



Re-evaluation of NERC Continuing Education Program

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Background

NERC began their Continuing Education (CE) program in 2004. The program objectives as defined in the “Continuing Education Administrative Manual” are:

- Encourage the development of learning activities that qualify as NERC-approved activities.
- Provide guidance to training organizations as they develop and improve learning activities.
- Ensure all learning activities are developed and delivered according to program criteria.
- Ensure BPS operating personnel have access to approved learning activities.
- Encourage the development of a network of approved CE providers for the overall enhancement of system operating personnel and electric reliability in North America.

The origin of the NERC CE program was a response to the Northeast Blackout on August 14, 2003. Since its inception multiple changes have been made to the CE program. While not a Reliability Standard, Continuing Education Hours (CEH) must be used by NERC-certified operators to renew their NERC Certifications creating a “quasi-requirement”. The CE program is administered by NERC Staff under the direction of the NERC Personnel Subcommittee (PS) which is a subcommittee reporting to the NERC Operating Committee (OC). The CE program utilizes the System Operator Certification and Continuing Education Database (SOCCED) as a tool for administration and tracking of operator certifications and CEH credits.

Executive Summary

In harmony with the CE program’s original objectives, much was accomplished to “encourage” and “ensure” BPS operating personnel had access to quality learning activities. However, with mandatory compliance to PER-005-2 now enforceable, the original NERC CE program has become redundant and irrelevant. This paper will propose arguments for discontinuance of the program.

The legacy NERC CE program, with its emphasis on discrete, individual learning activities, does not fully take into consideration an entity’s overall training program or Systematic Approach to Training (SAT), as required by PER-005-2. For each course approved through this program, a Provider must submit an individual learning activity (ILA) application for review. Each ILA is evaluated in isolation as opposed to considering its place in the Provider’s overall training program. More recent NERC programs, such as the NERC Compliance Monitoring Enforcement Program (CMEP), have shifted their focus to a more holistic model, incorporating risk-based principles to encourage an emphasis on internal controls. This superior approach helps to ensure consistency in practice across all learning activities and is in harmony with the NERC Reliability Standard PER-005-2.

The process to complete and submit an ILA application is largely administrative in nature. The time, cost, and overall administrative burden of the CE Program can be significant. All courses approved through this program are subject to program audits, which require the Provider to upload materials, including course content, through the internet to reviewers from across North America. Although some of this material could be sensitive, the CE program contains no formal direction to Providers for these cases. These same training programs and courses are already subject to NERC audit under PER-005-2. Since these more thorough compliance audits are already conducted through the

standards process, the additional CE program audits (and any risks they pose) should be eliminated along with the CE program.

Currently, the NERC CE program provides the CEHs through which system operators renew their NERC Certification credentials. This paper will also propose some alternatives for credential maintenance.

Reasons for Discontinuance of CE Program

There are many reasons why the CE Program should be discontinued at this time. These reasons are detailed in the sections below.

Mandatory Compliance with PER-005-2

Version 1 of NERC Standard PER-005 was adopted by the NERC Board of Trustees in 2009 and approved by FERC in 2010. Version 2 of PER-005 was approved by FERC in 2014. This standard applies to Reliability Coordinators, Balancing Authorities, Transmission Operators, Transmission Owners and Generator Operators.

The standard requires the use of a "Systematic Approach to Training" (SAT) for the development of a training program for System Operators. An SAT approach requires that the training be analyzed, designed, developed, implemented and evaluated in a systematic and documented manner. The standard also requires verification that operators can perform Reliability Related Tasks.

PER-005-2 goes beyond the CE program by requiring training for Generator Operators and Operations Support personnel (who are typically not NERC Certified). It also mandates simulation training for those entities that control an IROL.

PER-005-2 compliance requires much more diligence and formality than does getting courses approved through the NERC CE program. The NERC CE program does not require use of a SAT or verification of operator tasks.

In addition, several other NERC standards require mandatory training on topics such as system restoration, system protection and communications.

Continuance of the NERC CE program in addition to mandatory compliance with PER-005-2 represents a duplication of requirements with no additional reliability or training benefit. The CE program creates a layer of administrative burden on entities above what is required by PER-005.

CE Program legacy nature not up to date with PER 005 SAT and other NERC principles

The NERC Personnel Subcommittee has recently made the decision to limit the scope of the CE program to a "credential maintenance" program focusing only on training that operators can use to renew their NERC Certification. A static list of topics (Appendix A from the NERC System Operator Certification Manual) is used to determine the training needs of an operator.

While this level of prescription was appropriate prior to the implementation of PER-005, this method now works against the basic tenets of an SAT, which starts with analysis. The analysis phase determines the skills, knowledge, and abilities required to perform a company specific task, which in turn drives the training content. The ILA review

process disregards this first step of the SAT by basing course approval on a static topic list or the subjective opinion of a reviewer unfamiliar with details of the entity's training needs analysis.

Some topics, such as Human Performance, are not granted CEH hours if offered as stand-alone courses. Again, this is counter to an SAT training approach. These courses should be considered valid if, as a result of a thorough needs analysis, it is determined that these Human Performance concepts and skills are required by the operators.

It is difficult for an ILA reviewer to accurately assess a learning activity in isolation. Without the benefit of insight into the provider's SAT or how a single learning activity fits into the overall training program, the value of any guidance a reviewer can provide is diminished. Often, additional questions and supplemental information are required in order for the reviewer to understand the underlying factors that may have led to the selection of certain learning objectives or assessment methods. This back-and-forth exchange is time consuming and an inefficient use of resources.

PER-005 compliance audits by contrast do take into consideration the entity's SAT and training program as a whole. They also apply the FERC approved risk-based approach that the NERC CEMP has embraced that encourages internal controls and helps ensure the proper allocation of resources on the most important issues.

The current ILA approval process provides little transparency into the reasons for denial.

In Q1 and Q2 of 2015 the number of courses that were denied through the CE program increased by four times over that of the previous two quarters and by 8 times over the same quarters of the previous year. At the June 2015 PS meeting PJM raised this issue, expressing concern regarding this lack of transparency. Program criteria used to deny the approval of courses through the CE program are developed and approved outside of the formal standards process which requires industry vetting and approval. However, because CEHs are necessary for the maintenance of NERC credentials, the NERC CE program has the effect of creating "quasi-requirements" and could directly impact an entity's compliance with the Reliability Standards.

Some of the courses denied included learning activities that were previously approved through the CE program, were part of an entity's internal continuing training program for certified system operators, and, based on the evaluation phase of the SAT, were determined to be valuable training. These courses met the requirements for training based on PER-005 and yet were rejected by the NERC CE program based on a subjective ILA review and approval process. (Note: None of the ILAs in question belonged to PJM or its members. The issues PJM raised were publicly posted with the June 2015 PS meeting materials.)

Cost and Administrative Burden

Individual Learning Activity (ILA) applications must be completed and submitted to NERC by CE providers for any training class for which CEH credit is desired. This requirement incurs additional costs and administrative overhead for CEH providers. While these applications do not require any additional evidence than what the SAT approach requires (in fact it is a subset), the information must be submitted on a different form (Word document) for each training class being delivered. In addition, NERC can and does perform random audits of the CEH approved training classes which requires additional data gathering and information submission.

Costs of the NERC CE program have risen steadily since its inception. Costs include annual fees and per credit fees to support the program. NERC uses these fees to pay contractors to review ILAs and support the SOCCED database tool.

PJM performed an analysis of administrative costs associated with the CE program. In 2015, PJM submitted 59 ILAs to NERC for CE approval. Factoring in the NERC administrative fees and PJM employee time in preparation, submission and follow-up, the costs incurred were estimated at \$444.16 per ILA*. Based on NERC PS data, 2435 ILAs were submitted to NERC in 2015 for CEH approval. Extrapolating this cost estimate across these 2435 ILAs, the NERC CE program cost the industry approximately \$1,081,532 in 2015 in fees and labor costs. This is a conservative estimate and does not include additional costs related to time spent following up with ILA reviewers, supporting CE program audits and other program related activities.

These costs would not be incurred if the CE program were discontinued. Elimination of these costs borne by CEH providers would allow them to redirect the resources and funding used to support the CEH program to be used more beneficially to improve the company's operator training program.

* NERC Administrative fees are charged based on number of requested CEH. These numbers were averaged to produce a "per ILA" proxy for this analysis.

Problems with SOCCED System

NERC has implemented an online database tool (SOCCED) for submittal, recording and tracking of ILAs, courses and operator CEH credits. The SOCCED database is also used for operator renewal of NERC Certification.

Approval of a NERC Certification renewal request is a cumbersome process for NERC staff, one that requires the manual verification that each operator has earned sufficient CEHs, Standards and Simulation hours to meet the renewal requirements. Due to the manual nature of this process, the industry has voiced complaints that some operators are not receiving confirmation of their NERC Certification in a timely fashion. This can lead to staffing concerns and operator anxiety as certification expiration dates approach. SOCCED also utilizes a manual process for approval ILAs. This process is inefficient, cumbersome and time-consuming.

Some in the industry have also expressed concern about the security of the SOCCED system. CE providers at times are required to upload training material which could include sensitive information (depending on the topic being trained). It is unclear if SOCCED is held to the same cyber security standards that NERC mandates the industry meet through the CIP standards or if the reviewers have executed a non-disclosure or Critical Energy Infrastructure Information (CEII) document with the entity.

Potential Approaches for Renewing NERC Credentials Absent the CE Program

The NERC System Operator Certification Program was established in 1998 and currently consists of four different exams: 1) Reliability Operator, 2) Balancing, Interchange, and Transmission Operator, 3) Transmission Operator, and 4) Balancing and Interchange Operator. The NERC Personnel Certification Governance Committee (PCGC) is the governing body that establishes policies, sets fees, monitors the performance of the System Operator Certification Program, and ensures that the program is financially independent.

In 2004, the NERC Continuing Education Program was set up, in part, to provide the Continuing Education Hours (CEHs) that an operator would use to renew this credential. As the certification program transitioned from a 5 year credential to a 3 year credential, earning the requisite number of CEHs would be the only way to renew the 3 year credential and avoid suspension. This approach made sense as it did "encourage" and "ensure" entities provided at

least some quality training. However the implementation of PER 005 now ensures training through a mandatory standard and the more robust Systematic Approach to Training (SAT).

If the NERC Continuing Education Program is discontinued, how would system operators renew their credentials? This section will put forth some proposals to accommodate credential maintenance and ensure the PCGC continues to have the funds needed to keep the certification program financially independent.

Make the NERC credential perpetual with no CEH requirement

The NERC certification has often been likened to a driver's license. It is the new driver who must take and pass a driving test to earn his or her license. This license is valid for a set period of time before it expires. The driver renews the license by sending the set fee to the State. However, no additional testing or training is generally required.

For system operators, continuing training would still be required, just not through the NERC CE or System Operator Certification Programs. The operator with an expiring credential would still pay the fee set by the PCGC to renew the credential, similar to a driver renewing their license, thus keeping the program financially independent.

The logic for removing a set hour requirement is supported by what was changed during the revision of PER-005-2. Version 2 removed a previous requirement for entities to provide operators 32 hours of Emergency Operations training. The rationale for this requirement being removed was "...since the appropriate number of hours would be identified as part of the systematic approach in Requirement R1 and Requirement R2 through the analysis phase and outlined in a continuous education section of their training program. Any additional hours may be duplicative or repetitive for the entity in providing training to its personnel."

A systematic approach to training (as required by PER-005-2) would identify a continuing training plan and the number of hours required. While the 32 hour EOP training was seen as somewhat arbitrary, it is no more arbitrary than requiring a set number of CEH credit for renewal of NERC Certification. This renewal requirement puts an arbitrary requirement for collection of CEH; for example, 200 CEH over 3 years to renew an RC Certification.

It is contradictory to think that an SAT approach to training should supplant one arbitrary training hour requirement (32 EOP hours) but not a different arbitrary training hour requirement (200 CEH over 3 years).

Maintain current hour requirements utilizing NERC PER-005 SAT training hours

While not preferred for the reasons above, an alternative approach to provide a clear "bright line" for renewal would be to continue to use the existing CE hour requirements for credential maintenance. Training to meet these requirements would be developed and managed by each entity in accordance with an SAT approach and would not be approved through the NERC CE program. The hours associated with these learning activities would be considered NERC approved CE hours by virtue of their implementation through a NERC PER-005 SAT.

There is a direct correlation between system operators requiring a NERC credential and those under the NERC PER-005 SAT training requirements, leaving no gaps. Under the requirements of PER-005, SAT training must be tied to real-time reliability related tasks, removing any concerns that other extraneous or "low-quality" training would be utilized for credential maintenance. Additionally, every NERC PER-005 SAT training provider undergoes regular comprehensive compliance audits of its entire program, with provisions in place for how to handle standard violations. The industry is already familiar with these audits and entities have infrastructure and resources in place to

support them. Audits conducted under the NERC CE Program are far inferior, represent additional unnecessary costs, and do little to detect or resolve issues with a provider's overall training program.

Ironically, under the current CE Program, an operator could maintain their credential by taking NERC approved training that has nothing to do with their actual job. For instance, if a Transmission Operator took training targeted to a Balancing Authority Operator or on Appendix A topics that have no connection to enabling skills/knowledge for a reliability related task, they would still maintain their certification. This could result in some actually substituting training their needs analysis identified as important with irrelevant CEH training to maintain their credential.

Since the ILA approval and audit structure would no longer be required, it may be possible to utilize an online tool that is simpler and less expensive than the current SOCCED. The system could manage payments for initial testing and renewals similar to how SOCCED does today. At its simplest, the entity would simply upload the number of training hours the operator received through their PER 005 SAT Training Program.

If further detail is desired, transcript data could be provided but should contain the minimal amount of information deemed necessary and contain no sensitive or CEII data. Complete detailed training data would still be available to NERC and regional CEMP personnel through PER-005 compliance audits. In this approach, entities would provide the PCGC with a list of topics that are being used in the systematic training of system operators, based on the analysis of actual real time reliability related tasks. This could provide very meaningful data and metrics which could aid the PCGC in their task of keeping exams current and in-step with this dynamically changing industry. This approach is superior to requiring the use of a static list of topics.

Under this approach, a potential non-compliance with PER-005 would not affect the operator's NERC Certification status. This would be precluded as it would represent a "double jeopardy" situation with PER-005 and PER-003.

To accommodate non-operators who have NERC certification, the PCGC could reinstitute the option to retake the certification exam every 3 years and eliminate the one year suspension provision. As an alternative, the one year suspension could remain and at the end of the suspension period, the non-operator would need to retake the Certification exam.

Recommendation

The NERC CE program should be discontinued. While the program did much good prior to the implementation of PER 005, it has become redundant, expensive, and administratively burdensome. It simply does not make sense to continue administrating it as if PER 005 did not exist.

Implementing either of the proposals in section IV of this paper should not affect the wording of any of the other PER standards. However, consideration of these ideas can coincide with the pending review of PER standards, the NERC Rules of Procedure (Section 600 and 900) and the NERC PS review of potential changes to the CE program.

The decoupling of the continuing education program and the certification program may actually benefit the NERC Committees responsible for each program. The PCGC could continue to focus on creating and updating valid certification exams to promote skilled and qualified system operators. Any training criteria used for credential maintenance would then be supported by a more comprehensive and robust NERC approved reliability standard that requires a systematic approach to training.

The PS could refocus on the broader audience found in its scope document, “improving the performance of bulk power system (BPS) personnel.” While entities like the North American Transmission Forum are doing much to promote the sharing of best practices, access is limited to their members, who already employ many of the NERC certified system operators. The PS could fill a similar role for the broader BPS personnel. Sharing ideas and best practices would provide greater value to the industry. While well-intentioned, the continued development of CE program “requirements” may have unintended consequences. Creating additional “quasi-requirements’ outside the NERC standards process may affect an entity’s implementation of or compliance with the existing Reliability Standard.