

2012 Study Guide for NERC System Operator Certification Exam

The content outline for an examination is the best source for the subject material. The exam content outline is the framework used to associate tasks to exam questions. It is the responsibility of each candidate to prepare for an examination on the subject material contained in the content outline for a particular examination.

The **Content Outlines** (click on exam title below) are a comprehensive listing of job duties performed by the System Operator. These outlines were developed from a NERC-wide job analysis where system operators indicated the importance of the various job duties or tasks. The outlines are divided into work activities such as:

- Resource and Demand Balancing
- Emergency Preparedness and Operations
- System Operations
- Interchange, Scheduling and Coordination
- Transmission Operations
- Protection and Control
- Voltage and Reactive
- Interconnection Reliability Operations and Coordination

These align with the PER-003-1
Areas of Competencies

Within these broad areas of work activities are the individual task statements. Tasks that an individual may perform vary in their complexity.

Content Outline for Examination Title	Total Scored Questions	Recall Questions	Application Questions	Analysis Questions	Number correct to Pass
Reliability Operator Certification Examination	125	36	55	34	96
Balancing, Interchange, and Transmission Operator Certification Examination	125	41	58	26	94
Transmission Operator Certification Examination	100	30	46	24	75
Balancing and Interchange Certification Examination	100	34	60	6	75

Piloting Questions

Before a question is used in a scored position on an examination its performance is piloted as an un-scored question to determine the level of difficulty of the individual question. Each of our examinations contains piloted questions that do not affect the candidate's score and are indistinguishable from the scored questions.

Examination Specifications

An examination is built to a set of specifications that includes how many scored questions, how many pilot questions, how many of each type recall/application/analysis questions, and the overall level of difficulty. The overall level of difficulty is determined by averaging the individual levels of difficulty of each question.

Study Guide

As an aid in preparation for one of the system operator certification examinations, the Personnel Certification Governance Committee has authorized the release of the following information about the examinations. The list below is not all inclusive; however, the following should be reviewed while preparing for one of the system operator certification examinations.

The list below, in conjunction with the **content outline for the examination**, should be used as a study guide.

- NERC Reliability Standards effective 10/1/2011 for System Operator Certification Exam
Particularly NERC Glossary of Terms, BAL, COM, EOP, INT, IRO, TOP, VAR
Located in [NERC System Operator Certification Program Site](#)
- Power System Operation, Third Edition, authors: Miller and Malinowski
Particularly Chapters 1, 2, 3, 5, 6, 10, 11, and 12
Available from commercial book sellers
- EPRI Power System Dynamics Tutorial (published July 27, 2009) in particular the Glossary and chapters: 2, 3, 4, 5, 6, 7, 8, 9, and 11.
www.epri.com, enter 1016042 in the Search window, download free

Additional Information on Cognitive Complexity of Questions

Some tasks are relatively easy to perform and require identification, recall, or recognition of words or concepts. Other tasks require a higher degree of reasoning or problem-solving to perform and may require classification, explanation, or differentiation. Then there are more complex tasks involving evaluation, judgment, or inductive reasoning. For this reason questions on an examination are classified into three cognitive levels: Recall, Application, and Analysis.

Recall

Recall questions primarily test the recognition of isolated information, which generally does not vary relative to the situation. This type of question will ask for information that could be directly found in a textbook or other source. They include the recall of specific facts, generalizations, concepts, principles, processes, procedures, or theories. Example of a recall type question:

Operating Reserve can be provided by:

- A. tap changers
- B. capacitor banks
- C. voltage regulators
- D. interruptible loads

Application

Application questions primarily test interpretation of data by applying acquired knowledge, facts, and rules to solve a problem. They include questions that require translation into another form of specific verbal, tabular, or graphical data, and recognition of relationships among such data. Example of an application type of question:

Generation is not sufficient to meet load, the Balancing Area is importing to its limits and voltage is decaying. Which of the following actions should be taken by the System Operator?

- A. shed load
- B. correct schedule deviation
- C. use the interconnection hotline
- D. schedule interchange transaction

Analysis

Analysis questions require integration of a variety of concepts or elements to solve a specific problem and primarily test the evaluation of data, problem solving, or inductive reasoning. These questions will require examinees to make judgments concerning the effectiveness, appropriateness, or best course of action for an unusual situation. Example of an analysis type of question:

A system is connected to neighboring systems and has interchange schedules. Tie-line metering is acceptable, but frequency indication has been lost. Which of the following is the best control mode to use?

- A. tie-line frequency bias
- B. constant net- interchange
- C. constant frequency
- D. suspend

These three different cognitive levels represent increasing levels of difficulty due to the design of the question, not necessarily the subject matter. Within each of these cognitive levels, the level of difficulty of an individual question can vary.