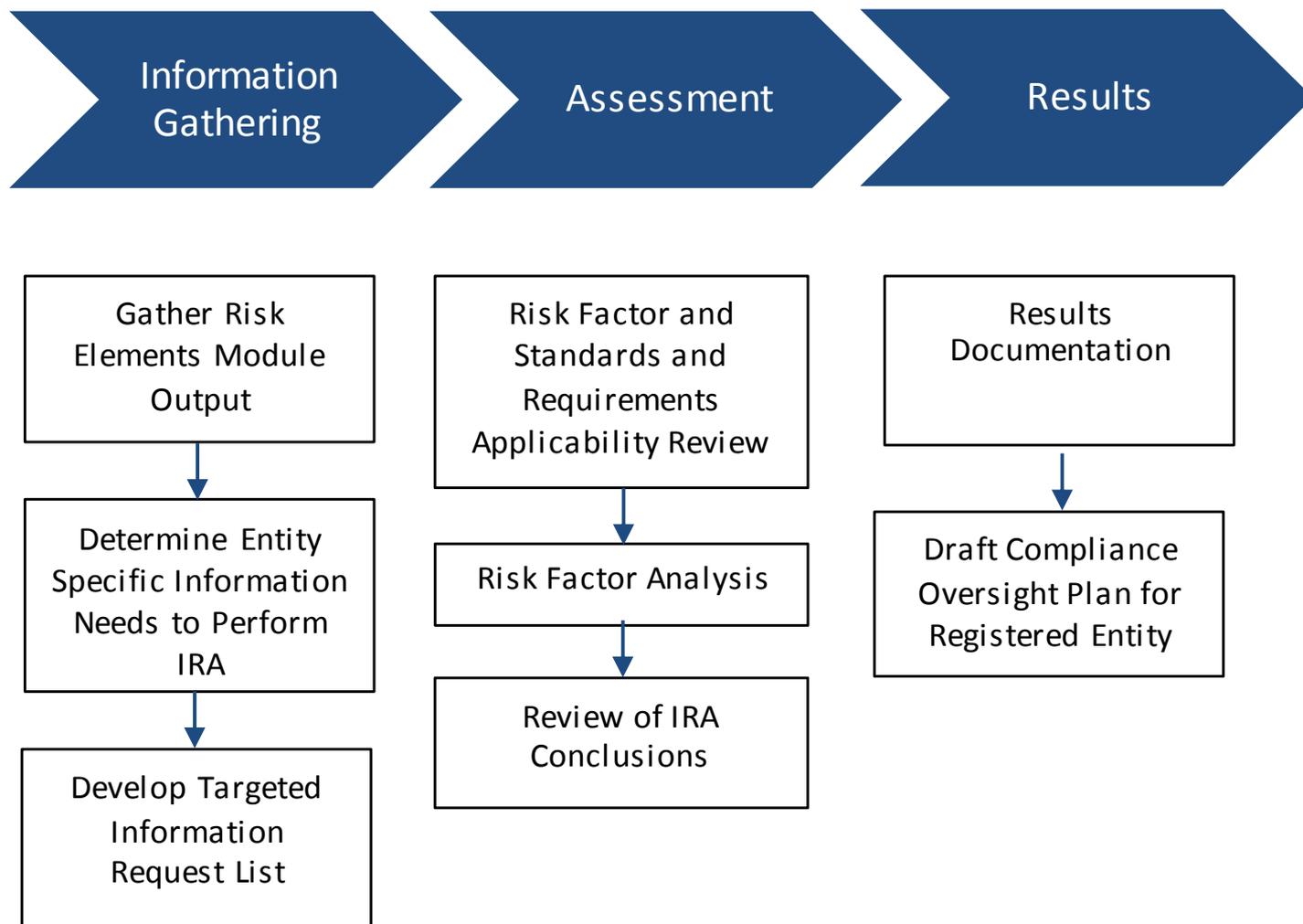
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- What was RAI
  - A collaborative, multi-year NERC lead industry effort
  - To create:
    - A risk-based approach to reliability,
    - To incorporate lessons-learned &
    - To continuously improve.
  - “Because if everything is a priority, nothing is a priority!”
  - Early 2015 FERC approved RAI
    - Implementation begins
    - “Risk-Based Compliance Monitoring & Enforcement Program”

# THE FRAMEWORK



# INHERENT RISK ASSESSMENT PROCESS



# INTERNAL CONTROL EVALUATION PROCESS



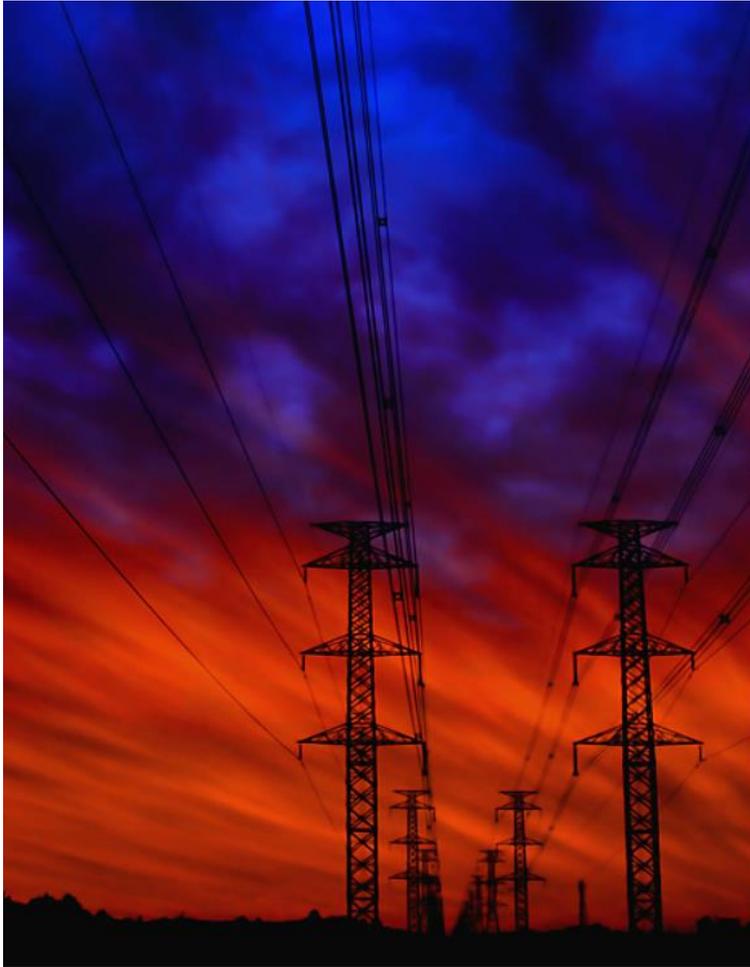
- Scope of ICE is a collaborative effort between Region and Entity
- Entity determines final ICE scope
- Entity creates nothing new
- Examples: management practices, policies, procedures, systems, tools, people, etc.
- Region evaluates what Entity already does in the way that Entity already does it
- Feedback includes maturity levels
- ICE report can help identify areas for improvement in controls that could increase reliability and mitigate risks

# MEET ICE!

| 2015 Risk Element                                   | Guidance Questions   | Description of the Internal Control<br>Please briefly describe the control that ensure compliance with the Reliability Standard described in column B. Consider any controls that ensure the compliance processes will work as designed. Similarly, consider controls that verify the compliance processes results and ensure that processes worked as designed.<br><br>If the same narrative applies to multiple questions, please respond by stating "See #x-ROW NUMBER". Please do not reiterate the narrative.<br><br>If you have any questions about the type of control or the level of detail to provide, please contact Keshav Sarin at 801 819 7648 (ksarin@wecc.biz).  | Applicable Standard(s) and Requirement(s)<br>Please select the requirement applicable for the control described in column C | Applicable Function(s) | Control Type (Preventive/Detective) | Control Frequency (e.g. real-time, daily, monthly, quarterly, annual, etc.) | Control Owner (Name and/or Title of individual responsible for implementation of the control) | Evidence of Control<br>Please list the evidence(s) that sufficiently shows that the described control has been implemented. Evidence may include, but not limited to, screen shots, records, process/procedure documents, emails, logs, reports etc. Please do not provide evidence of compliance with any of the NERC Reliability Standards.<br><br>If the same evidence applies to multiple controls, please respond by stating "See #x-ROW NUMBER". Please do not reiterate the list of evidence(s).<br><br>If you need assistance on the evidence, please contact Keshav Sarin at 801 819 7648 (ksarin@wecc.biz) | Additional Comments<br>Please include any additional comments related to the control, implementation evidence or any other comments for WECC. |
|---|--|--|---|------------------------|-------------------------------------|---|---|--|---|
| Equipment Failure and Protection System Reliability | <ol style="list-style-type: none"> <li>How do you ensure that you have a maintenance and testing program that aligns with the test procedures used for maintenance and testing of protection system devices, UVLS, UFLS and SPS in the field?</li> <li>How do you ensure that all the protection system devices, UFLS, UVLS, SPS are maintained and tested as per the internal identified in your PSMTF?</li> <li>How do you ensure that all the protection system devices, UFLS, UFLS and SPS are maintained and tested as per the procedures identified in your PSMTF?</li> <li>How do you ensure proper data retention of the test records?</li> </ol>  | <p><b>SAMPLE RESPONSE</b><br/>XYZ Generation Station utilizes the functionality of PDQ Database which contains all Protection System devices, tracks, records and stores all protection system device maintenance and testing records in addition to all maintenance and testing procedures for all devices.</p> <p>XYZ utilizes all microprocessor based relays and the maximum interval identified for maintenance and testing is once every 8 years, this includes DC control circuitry, CTs and PTs. XYZ does not have any related communications systems. Normal practice is to conduct maintenance and testing of protection system devices during each 24 month outage. If relay records have not been updated in PDQ for 6 years a reminder is sent to the Sr. Electrical Engineer to schedule the maintenance and testing during the next scheduled outage.</p> <p>Batteries are continuously monitored via plant SCADA. Each quarter specific gravity and cell impedance is record. PDQ generates a work order the first day of each quarter for the quarterly inspection. If battery records have not been recorded by the end of month 2 during a given quarter a reminder is sent out weekly until PDQ has been updated.</p>                                      | <p>PRC-005-1b R1,<br/>PRC-009-0 R1,<br/>PRC-011-0 R1<br/>PRC-017-0 R1</p>   | DP, GO, TO             | Preventive                          | real-time   | Jane Doe, Sr. Plant Engineer  | <p>Examples from PDQ:<br/>Protection System Device test procedures, PDQ screen shots of programmed testing intervals, PDQ screen shot of reminder notices</p>  |   |
| Protection System Reliability                       | <ol style="list-style-type: none"> <li>How do you ensure that each Transmission Protection System operation is analyzed to confirm if it was normal operation or a misoperation?</li> <li>If a misoperation is identified, how do you ensure that Corrective action plan is developed for the misoperation?</li> <li>If a misoperation is identified, how do you ensure that the misoperation is reported to WECC in a timely manner?</li> <li>If a misoperation is identified, how do you ensure that Corrective action plan is implemented in a timely manner to avoid recurrence of misoperation?</li> </ol>  | <p><b>SAMPLE RESPONSE</b><br/>Each time maintenance and/or testing is completed on a device the technician submits the completed documentation to the electrical superintendent. Upon completion of the superintendents review, the superintendent uploads the completed work into PDQ. All maintenance and testing intervals are programmed into PDQ, therefore, when the superintendent enters the latest test records the next maintenance and testing due date is established. Upon submittal of protection system device maintenance and testing records, the Sr. Plant Electrical Engineer reviews all records associated with the relay, DC control circuitry, CT's and PT's. Upon completion of the review the Sr. Plant Engineer documents the review is complete and uploads the document into PDQ.</p> <p>Upon completion of the quarterly maintenance and testing of batteries the electrical superintendent reviews all records, upon completion of the review the superintendent uploads the records into PDQ. The Sr. Plant Engineer randomly selects and reviews two quarterly battery records from the previous year. Upon completion of the review the Sr. Plant Electrical Engineer documents the review is complete and uploads the document into PDQ.</p> | <p>PRC-005-1b R2,<br/>PRC-009-0 R2,<br/>PRC-017-0 R2<br/>PRC-016-1 R1</p>   | DP, GO, TO             | Detective                           | real-time quarterly   | John Smith, Sr. Plant Engineer  | <p>Controls Process and Procedure manual, Superintendent's sign-off, Documentation of sampling and review by Sr. Plant Engineer</p>  |   |
| Protection System Reliability                       | <ol style="list-style-type: none"> <li>How do you ensure that you have a maintenance and testing program that aligns with the test procedures used for maintenance and testing of protection system devices, UVLS, UFLS and SPS in the field?</li> <li>How do you ensure that the protection system, UVLS, UFLS, SPS maintenance and testing program adheres to the changes in the PRC-005 standard?</li> <li>How do you ensure that all the protection system devices, UFLS, UVLS, SPS are maintained and tested as per the internal identified in your PSMTF?</li> <li>How do you ensure that all the protection system devices, UVLS, UFLS and SPS are maintained and tested as per the procedures identified in your PSMTF?</li> <li>How do you ensure proper data retention of the test records?</li> </ol> |  | <p>PRC-004-2.1a R1,<br/>PRC-004-2.1a R2,<br/>PRC-004-WECC-1 R1,<br/>PRC-004-WECC-1 R2</p>                                   |                        |                                     |   |   |  |   |
| Protection System Reliability                       | <ol style="list-style-type: none"> <li>How do you ensure that your relay settings will be able to maintain reliable protection of the BES for all fault conditions?</li> <li>How do you choose a criteria for any specific circuit terminal to prevent its phase protective relay settings from limiting transmission system localizability?</li> <li>How do you maintain documentation for the selected criteria specific for the circuit terminal?</li> <li>How do you ensure that the documentation for the selected criteria is updated if there is a new relay is installed?</li> </ol>   |  | <p>PRC-001-1.1 R3<br/>PRC-001-1.1 R4<br/>PRC-001-1.1 R5<br/>PRC-001-1.1 R6</p>  |                        |                                     |   |   |  |   |
|   |  |  | <p>PRC-023-3 R1</p>   |                        |                                     |   |   |  |   |

# QUESTIONS?

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## Thank You

Cathy Leone-Woods  
Internal Compliance Office  
206-615-0642  
[cathy.leone-woods@seattle.gov](mailto:cathy.leone-woods@seattle.gov)



# CITY LIGHT

## OUR VISION

To set the standard—to deliver the best customer service experience of any utility in the nation.

## OUR MISSION

Seattle City Light is dedicated to exceeding our customers' expectations in producing and delivering environmentally responsible, safe, low-cost and reliable power.

## OUR VALUES

Excellence, Accountability, Trust and Stewardship.

