

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

System Operator Certification Program Manual

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RELIABILITY | RESILIENCE | SECURITY



3353 Peachtree Road NE
Suite 600, North Tower
Atlanta, GA 30326
404-446-2560 | www.nerc.com

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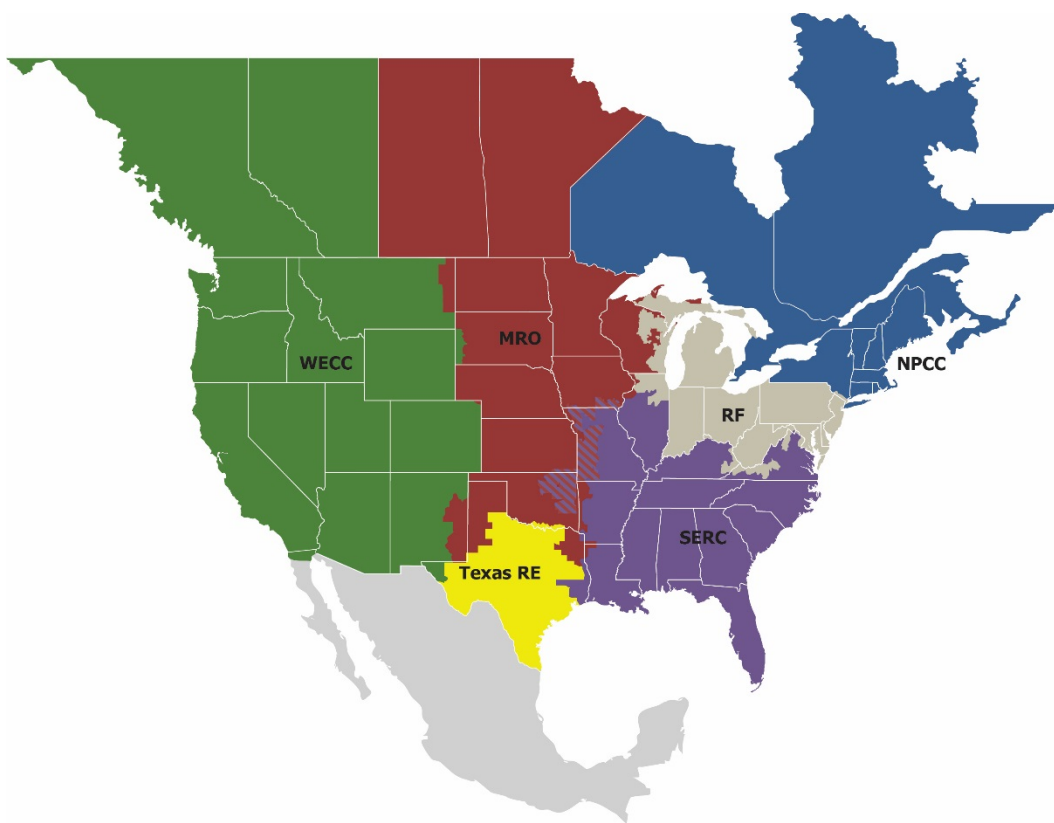
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Preface

Electricity is a key component of the fabric of modern society and the Electric Reliability Organization (ERO) Enterprise serves to strengthen that fabric. The vision for the ERO Enterprise, which is comprised of the North American Electric Reliability Corporation (NERC) and the six Regional Entities (REs), is a highly reliable and secure North American bulk power system (BPS). Our mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid.

Reliability | Resilience | Security
Because nearly 400 million citizens in North America are counting on us

The North American BPS is divided into six RE boundaries as shown in the map and corresponding table below. The multicolored area denotes overlap as some load-serving entities participate in one Region while associated Transmission Owners/Operators participate in another.



MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RF	ReliabilityFirst
SERC	SERC Reliability Corporation
Texas RE	Texas Reliability Entity
WECC	Western Electricity Coordinating Council

Introduction

The System Operator Certification (SOC) Program promotes skilled and qualified system operators to ensure the reliability of the Bulk Electric System (BES).

NERC does not and shall not discriminate on the basis of age, gender, race, religion, national origin, disability, sexual orientation, or marital status in its implementation of the SOC Program.

The SOC Program provides the framework for operators to obtain initial certification in one of four NERC credentials: Reliability Coordinator (RC); Balancing, Interchange, and Transmission Operator (BT); Transmission Operator (TO); and Balancing and Interchange Operator (BI). A system operator credential is a personal credential that NERC issues to a person for successfully passing a NERC SOC exam. Each credential focuses on a specific functional area of system operations. Operators maintain each credential by accumulating a specified number of Continuing Education Hours (CEHs) within a specified period of time.

The NERC Personnel Certification Governance Committee (PCGC) is the governing body that establishes policies, sets fees, monitors the performance of the SOC Program, and ensures that the program is financially independent. NERC is the program administrator and maintains databases, records, applications, and contracts with vendors. NERC also collects fees, responds to inquiries, and provides reports on related SOC activities.

Chapter 1: Certification Examinations

Overview

Through the SOC Program, NERC awards certification credentials to individuals who demonstrate that they have attained sufficient knowledge relating to NERC Reliability Standards as well as the basic principles of BPS operations by passing one of four examinations. NERC issues a certificate to a candidate who successfully completes an examination, and it remains valid for three years.

Members of the Exam Working Group (EWG) represent each of the areas tested in the examinations. The direct involvement of system operators, supervisors, and trainers in the examination development process is a primary requirement for NERC SOC examinations. The EWG develops the examinations under the guidance of a psychometric consultant. The EWG bases the examinations on content outlines developed through a job analysis. The EWG places each question in a “pilot” (not scored) position on the examination before using it in a “scored” position. Only questions that meet acceptable performance criteria can be placed in a scored position on an exam. The EWG continually tracks the performance of every question used in a scored position.

Examinations

Examination Title	Designation	Total Questions	Scored Questions	Cut Score
Reliability Coordinator Certification Examination	RC	140	120	89
Balancing, Interchange, and Transmission Operator Certification Examination	BT	140	120	89
Transmission Operator Certification Examination	TO	120	100	74
Balancing and Interchange Operator Certification Examination	BI	120	100	74

These computer-based exams consist of questions with multiple-choice answers. The content outlines can be accessed from the [SOC Program web page](#). The PCGC approves the passing score for each new published exam, and the score can also be found on the SOC web page with exam resources.

The number of correct responses required to pass (cut score) is set by a panel of practitioners using a rigorous standard setting methodology. This methodology requires subject matter experts to establish a definition of minimum acceptable competence for each examination and conduct an evaluation of each examination question in order to set the minimum level of performance necessary on each examination to demonstrate competence (**Table 1.1**).

Each candidate’s examination is developed to be equal in difficulty level to other candidates’ examinations to ensure a fair and consistent standard is applied to each candidate. To this end, each examination consists of scored examination questions that have been administered to candidates and have acceptable statistical characteristics.

Examination Process

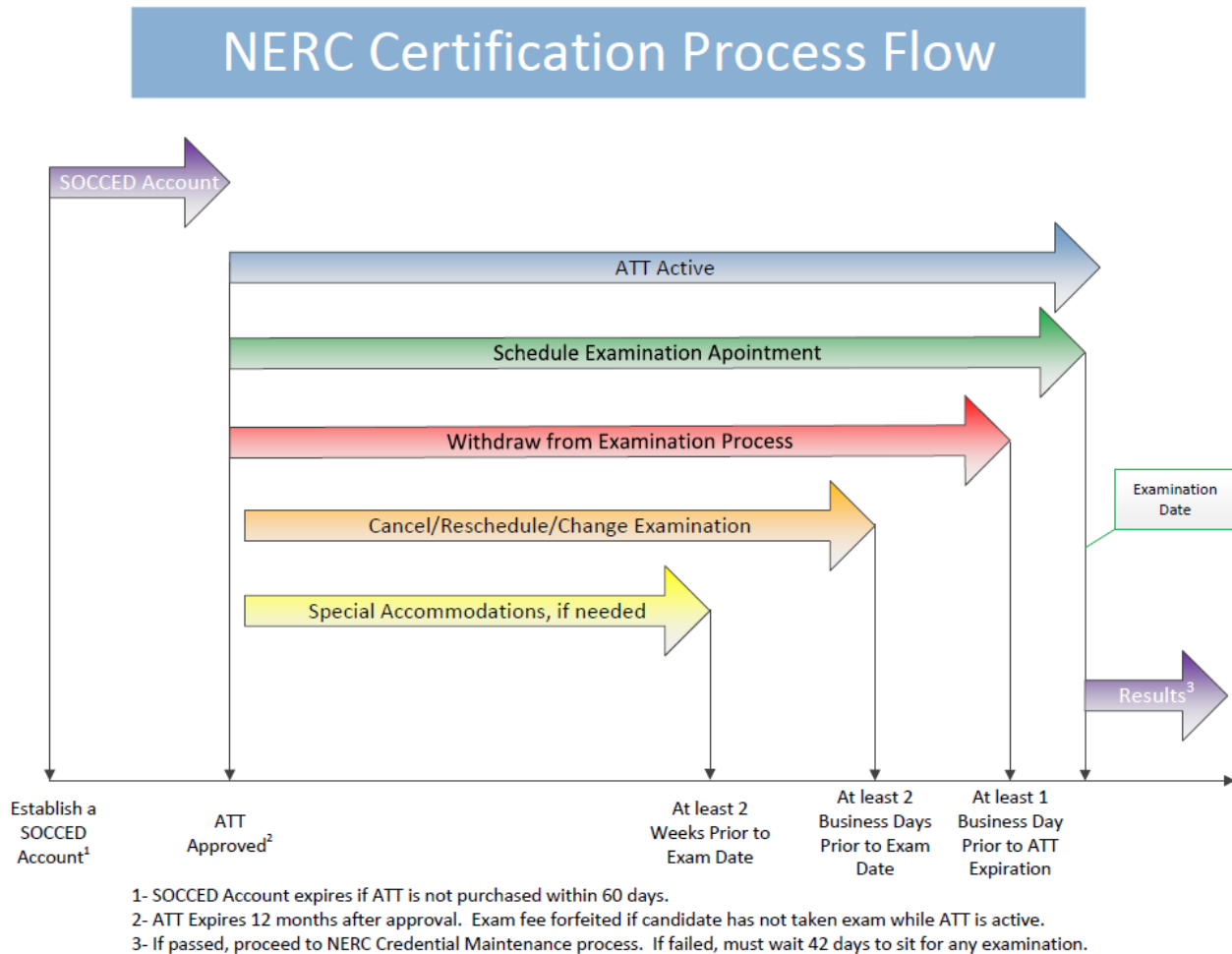


Figure 1.1: NERC Certification Process Flowchart

Obtain an Authorization to Test

To request authorization to take a test, candidates must establish an account in the [System Operator Certification and Continuing Education Database](#) (SOCCED). Applications are accepted all year (24 hours a day, 7 days a week, and 365 days a year). Once NERC approves the account, the candidate has up to 60 days to purchase an Authorization-to-Test (ATT). Upon purchase of the ATT, candidates will receive an email from PSI with further instructions within 24 hours. The ATT is necessary for the candidate to schedule an exam. Once the ATT number is acquired, the candidate can schedule an appointment for testing by using the [PSI website](#)

Note: If an ATT is not purchased in 60 days, the account will expire.

An ATT is valid for one year after the issuance date and can only be used once. **If a candidate fails to schedule and sit for the exam within the one-year eligibility period, the candidate shall forfeit the exam fee to NERC.**

Scheduling an Examination Appointment

Once the ATT number is acquired, the candidate can schedule an appointment for testing, using [PSI's website](#). Candidates will follow the instructions for scheduling an exam that are sent from PSI. Examination appointments are subject to the availability of each test center.

Note: When a candidate schedules a test date, PSI will issue the candidate a confirmation number. Candidates should retain this number. It is required for check-in, for PSI's automated cancellation system, or if there is a conflict with the test center appointment. FAQs and the Candidate Information Bulletin are on the PSI website.

Canceling and Rescheduling Examination Appointments

Candidates may cancel and reschedule examination appointments without forfeiting the examination fee if the cancellation notice is provided to PSI by close of business time of that test center at least two business days prior to the scheduled exam appointment time. Examination fees are nonrefundable and nontransferable.

To cancel or reschedule exam appointments, visit the [PSI website](#) or call PSI at 800-733-9267 and speak to a PSI Customer Service Representative. A voice mail message is not an acceptable form of cancellation.

Examination Change Request

Candidates may change the examination that they previously registered for by using the SOCCED within the existing ATT number's eligibility period. Once the examination is changed, NERC will issue the candidate a new ATT number. This new ATT number will have the original expiration date of the existing ATT number. After candidates receive their new ATT, candidates must schedule/reschedule an appointment with PSI to take the exam. Notification must be received by PSI no later than close of business time of that test center at least two business days prior to the scheduled exam appointment for making this change or for submitting any additional change.

Withdrawal from Examination Process

The eligibility period lasts until one year after the date NERC issues an ATT number. If a candidate wishes to withdraw from the process within the one-year period for any reason, the candidate must request a withdrawal by close of business the day before the last eligibility day. Candidates who submit the request within the time period will be reimbursed for the fees submitted to NERC except the withdrawal fee. The candidate will forfeit all submitted fees if the candidate fails to properly withdraw.

Note: If a candidate has already scheduled an appointment with PSI to take the exam, the candidate must cancel that appointment with PSI or forfeit the exam fee.

Special Accommodations for Disabilities

NERC will make allowances for all documented requests for special testing conditions. Applicants must notify the NERC personnel certification manager by email at least two weeks prior to the scheduled exam appointment. Disability requests must be supported by an original letter from a recognized health care provider and be signed by a health professional. NERC will review each request and provide appropriate accommodations. The decision will be included in the notice of eligibility/registration approval sent to the applicant.

Taking the Exam

Candidates should arrive and be inside the testing center at least 30 minutes prior to the examination start time and should allocate at least four hours to accommodate the testing process ([Table 1.2](#)).

Candidates must show **two current valid forms** of identification to be admitted into the examination (one primary form of identification and either another primary or a secondary form of identification):

- *Primary identification* is a government-issued form of identification and must have **both** your picture **and** your signature on it. Examples of primary identification are a driver's license, government issued identification card, passport, temporary visa, or a military ID.
- *Secondary identification* must have a name and **either** your picture **or** your signature or both. Acceptable forms of secondary IDs are an employment ID, credit card, or debit card.

The PSI Testing Center will not accept altered, expired, or damaged identifications. If there is any discrepancy between the name on the candidate’s identification and the NERC registration, the testing center will not allow that candidate to test.

Table 1.2: Examination Time Allocation	
Examination Stages	Time Allocation
Administration and Review of Candidate Identification	30 minutes
Computer-Based Tutorial	15 minutes
Examination	3 hours
Post-Examination Survey	15 minutes
Total Time to be Allocated	4 hours

At the completion of the examination, candidates must complete a post-examination survey. The PSI Testing Center will collect comments on the PSI test center and the examination process or exam questions. These comments will be forwarded to NERC. **The post-examination survey is an opportunity to comment on the content of the examination, to challenge specific examination questions or answers, and evaluate the testing environment.**

Testing Center Regulations

- Depending on the established criteria at the testing center, candidates who arrive late may not be allowed to sit for the examination. Late arrivals not permitted to take the examination will be considered no-shows and must re-apply and pay the full test fee to take the examination.
- Candidates cannot bring reference materials, calculators, cell phones, or recording equipment into the examination. Some testing centers may not have lockers to accommodate personal items. Do not bring personal items, besides your appropriate ID, into the test center.
- No test materials, documents, notes, or scratch paper of any sort may be taken from the examination (pencils, paper, and an online calculator will be provided).
- Visitors are not permitted during the examination.
- Testing center staff can only answer questions about testing procedures; they cannot respond to inquiries regarding the examination’s content.
- During the examination, candidates may use the restrooms; however, the examination clock will continue running during that time.
- Candidates may not leave the testing center until they have finished the exam.
- Smoking is not permitted in any testing center.
- Any candidate giving assistance, receiving assistance, or making a disturbance will be required to turn in their examination materials, exit the examination room, and leave the testing center. The Disciplinary Action Procedure (page 15) will be initiated upon notification to NERC that the incident occurred.
- Any instances of cheating or attempts to impersonate another candidate will be dealt with through the Disciplinary Action Procedure.

Note: All no-shows will have to reapply to take the examination and pay the exam fee again.

Results of Exam

A pass/fail score report will be given at the end of exam. The PSI testing center will provide a summary of the examination before a candidate leaves.

Candidates who pass the examination will receive the appropriate NERC-certified system operator certificate signed by the NERC CEO. The date on the certificate will be the date the candidate passed the examination.

Time between Examinations

Candidates who fail an exam must wait 42 calendar days from the date of the failed examination to sit for any of the four NERC credential exams. Candidates who pass one of the NERC SOC examinations may not take that exam again unless their credential has been revoked. NERC will revoke a certification four years from pass date if credential maintenance requirements are not met.

Confirmation of Credential to Third Parties

NERC will confirm to an employer that an individual holds a valid NERC system operator certificate and will release the certificate number and issuance date in response to a written request.

NERC will release the certificate numbers and issuance dates for individuals holding a current NERC system operator certificate to the regional compliance staff or designated agents of Regions in which an individual's employer operates in response to a written request.

NERC will confirm to an employment search firm or a potential employer whether an individual holds a valid NERC system operator certificate, including releasing the certificate number and the issuance date, if the search firm has a release from the individual.

Chapter 2: Credential Maintenance

Overview

The SOC Program includes a requirement to maintain certification by obtaining CEHs. Successfully passing an examination earns candidates a credential and a certificate that is valid for three years. NERC requires certified system operators to accumulate CEHs through the NERC Continuing Education (CE) Program in recognized operator training topics, as listed in Appendix A for credential maintenance. To maintain a valid credential, candidates must accumulate the proper number and type of CEHs from NERC-approved learning activities within a three-year period. The system operator must meet the requirements and submit a renewal request. Upon transcript review and approval, NERC will issue a new certificate with the new expiration date. Details can be found on the [CE Program](#) website.

Program Requirement Summary

1. System operators seeking to obtain a credential must pass an examination.
2. NERC will issue a certificate that is valid for three years to successful candidates.
3. To maintain a valid certification, a system operator must earn CEHs within the three-year period preceding the expiration date of their certificate as specified by their credential in **Table 2.1** and adhering to the timeline in **Figure 2.1**. The CEHs must include:
 - a. A minimum of 30 CEHs that focus on content and/or implementation of NERC standards.
 - b. A minimum of 30 CEHs that utilize simulations (i.e., tabletop exercises, operator training simulators, emergency drills or practice of emergency procedures, restoration, blackstart, or other reliability-based scenarios).

Table 2.1: Credential Maintenance Requirements

Certification	Designation	Total CEH Requirement	NERC Standard CEH Requirement	Simulation CEH Requirement
Reliability Coordinator Certification	RC/RA	200	30	30
Balancing, Interchange, and Transmission Certification	BT	160	30	30
Transmission Operator Certification	TO	140	30	30
Balancing and Interchange Certification	BI	140	30	30

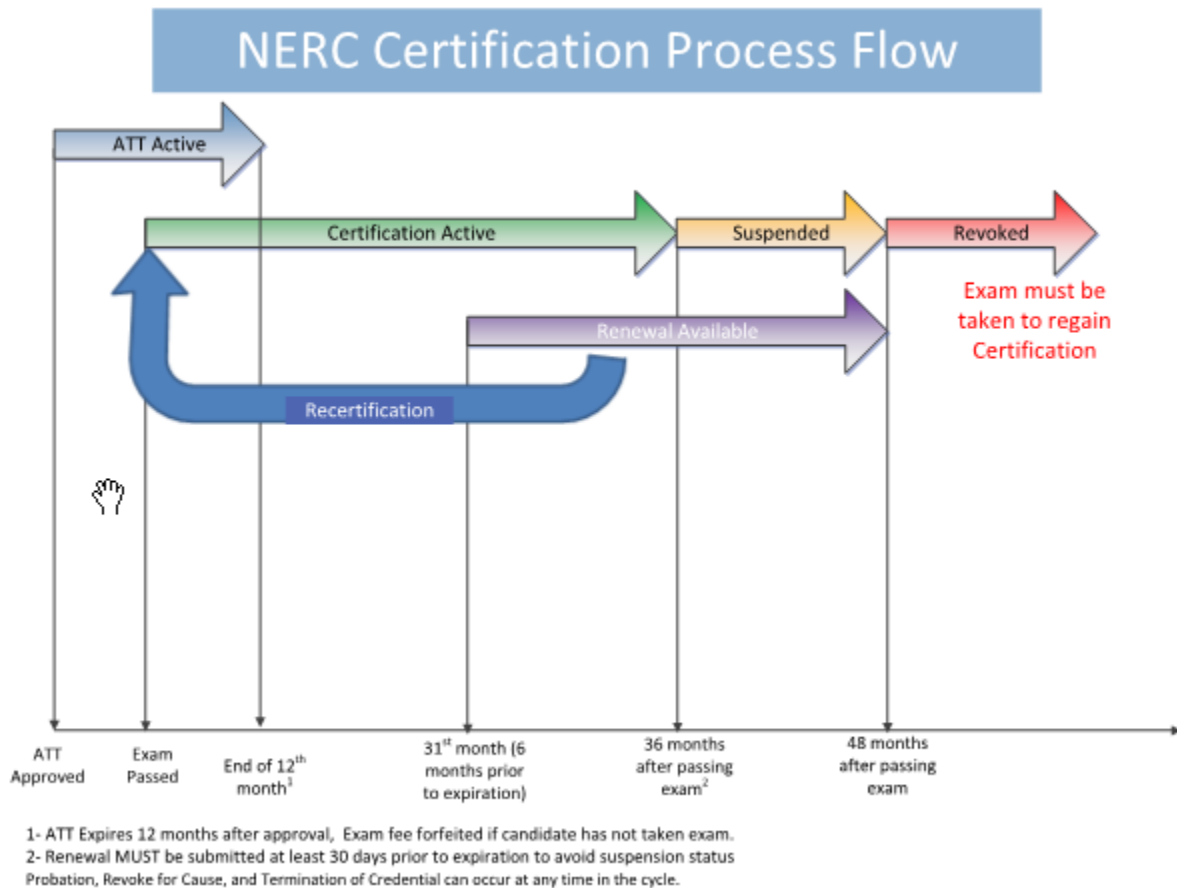


Figure 2.1: NERC Certification Process Flow

4. System operators satisfying the credential maintenance requirements must submit a renewal request for their credential and pay the renewal fees through the SOCCED.
5. The NERC system operator credential can be maintained ONLY by earning the appropriate number and type of CEHs.
6. Certified system operators that do not accumulate enough CEHs to maintain their current credential prior to the certificate expiration date will have their credential suspended for a maximum of one year.
7. If the appropriate number of CEHs have not been obtained at the end of the suspension period, the credential will be revoked.
8. Certified system operators can accumulate the proper number and type of CEHs during the suspension and have their credential reinstated with the original expiration date (three years after the previous expiration date).
 - a. CEHs can concurrently count for the total number required, the NERC standards required, and the simulations, but will only be counted once for the total CEHs requirement.
 - i. *For example:* A three-hour learning activity that includes one hour of instruction and a two-hour simulation on the implementation of NERC standards will be counted as three hours toward the total requirement, two hours toward the standards requirement, and two hours toward the simulation requirement.
9. System operators with revoked credentials will have to pass an examination to become recertified.

Deficits of CEHs for Credential Holders

A system operator who does not accumulate the required CEHs within the three-year period will have their credential suspended.

- The system operator with a suspended certificate may not perform any task that requires an operator to be NERC certified.
- The system operator with a suspended credential will have up to 12 months to acquire the necessary CEHs. The original anniversary date (three years after the previous expiration date) does not change.
- The system operator will still need to accumulate the required number of CEHs prior to the next expiration date. NERC will maintain a record of the suspension.

For example: A system operator whose credential expires July 31, 2020, and who does not accumulate the required number of hours prior to that date, will have their credential suspended on July 31, 2020 00:00.

- If the system operator accumulates and submits the required number of hours on March 1, 2021, the credential will be reinstated and will be valid until July 31, 2023.
- The system operator will then have to accumulate the required number of hours prior to July 31, 2023 00:00 or the credential will be suspended again.
 - CEHs previously used for credential maintenance cannot be reused.

If the system operator does not accumulate the required number of CEHs at the end of a 12-month suspension period, the credential will be revoked and they will forfeit all CEHs earned. After a credential is revoked, the system operator must pass an examination to become recertified.

Rollover Hours

For all credentials, some CEHs may be carried over to the next certification period. Up to 30 CEHs accumulated in the six months prior to the certificate expiration date that are not used for credential maintenance or change of credential type may be carried over. Categorization of CEHs in the “standards” category or the “simulation” category will not be carried over into the next period. To satisfy the CEH requirement, CEHs will be used starting with the first learning activity that occurred, according to the calendar, then sequentially by the date of the learning activities. See [Figure 2.2](#) for an example of rollover hours.

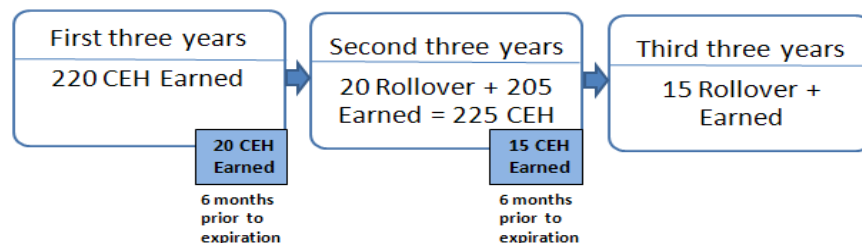


Figure 2.2: Certification Periods for RC Credential (200 CEHs Required)

NERC CE Providers

NERC CE providers report the CEHs earned by each certified system operator to NERC electronically through the SOCCED. Providers are also required to give the certified system operator proof of having earned the CEHs by issuing a certificate of completion for the learning activity.

System Operator

System operators are able to track their status toward maintaining their credential through the NERC SOCCED. Certified system operators should review their transcripts at least 90 days up to six months before their certificate

expiration date to allow sufficient time to acquire CEHs should there be a conflict. If a conflict occurs, the certified system operator shall submit proof of having acquired the necessary CEHs from the CE Program's approved learning activities to the NERC manager of personnel certification. The system operator must submit proof of CEHs at least 30 days before the certificate expiration date to allow NERC staff to process and resolve discrepancies and prevent the credential from being suspended. NERC will reinstate suspended credentials once proof of completion is verified.

System operators who meet the CEH requirements must request a renewal through SOCCED. Upon receipt of a renewal request, payment of the renewal fee, and NERC approval, the system operator may print a new certificate from SOCCED. The new certificate will have an expiration date three years from the previous expiration date. Renewal requests should be submitted no more than six months prior to expiration date.

Changing Certification Levels

A certified system operator who wants to change to a different credential that requires fewer CEHs may do so when they meet the proper number and type of hours for the new credential. A certified system operator can change their credential type by indicating the desire to do so in SOCCED when requested to renew.

To change a credential from:

- **RC to any other NERC credential:** a system operator who has obtained the proper number and type of hours for the new credential may renew to any NERC system operator credential.
- **BT to TO or BI:** a system operator will have the option to renew to a TO or BI credential when the proper number and type of hours for the new credential have been obtained.
- **BT to RC:** a system operator must pass the examination for the RC credential.
- **BI to any other NERC credential:** a system operator must pass the examination for that credential.
- **TO to any other NERC credential:** a system operator must pass the examination for that credential.

Hardship Clause (NERC Rules of Procedure)

Hardship is when unforeseen events and extenuating circumstances occur that place excessive burden on a system operator to earn or maintain a credential. To initiate the hardship clause process, the system operator must submit a written request containing a thorough explanation of the circumstance and supporting information to the following:

NERC Personnel Certification Manager
3353 Peachtree Road NE, Suite 600, North Tower
Atlanta, GA 30326

Or email: soccedsupport@nerc.net

The PCGC retains the right to invoke the hardship clause and deviate from the program rules as it deems appropriate to address such events or circumstances. Examples of extenuating circumstances include (but are not limited to), military service or an illness/disability of the system operator or within the system operator's immediate family that results in an extended period of time away from work.

Chapter 3: Program Rules

Overview

NERC will recognize CEHs for credential maintenance only from operator training topics and learning activities listed in [Appendix A](#) and if providers have complied with the CE Program rules. See the [CE Program site](#) for the manual and other references.

Learning Activities

Emergency Operations Training Topics

CEHs for emergency operations will be recognized for credential maintenance twice a year based on the credential anniversary (i.e., during the 12-month period preceding the system operator's credential anniversary). CE courses can count as Emergency Operations courses if the training is related to emergency preparedness, operational communications and situational awareness, analysis and troubleshooting, or the response to any emergency as defined by NERC: Any abnormal system condition that requires automatic or immediate manual action to prevent or limit the failure of transmission facilities or generation supply that could adversely affect the reliability of the BES.

Other Training Topics

NERC will recognize CEHs for a particular course or learning activity other than emergency operations training for credential maintenance once a year based on the credential anniversary (i.e., during the 12-month period preceding the system operator's credential anniversary).

Instructor Training

For instructors who are also certified system operators, NERC will recognize 1.0 CEH for each CEH of a learning activity delivered toward the instructor's system operator credential maintenance. Emergency Operations topics can be counted twice per year based on the credential anniversary (i.e., during the 12-month period preceding the system operator's credential anniversary).

Proof of Course Completion

A certified system operator is responsible for retaining appropriate documentation for proof of credential maintenance. Documentation includes the following:

- The provider's name and contact information
- The learning activity's title and identification number
- A brief description of learning activity content
- The date(s) of the learning activity
- The location of the activity (if applicable)
- The number and type of CEHs
- The system operator's NERC certificate number

Training providers shall retain comparable documentation. Electronic forms of documentation are acceptable.

Learning Activity Status Changes

NERC will grant CEHs for a course or learning activity approved for credential maintenance. If a system operator attends an approved learning activity that is later revoked or expired, NERC will still recognize CEHs from that activity while it was approved.

Disputes between Certified System Operators and Providers

If there is a dispute between a provider and a certified system operator, the parties must resolve the dispute without involvement from NERC. Additionally, it is the obligation of certified system operators to periodically review their CEH records in the NERC SOCCED and maintain their own training records to provide proof of achieving CEH requirements.

Fees

NERC uses fees for the ongoing expense to develop and maintain the certification program. The fees also cover the expense of the management and administrative costs associated with the examination process and credential maintenance. The PCGC periodically reviews and adjusts these fees. NERC posts these fees on the SOC Program site.

Legal Name Changes

If a system operator changes their legal name, the system operator must submit a written request containing an explanation of the circumstance and copies of the legal documentation of the name change to the following:

NERC Personnel Certification Manager
3353 Peachtree Road NE, Suite 600, North Tower
Atlanta, GA 30326

Or email: soccedsupport@nerc.net

Chapter 4: Dispute Resolution (NERC Rules of Procedure)

Overview

Any dispute arising under the NERC agreement that established the NERC SOC Program or from the establishment of any NERC rules, policies, or procedures dealing with any segment of the certification process, or as a result of disciplinary action, shall be subject to the NERC SOC Dispute Resolution Process. The Dispute Resolution Process is for the use of individuals who hold a NERC SOC certification or individuals wishing to be certified to dispute the validity of the examination, the content of the test, the content outlines, or the registration process. The Dispute Resolution Process is not for disputing CEHs. See the [CE Program Manual](#) for information on disputing CEHs.

Disputes regarding the scoring of an exam should be delayed until the official score results are known. NERC issues an official score only after the exam results have been reviewed by the psychometric consultant. The chairperson of the PCGC will wait until an official score is available before taking action on a dispute.

Dispute Resolution Process

1. NERC SOC Program Staff

- a. The first step in the process is for the person with a dispute to contact the NERC SOC Program staff. This can be done by calling or emailing the program staff. This first step can usually resolve the issue, and if it does, no further action is needed. If the issue is not resolved, the issue can be brought to the PCGC Dispute Resolution Task Force.

2. PCGC Dispute Resolution Task Force

- a. If NERC staff did not resolve the issue to the satisfaction of the parties involved, a written request must be submitted to the chairperson of the PCGC through NERC staff within 45 days of the conversation with NERC staff explaining the issue(s) and requesting further action. Upon receipt of the letter, the PCGC chairperson will present the request to the PCGC Dispute Resolution Task Force for action. This task force consists of three current members of the PCGC. The PCGC Dispute Resolution Task Force will investigate and consider the issue presented and make a decision. This decision will then be communicated to the submitting party, the PCGC chairperson, and NERC staff within 45 calendar days of receipt of the request.
- b. If a French-Canadian or Mexican party raises a dispute, the PCGC shall appoint a French-Canadian-speaking or Spanish-speaking interpreter as requested.

3. PCGC

- a. If the PCGC Dispute Resolution Task Force's decision did not resolve the issue(s) to the satisfaction of the parties involved, the final step in the process is for the issue(s) to be brought before the PCGC. Within 45 days of the date of the Task Force's decision, the disputing party shall submit a written request to the PCGC chairperson through NERC staff requesting that the issue(s) be brought before the PCGC for resolution. The chairperson shall see that the necessary documents and related data are provided to the PCGC members as soon as practical. The PCGC will then discuss the issue(s) and make their decision within 60 calendar days of the chairperson's receipt of the request. The decision will be provided to the person bringing the issue(s) and the NERC staff. The PCGC is the governing body of the certification program, and its decision on all disputes is final.

Process Expenses

All individual expenses associated with the process, including salaries, meetings, and consultant fees, shall be the responsibility of the individual parties incurring the expense.

Decision Process

Robert's Rules of Order shall be used as a standard of conduct for the process. A majority vote of the members present will decide all issues. The vote will be taken in a closed session. No member of the PCGC may participate in the dispute resolution process, other than as a party or witness, if they have an interest in the particular matter.

A stipulation of invoking the appeals process is that the entity requesting the appeal agrees that neither NERC (its members, Board of Trustees, committees, subcommittees, and staff), any person assisting in the appeals process, nor any company employing a person assisting in the appeals process, shall be liable, and they shall be held harmless against the consequences of or any action or inaction; or of any agreement reached in resolution of the dispute or any failure to reach agreement as a result of the appeals proceeding. This "hold harmless" clause does not extend to matters constituting gross negligence, intentional misconduct, or a breach of confidentiality.

Chapter 5: Disciplinary Actions (NERC Rules of Procedure)

Overview

This Disciplinary Action Procedure is necessary to protect the integrity of the system operator credentials. Should an individual act in a manner that is inconsistent with expectations, this procedure describes the process to investigate and take action necessary to protect the credential.

Grounds for Action

The following shall serve as grounds for disciplinary action:

- Willful violation, gross violation, or both, of the NERC standards as determined by a NERC investigation. Both the organization and the certified system operator are bound by the NERC Reliability Standards. If a certified system operator, either in concert with the organization or on their own initiative, performs a willful violation, gross violation, or both, of the NERC standards, they are liable for those actions, and disciplinary actions may be taken against them.
- Willful negligence, gross negligence, or both in performing the duties of a certified system operator as determined by a NERC investigation.
- Intentional misrepresentation of information provided to NERC for a SOC exam or to maintain a system operator credential using CEHs.
- Intentional misrepresentation of identification in the exam process, including an individual identifying as another person to obtain certification for the other person.
- Any form of cheating during a certification exam that includes, but is not limited to, bringing unauthorized reference material in the form of notes or other materials into the testing center.
- A certified system operator's admission to or conviction of any felony or misdemeanor directly related to their duties as a system operator.

Hearing Process

Upon report to NERC of a candidate's or certified system operator's alleged misconduct, the NERC PGC Credential Review Task Force will convene for the determination of facts. An individual, government agency, or other investigating authority may file a report. Unless the task force initially determines that the report of alleged misconduct is without merit, the candidate or certified system operator will be given the right to notice of the allegation. A hearing will be held and the charged candidate or certified system operator will be given an opportunity to be heard and present further relevant information. The task force may seek out information from other involved parties. The hearing will not be open to the public, but it will be open to the charged candidate or certified system operator and their representative. The task force will deliberate in a closed session, but the task force cannot receive any evidence during the closed session that was not developed during the course of the hearing.

Task Force's Decision

The task force's decision will be unanimous and will be in writing with inclusion of the facts and reasons for the decision. The task force's written decision will be delivered to the PGC (by certified post) and to the charged candidate or certified system operator.

In the event that the task force is unable to reach a unanimous decision, the matter shall be brought to the full committee for one of the following decisions:

- No Action: Allegation of misconduct was determined to be unsubstantiated or inconsequential to the credential.

- Probation: NERC will send a letter to the offender specifying the length of probationary period (to be determined by the PCGC).
- The Credential will remain valid during the probationary period.
- The probationary period does not affect the expiration date of the current certificate.
- During the probationary period, a subsequent offense of misconduct, as determined through the same process described above, may be cause for more serious consequences.
- Revoke for Cause: NERC will send a letter to the offender specifying the length of the revocation period (to be determined by the PCGC).
- Credential is no longer valid.
- Offender must successfully pass an exam to become recertified.
- An exam will not be authorized until the revocation period expires.
- Termination of Credential: NERC will send a letter to the offender specifying permanent revocation of credential, and the offender will not be approved to sit for a future examination.

Credential Review Task Force

A Credential Review Task Force shall be comprised of three active members of the PCGC assigned by the chairperson of the PCGC on an ad hoc basis. No one on the credential review task force may have an interest in the particular matter. The task force will meet in a venue determined by the task force chairperson.

If a French-Canadian or Mexican party raises a dispute, the PCGC shall appoint a French-Canadian speaking or Spanish-speaking interpreter as requested.

Appeal Process

The decision of the task force may be appealed using the NERC SOC [Dispute Resolution process](#).

Chapter 6: Glossary

Continuing Education Hour (CEH): Based on 60 clock minutes and includes at least 50 minutes of participation in a group or self-study learning activity that meets the criteria of the NERC CE Program. A CEH Activity is an approved learning activity administrated under the CE Program.*

CE Provider: The individual or organization responsible for setting learning objectives, developing the curriculum to achieve such objectives, offering a learning activity to participants, and maintaining documentation required by these criteria. The term CE Provider may include NERC, Regions, operating and marketing entities, technical and industry societies and associations (whether formal or informal), consultants, vendors, colleges, universities, and training companies, as well as employers who offer in-house learning activities. A CE Provider may be either a single learning activity CE Provider or a NERC-approved CE Provider.*

Certification: An official recognition that indicates the recipient has passed a NERC exam or completed a specified number of CEHs.

Credential: NERC designation that indicates the level of qualification achieved (i.e., RC; BT, TO, and BI).

Credential Maintenance: Meet NERC CEH requirements to maintain a valid NERC-issued system operator credential.

NERC-Approved Learning Activity: Training that maintains or improves professional competence and has been approved by NERC for use in its CE Program.

Probation: A step in the disciplinary process during which the certificate is still valid. During the probationary period, a subsequent offense of misconduct, as determined through the same process as described above, may be cause for more serious consequences.

Revoked: A NERC certificate that has been suspended for more than 12 months. While in this state, a certificate holder cannot perform any task that requires an operator to be NERC certified. The certificate holder will be required to pass an exam to be certified again. Any CEHs accumulated prior to or during the revocation period will not be counted toward certificate maintenance.

Revoke for Cause: A step in the disciplinary process during which the certificate is no longer valid; requires successfully passing an exam to become certified. However, an exam will not be authorized until the revocation period expires. CEHs earned before or during this revocation period will not be counted for maintaining a credential.

Suspended: Certificate status due to an insufficient number of CEHs being submitted prior to the expiration of a certificate. While in this state, a certificate holder cannot perform any task that requires an operator to be NERC certified.

Termination of Credential: A step in the disciplinary process whereby a credential is permanently revoked.

Type of CEHs: NERC-approved learning activity covering topics from [Appendix A](#), NERC standards, and/or simulations for which there is a minimum requirement for credential maintenance.

* CE Program Manual definition

Appendix A: Recognized Operator Training Topics

Courses that provide CEHs for the purpose of NERC Certification credential maintenance shall be based on topics listed below. Learning objectives must specifically support BES reliability responsibilities of the System Operator and/or specific recognized operator training topics. Refer to the NERC [CE Program Manual](#) for more information about proper learning activity development.

1. Basic Concepts

- a. Basic AC/DC Electricity
 - i. Capacitance
 - ii. Inductance
 - iii. Impedance
 - iv. Real and reactive power
 - v. Electrical circuits
 - vi. Magnetism
- b. Basic Power System Mathematic Concepts
 - i. Basic trigonometry
 - ii. Ratios
 - iii. Per unit values
 - iv. Pythagorean Theorem
 - v. Ohm's Law
 - vi. Kirchhoff's Laws
- c. Characteristics of the BES
 - i. Transmission lines
 - ii. Transformers
 - iii. Substations
 - iv. Power plants
 - v. Protection
 - vi. Introduction to power system operations and interconnected operations
 - vii. Frequency

2. System Protection Principles

- a. Transmission lines
- b. Transformers
- c. Busses
- d. Generators
- e. Relays and protection schemes
- f. Power system faults

- g. Synchronizing equipment
- h. Under-frequency load shedding
- i. Under-voltage load shedding
- j. Communication systems utilized

3. Interconnected Power System Operations

- a. Voltage control
- b. Frequency control
- c. Power system stability
- d. Facility outage both planned and unplanned
- e. Energy accounting
- f. Inadvertent energy
- g. Time error control
- h. Balancing of load and resources

4. Emergency Operations

- a. Loss of generation resource(s)
- b. Loss of transmission element(s)
- c. Operating reserves
- d. Contingency reserves
- e. Line loading relief
- f. Load shedding
- g. Voltage and reactive flows during emergencies
- h. Loss of EMS
- i. Loss of primary control center

5. Power System Restoration

- a. Restoration philosophies
- b. Facility restoration priorities
- c. Blackstart restoration
- d. Stability (angle and voltage)
- e. Islanding and synchronizing

6. Market Operations

- a. NAESB standards
- b. Standards of conduct
- c. Tariffs
- d. OASIS applications (Transmission Reservations)
- e. E-Tag application

- f. Transaction scheduling
- g. Market applications
- h. Interchange

7. Tools

- a. Supervisory Control and Data Acquisition (SCADA)
- b. Automatic Generation Control (AGC) application
- c. Power flow application
- d. State Estimator application
- e. Contingency analysis application
- f. P-V Curves
- g. Load forecasting application
- h. Energy accounting application
- i. Voice and data communication systems
- j. Demand-side management programs

8. System Operator Situational Awareness

- a. Identifying loss of facilities
- b. Recognizing loss of communication facilities
- c. Recognizing telemetry problems
- d. Recognizing and identifying contingency problems
- e. Proper communications (three-part)
- f. Communication with appropriate entities including the RC
- g. Cyber and physical security and threats
- h. Reducing System Operator errors through the use of Human Performance Tools, such as Self-Checking, Peer Checking, Place Keeping, and Procedure Use

9. Policies and Procedures

- a. ISO/RTO operational and emergency policies and procedures
- b. Regional operational and emergency policies and procedures
- c. Company-specific operational and emergency policies and procedures

10. NERC Reliability Standards

11. Application and/or implementation of NERC Reliability Standards

Appendix B: Program Manual Changes

Table B.1: Program Manual Changes

No.	Date	Section	Page	Description	Version
1	05/2005	All	All	Initial white paper expanded SOC Program to include CE Hours	0
2	02/2006	All	All	Program Manual	1
3	06/2006	I and II	4, 17	Fees	1.1
4	06/2006	All	All	CEH to CE Hours	1.1
5	08/2006	III	16	Training Providers retaining documentation	1
6	03/2007	I	9	Remove certificate numbering convention	1.2
7	03/2007	IV	18	General housekeeping and added a 45 day limit to Step 3 of DRP. Added comment about waiting for official score when available before taking action on a dispute filed with the PCGC chairman.	1.2
8	08/2007	All	All	Updated instructions to include instructions for the new database	1.3
9	10/2007	II	15	Category defined for Carry-over CE Hours.	1.3
10	11/2009	All	All	Fee Increase for exams & Credential Maintenance	1.3
11	08/2010	Executive Summary, II and III	4, 16-23, 24, and 25	Review of content for consistency with current requirements	1.4
12	02/2012	All		NERC Address change Style and Format changes throughout Eliminated detail instructions	2.0
13	05/2014	All	All	Updated to reflect new exam vendor information. Also, corrected certificate expiration date example to reflect actual process.	2.1
14	03/2016	All	All	Document reviewed to confirm accurate information.	2.1
			3	Clarification of how 42 day wait period is calculated and 42 day wait period required regardless of exam failed.	
			7	Reduction of renewal request timeframe to 6 months prior to expiration.	
15	02/2017	Introduction	v	Added non-discriminatory statement	2.1
		Examinations	1	Updated Total Questions, Scored Questions and Added Exam Cut Scores	

Table B.1: Program Manual Changes					
No.	Date	Section	Page	Description	Version
		Appendix A	16, 18	Added overview statement for Appendix A Topics and Adjusted Number 8 of Topics.	
16	09/2017	All	All	Annual Review	3.0
		Certification Examinations	1	Added additional information to clarify how the EWG is involved in the exam development process.	
			ALL	Added language to explain in more detail the exam development process. Matched language with Test center vendor. Rearranged paragraphs for clarification.	
			2	Added exam development process diagram	
		Credential Maintenance	All	Updated language for clarification. Reorganized paragraphs for consistency.	
			8	Added Certification Process Diagram.	
17	10/2019	Preface	1	Updated NERC map and Regional Entities	3.1