• NERC Antitrust Guidelines
  - It is NERC’s policy and practice to obey the antitrust laws and to avoid all conduct that unreasonably restrains competition. This policy requires the avoidance of any conduct that violates, or that might appear to violate, the antitrust laws. Among other things, the antitrust laws forbid any agreement between or among competitors regarding prices, availability of service, product design, terms of sale, division of markets, allocation of customers or any other activity that unreasonably restrains competition.

• Notice of Open Meeting
  - Participants are reminded that this webinar is public. The access number was widely distributed. Speakers on the call should keep in mind that the listening audience may include members of the press and representatives of various governmental authorities, in addition to the expected participation by industry stakeholders.
• Operations Support Personnel Definition
• PER-005-2 Operations Support Personnel Requirement
• Analysis by Industry
• Questions to Ask
• Question Overview
• Entity Examples:
  ▪ American Electric Power (AEP)
  ▪ Otter Tail Power
• Examples of Job Titles
• PER-005-2 Draft RSAW
• Q&A
• Operations Support Personnel – Individuals who perform current day or next day outage coordination or assessments or who determine SOLs, IROLs, or operating nomograms, in direct support of Real-time operations of the Bulk Electric System.
  
  ▪ Footnote one: Nomograms are used in the WECC Region to describe element operating limits.
  
  ▪ Definition developed with PER-005-2
R5. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall use a systematic approach to develop and implement training for its identified Operations Support Personnel on how their job function(s) impact those BES company-specific Real-time reliability-related tasks identified by the entity pursuant to Requirement R1 part 1.1.  

Violation Risk Factor: Medium  Time Horizon: Long-term Planning

5.1 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall conduct an evaluation each calendar year of the training established in Requirement R5 to identify and implement changes to the training.
Initial discussions have begun by registered entities
  - Job functions have an “impact” is baseline question
NERC definition makes sense to those developing training
  - Observable handoffs to system operators
Not a significant burden to incorporate additional personnel
• Which internal department responsible for determining equipment and line ratings?
  ▪ Ratings used for SCADA alarms
  ▪ Determining System Operating Limits (SOLs)
  ▪ Determining Interconnection Operating Limits (IROLs)

• Which internal department responsible for “outage coordination” function?
  ▪ Creating switching schedules
  ▪ Reviewing switching request information
  ▪ Developing switching orders
  ▪ Coordinating with internal department responsible for real-time/operational planning
 Questions to Ask

• Which internal department responsible for “real time/operational planning” function that impact Real-time reliability-related tasks?
  - Conducting next day studies
  - Developing operating guides
  - Knowledgeable on state estimator
  - Data analysis for on-line power flow
  - Developing contingency analysis modules
American Electric Power (AEP)
Operations Support Personnel
PER-005-2; Requirement R5
Purpose:
The purpose of this presentation is to Illustrate the methodology American Electric Power (AEP) implemented to identified their Operations Support Personnel in compliance to NERC Standard PER-005-2.

Objective:
1. Identify Operations Support Personnel in compliance to NERC Standard PER-005-2; Requirement R5.
There are several methodologies that functional entities can implement to identify their Operations Support Personnel in compliance to PER-005-2, Requirement R5. American Electric Power developed and implemented its Operations Support Personnel project plan based on the following items:

- NERC Standard PER-005-2; Requirement R5
- NERC definition of Operations Support Personnel
- Management commitment and support
- Organization functional and operational structure
The training organization developed a project plan based on PER-005-2; Requirement R5, NERC definition of Operations Support Personnel and the organization’s functional and operational structure.

The project plan was submitted to Management and Compliance for discussion and approval.

The process (analysis) to identify Operations Support Personnel began once Management approved the project plan.
R5: Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall use a systematic approach to develop and implement training for its identified Operations Support Personnel on how their job function(s) impact those BES company-specific Real-time reliability-related tasks identified by the entity pursuant to Requirement R1 part 1.1.

5.1. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall conduct an evaluation each calendar year of the training established in Requirement R5 to identify and implement changes to the training.
Operations Support Personnel:

*Individuals* who perform *current day* or *next day outage coordination* or *assessments*, or who determine *SOLs*, IROLs, or operating nomograms*, in *direct support* of *Real-time operations* of the Bulk Electric System.

*Nomograms are used in the Western Electricity Coordinating Council (WECC) Region to describe element operating limits.*
• American Electric Power has a defined process for transmission outage studies and System Operating Limits (SOL) coordination with the real-time System Operators.

• This process or set of tasks are performed by Operations Engineers within Transmission Operations. The Operations Engineers coordinate directly with System Operators and Reliability Coordinators.
• The training department identified potential Operations Support Personnel within the Operations Engineering department (Operations Engineers).

• A survey based on the NERC definition of Operations Support Personnel was administered to each Operations Engineer.

• The survey was used to self identify candidates that met the criteria of Operations Support Personnel.
The candidates completed a fill-in form providing a describing of their daily tasks a few weeks after the survey. A task format example was provided on the fill-in form for each Operations Engineer.

This process was used to verify/validate the survey information.
Trainers interviewed and observed candidates performing their job function (tasks) several weeks after the task fill-in form was completed.

This process was used to verify/validate the survey and task fill-in form information.
The initial tasks list for Operations Support Personnel was based on the survey, task fill-in form and interview/observation information (process).

- **Example: This is a limited Initial Tasks List**
  1. Coordinate outages with other TOs and the RC
  2. Enter outages into the RC outage system
  3. Run studies in PSSE and/or Alstom
  4. Create and update load shed program
  5. Coordinate element limits with RC
  6. Enter element limits into EMS and/or SCADA
  7. Write real-time operating procedures
  8. Revise System Restoration Plan (Black Start)
  9. Solve SCADA display and metering issues
  10. Coordinate element outages with transmission dispatch centers
  11. Analyze the impact of protection and control equipment outages
  12. Deny or modify equipment outages
The initial tasks list was mapped to the Bulk Electric System (BES) company-specific Real-time reliability-related tasks identified pursuant to PER-005-2; Requirement R1 (1.1).

- These are limited examples

1. Coordinate outages with other TOs and the RC
2. Enter outages into the RC outage system
3. Run studies in PSSE and/or Alstom
4. Create and update load shed program
5. Coordinate element limits with RC
6. Enter element limits into EMS and/or SCADA
7. Write real-time operating procedures
8. Revise System Restoration Plan (Black Start)
9. Solve SCADA display and metering issues
10. Coordinate element outages with TDC’s
11. Analyze the impact of P&C equipment outages
12. Deny or modify equipment outages

- RR.1.2 Enforce compliance of operating reliability limits
- RR.1.3 Deploy reactive resources to maintain acceptable voltage profiles
- RR.1.7 Provide real-time system information to the Reliability Coordinator
- RR.2.4 Monitor system load and generation
- RR.3.3 Perform next-day reliability analysis of the electric system
- RR.3.6 Implement transmission outages to ensure system reliability
- RR.5.2 Perform same-day reliability analysis of the electric system
• The mapped tasks (PER-005-2; Requirement R1 part 1.1) were selected for Operations Support Personnel.
  
  o **Example: Tasks List**
    
    RR.1.2 Enforce compliance of operating reliability limits
    RR.3.3 Perform next-day reliability analysis of the electric system
    RR.3.6 Implement transmission outages to ensure system reliability
    RR.5.2 Perform same-day reliability analysis of the electric system
    RR.N.N Additional Tasks
• The mapped tasks (PER-005-2; Requirement R1 part 1.1) were converted to knowledge-based tasks.
  ▪ RR.1.2 Enforce compliance of operating reliability limits
    o The trainee will recognize the impact of enforcing compliance of operating reliability limits in accordance with RTO policy.
  ▪ RR.3.3 Perform next-day reliability analysis of the electric system
    o The trainee will recognize the impact of performing next-day reliability analysis of the electric system in accordance with RTO policy.
The training team provided project status (update) to Management and Compliance.

Next Step: Course Design
• Identification of Operations Support Personnel

Create Project Plan
PER-005-2;R5
NERC Definition

Management and Compliance Meeting

Pre-Assessment Survey

Self-Assessment Form

Interview/Observation Form

Map Tasks

Select Task
Create Learning Objectives

Management and Compliance Meeting

Course Design
Purpose:
Define the methodology Otter Tail Power Company (OTP) implemented in compliance to PER-005-2 Requirement R5, and review considerations utilized in the determination of their course of action.

Objective:
1. Define OTP’s Process utilized in PER-005-2 Requirement R5 Compliance Efforts.
2. Describe attributes for others to consider while instituting their application of the standard.
3. List Resources to further explain requirements and the measurements of the Standard.
The purpose of this presentation section is to review the application of process regarding Otter Tail Power Company’s method to ensure both Operational Excellence while also providing a basis for regulatory compliance evidence.

The following explanation of process and methods utilized by Otter Tail Power Company does not guarantee compliance for another registered entity. These illustrations are offered to our industry peers in an informational sharing spirit to aid in the sharing of information and methods to ensure we all move forward together in the effort to operate the North American Electrical Grid as reliably and efficiently as possible.
Project Mapping of PER-005-2 R5

1. Analysis of Application of PER-005-02
2. Compile Project Plan and meet with Management/Compliance Parties
3. Define Terms
4. Define OTP Positions to applicable Defined Functions
5. Create Process List from PSO RR Task List
6. Interview Position Personnel for Process Description and Analysis
7. Link PSO Task to Process. Define Performance Impacts on PSO Tasks
8. Author Learning Objectives, Create Content/Assessment
9. Deliver and Record Training
• How do we define “Impact” of Operations Support Personnel actions on Power System Operator Tasks?

• How to define what job positions have an impact on Power System Operator Tasks?

• Does the training program need to be in place by the implementation date?

• Does the training have to be completed by the Standard Implementation date?

• Can job incumbents forgo training if there is no individual training need or performance gap?

• What internal group will complete the project, and who will maintain the program once implemented?
What is the definition of Impact? NERC uses this term in the Standard as follows: “...impact on those BES company-specific Real-time reliability-related tasks”). NERC does not have a stated definition for “impact”. The Webster Dictionary uses these phrases in its definition: “to have a direct effect” and to “to make contact”. One suggestion is to define “impact” as a critical input used in BES real-time reliability tasks. The point of analysis would be at the observable handoff (e.g. next day study, switching schedule, switching orders, operating guide, etc.).
• What job positions have an “impact”? The NERC definition of Operations Support Personnel provides some guidance: “Individuals, who perform current day or next day outage coordination or assessments, or who determine SOLs, IROLs, or operating nomograms, in direct support of Real-time, operations of the Bulk Electric System”.

Definition of Impact Continued
• **Systematic Approach to Training - Needs analysis**
  
  The PER-005 Standard R5 states that each “Reliability Coordinator, Balancing Authority, and Transmission Operator shall use a systematic approach to develop and implement training for its identified Operations Support Personnel on how their job function(s) impact on those BES company-specific Real-time reliability-related tasks identified by the entity pursuant to Requirement R1 part 1.1.”
• **What level of training is needed?**
  
  ▪ NERC documents refer to the possibility of using existing System Operator training to help meet requirement R5. This suggests that the “spirit of the Standard” is to use a more robust approach.
  
  ▪ OTP’s approach was to create independent training modules for each OSP Position ensuring the LO’s are both specific to their awareness of impact of the performance of the support staff as to the identification of dependency of the PSO RR Task on that of the OSP Function.
  
  ▪ A more conservative approach is to build the training program using some of the courses delivered to System Operators with the incorporation of the impact awareness.
Deadline for Training Program Creation?

- The creation of a training program that identifies training needs, training solutions, and evaluation should be done by the implementation date of July 01, 2016. In addition, the following steps should be completed: Needs Analysis, Training Solutions (program or courses), and Training Records.

Deadline for Completion of Training?

- Are we only required to have the training in place or do we also need to have the training completed?

- This suggests that training should be completed by the implementation date. OTP has taken the approach that it will be completed by the July 01, 2016 compliance implementation date.
• M5. Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection evidence that Operations Support Personnel completed training in accordance with its systematic approach. This evidence may be documents such as training records showing successful completion of training. Documentation of training shall include employee name and date of training.

• M5.1 Each Reliability Coordinator, Balancing Authority, and Transmission Operator shall have available for inspection evidence (such as instructor observations, trainee feedback, supervisor feedback, course evaluations, learning assessments, or internal audit results) that it performed an evaluation each calendar year, as specified in Requirement R5 part 5.1.
Much of the content Discussion was provided as a summary of discussions held by Members of the MISO SOTWG with major contributions from:

- **Will Behnke** (Alliant Energy)
- **Shannon Bolan/Brian Goracke** *(NPPD)*
- **John Pettingill** *(Xcel)*
Below are some examples, but are not limited to these titles:

- Clearance coordinators
- Real-time planning engineers
- Outage Coordinators
- Operating Engineers
- Etc.
• PER-005-2 standard effective July 1, 2016
• Draft RSAW located on PER-005-2 Project Page
Questions and Answers

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