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Northeast Power Coordinating Council, Inc.
Cost Effectiveness Analysis Procedure “CEAP”
For
NPCC Regional Reliability Standards



Approved by the NPCC Regional Standards Committee
10/26/2011

Unclassified

I. EXECUTIVE SUMMARY

During a 2010 FERC technical conference the Commission recognized that “reliability does not come without cost”, and significant interest was expressed in development of a process to identify costs for draft reliability Standards and the ability of the proposed standards to achieve their reliability objective(s) in a cost effective manner. In addition, the NPCC Board of Directors (BOD), in its consideration of Regional Standards, expressed concern regarding what a Standard’s implementation may cost the industry and the relevant incremental reliability improvement (benefits) that implementation of that Standard may yield. Therefore, the NPCC BOD directed NPCC Staff to develop a methodology to assess the cost and benefit of Standards. This NPCC Cost Effectiveness Analysis Procedure (CEAP) establishes a process to address those concerns.

The CEAP introduces two assessments of the estimated industry wide costs of requirements in a proposed draft Standard into that Standard’s development process. The procedure, conducted in parallel with the drafting process, is designed so it does not delay the development of the Standard, but adds supporting information and background for the NPCC stakeholders, ballot body and the NPCC Board of Directors. In addition to providing a “snapshot” looking at the cost of the proposal, the CEAP will also solicit input from an independent and wider range of technical perspectives of the industry as well as NPCC’s technical groups to determine if any unintended adverse impacts may be created with respect to other Regional or Continent wide Standards, should the draft Standard be approved.

The NPCC CEAP will be utilized to perform an analysis of the cost benefit of the proposed requirements in NPCC’s Regional Standards as they are developed, and prior to their approval by the NPCC Board of Directors. Implementation of the CEAP will be coordinated with the steps outlined in the NPCC Regional Standards Development Procedure for developing a Regional Standard.

The process incorporates two separate phases of reviews,

First to be conducted is a Cost Benefit Analysis (CBA) that will be based on the responses to an initial set of questions posed to the industry during the Regional Standard Authorization Request (RSAR) stage to determine if the Standard project should be pursued. A cost benefit analysis is an assessment to determine and compare the relative costs and benefits of a particular course of action. Questions posed during the RSAR stage to the industry will focus on potential costs and benefits. Questions posed during the RSAR phase will also determine if the Standard, in the view of stakeholders, would achieve an Adequate Level of Reliability (ALR) or go “beyond” that to achieve some optimum or premium level of reliability. Once this information is gathered, the NPCC Regional Standards Committee (RSC) will review this information and make a determination whether or not to pursue the development of the standard.¹ The CBA might lead to the

¹ For example, if the RSAR in question addresses Geomagnetic Disturbances (GMD) and hardening the grid, questions could be posed at the onset of the process on what a cost might be to protect all the transformers (potentially billions of dollars) and what the probability of experiencing a severe GMD, based on past history is (extremely low for continent wide outage).

conclusion that a technical guideline or whitepaper might be a preferred undertaking as opposed to a mandatory Standard in a given area.

Second will be the Cost Effectiveness Analysis (CEA). The Cost Effectiveness Analysis is an analytical tool whose purpose is to provide information about the relative cost of different approaches to eliminating disparities, increasing life expectancy, or any program or initiative. This will involve two sets of questions. One to solicit industry opinion on the technical feasibility to achieve the reliability objective of the Standard with its requirements, and second will be to solicit cost, cost recovery, resource and estimated time to implement compliance to the draft Standard. These will be done on a requirement by requirement basis, and questions will ideally be posted once the draft Standard's requirements have firmed up later in the Standard development process. The RSC will evaluate all information provided and produce a CEAP report that will be posted along with the NPCC Standard during balloting. Information in the report will be aggregated and presented on a region-wide basis along with either a recommendation, or a list of potential issues for stakeholder consideration.

All cost information submitted by entities will be reviewed and compiled by NPCC Staff prior to being made public, or presented to the RSC. Market issues of individual stakeholders may exist or be revealed through the responses to the CEAP questions. Necessary confidentiality will be maintained, and no market sensitive information will be revealed.

II. BACKGROUND

The purpose of the Northeast Power Coordinating Council, Inc. ("NPCC"), is to enhance the reliability of the international, interconnected bulk power system in Northeastern North America through the development of more stringent and specific Regional Reliability Standards. Additionally NPCC will perform compliance assessment and enforcement of continent wide and Regional Reliability Standards pursuant to the execution and implementation of a Regional Delegation Agreement with the Electric Reliability Organization ("ERO") and applicable Canadian Memoranda of Understanding. These agreements are backstopped by the Federal Energy Regulatory Commission ("FERC") and Canadian Provincial governmental authorities. In the development and enforcement of Regional Reliability Standards, NPCC, to the extent possible, facilitates attainment of fair, effective, efficient, and competitive electric markets.

General Membership in NPCC is voluntary and is open to any person or entity, including any entity participating in the Registered Ballot Body of the ERO that has an interest in the reliable operation of the Northeastern North American bulk power system.

III. NPCC PROCEDURE FOR COST EFFECTIVENESS ANALYSIS OF PROPOSED NPCC REGIONAL STANDARDS.

- 1) Before accepting a NPCC Regional Standard Authorization Request (RSAR), the Regional Standards Committee (RSC) posts the CBA questions in Appendix B for stakeholder review and response. Following receipt of the responses to the CBA questions, the RSC will compile the information obtained and determine whether or not to accept the RSAR and authorize posting of the notification of intent to develop a standard along with the responses to the Cost Benefit Analysis (CBA) questions in Appendix B. If the RSC determines that the CBA responses do not support a standard's development, the RSC will determine if a technical guideline or white paper be developed to address the reliability objective by the appropriate task force or working group. The RSC will also issue a formal notice explaining why the RSAR was not accepted.
- 2) During the NPCC Regional Standards development process, a NPCC Regional Standard Drafting Team (RSDT) will deliberate on whether the requirements in a Standard are developed enough to begin the CEA process and request that the RSC initiate the second phase (CEA) of the process.
- 3) The RSC, upon approval of the RSDT's request to initiate Phase two of the CEAP, will develop a CEAP Guidance Procedure document (see Appendix A for template) outlining the expectations for the CEAP, and conduct the assessment as follows:
 - a. Approve a set of surveys that must be conducted to determine the appropriate impact (i.e. operational, costs, resources, etc.) of the proposed Standard's requirements on a requirement by requirement basis. The RSC will judge whether or not sufficient stakeholder responses were received to provide valid results for analysis. If the number of responses received was not adequate the RSC will determine what course of action to take, ranging from accepting the limited information received, to the reissuance of the surveys. The surveys should be such that their results provide:
 - i. Indication of what cost would be associated with the individual requirements in the Standard, if approved. The approximate costs would be aggregated by the RSC and based on surveys for the entire Region, and also by the Reliability Coordinator, Province, etc. to provide more information on how universal the impact may be.
 - ii. Indication of the entities' estimates of what resources and timeframes might be needed to comply with a Standard's requirements and provide information on the time the entities might need to implement the requirements of the Standard, and develop

documentation regarding compliance. This input would consider not only technical but budgetary concerns. The timeframe would provide further input to the RSDT's Implementation Plan.

iii. Identification of potential alternative reliability requirements that could more cost-effectively achieve the same benefits of reliability improvements, and provide justifications, as well as any potential adverse impacts or unintended consequences, if any, that may result directly, or indirectly.

iv. Identification of any market issues that may exist and how they could affect the Standard's requirements or applicability.

- b. Approve the assignment of a particular survey to NPCC Task Forces (TF) or Working Groups (WG) and the scope of activities expected as per the Cost Effectiveness Analysis (CEA) Guidance Document, or utilize the standard set of questions in Appendix B.
 - c. Upon completion of the surveys and analysis, the RSC will conduct an assessment of cost and perceived effectiveness of the draft Standard's requirements to achieve the identified reliability benefit of the Standard's objective and develop a recommendation.
- 4) Upon TF (or WG) completion of the CEAP and all RSC requested tasks the TF (or WG) will submit the information, results and recommendations to the RSC.
- 5) The RSC will review the TF recommendations, information, and suggested follow up actions and will determine a course of action.
- 6) The RSC will communicate the outcome of their deliberations to the RSDT along with one of the following actions:
- a. Revise the Standard to address the results of the CEAP.
 - b. Accept the Standard "as is" to move forward through the remainder of the process (go to Step 7).
 - c. Hold the Standard in abeyance until such time as additional guidance can be provided regarding whether or how to continue.
 - d. Decide not to pursue the development of certain requirements or the entire Standard due to cost effectiveness considerations.
- 7) Upon acceptance by the RSC of the CEAP and determination that the Standard is cost effective by virtue of information provided in the RCC report and any other input that may be available, the remainder of the NPCC Standards Development Process will be followed. The results of the CEAP will be posted along with the draft Standard and Implementation Plan along with any other pertinent information for the information of the stakeholders during ballot.

- 8) The NPCC Assistant Vice President of Standards will present the results of the CEAP to the NPCC Board of Directors at the same time the Standard is presented for approval.
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Appendix A

CEAP Guidance Procedure

Date RSC Accepted SDT request to initiate CEA _____

Draft Standard Title/Project Number _____

Standard Type (i.e. Planning- TPL, Protection-PRC, etc.) _____

NPCC Subject Matter Experts (RSC, RCC, TF or WG) _____
(Cost and Technical consideration--assigned gathering of data/surveys)

Applicability (i.e. TOP, GO, TO, etc.) _____

Suggested Additional Outreach for Survey _____
(Gen. Forum, NATF, etc.)

Standard Templates Survey Questions or Custom _____

Assigned Group for Custom Survey(s), if applicable (RSC, TF, or etc.) _____

RSC approves Survey data requests (Date) _____

Date Survey sent to stakeholders for 30 day comment period _____

RSC analyzes Survey results and develops a recommendation _____

RSC posts the results of the CEAP along with the Ballot materials _____

1) CEAP Phase 1 Cost Benefit Analysis (CBA)

RSAR proposed (but not yet accepted) Date _____

Results of RSC Evaluation of CBA Responses (Proceed? Y/N) _____

Date RSC initiates Phase 1 CEAP, CBA _____

2) CEAP Phase 2 Cost Effectiveness Analysis (CEA)

Appendix B

Typical CBA Questions (Phase 1 of CEAP, to be included upon notification of intention to develop an NPCC Regional Standard and posting of RSAR. Additional questions may be added to the list below as appropriate):

- 1) Does the proposed Standard fill a reliability “gap” that must be filled to protect reliability? If not, why not (probabilistic data may be used to make a determination)?
 - 2) If the Standard meets a “reliability related” need would it achieve an adequate level of reliability “ALR” or exceed this ALR? If so, how? If not why?
 - 3) What approximate one-time and ongoing estimated potential costs would be associated with compliance with the proposed Standard?
 - 4) Is there an alternate way of achieving the reliability objective of this proposed Standard?
 - 5) Would a technical guideline or “best practices” whitepaper or a training program be effective in achieving a desired outcome to meet the reliability need, as opposed to a “region wide” Standard or variance?
 - 6) What are the benefits of the proposed standard/requirements?
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Typical CEAP Technical Survey Questions (Phase 2 of CEAP, may be included in SDT postings for comments or done separately as part of the CEAP. Additional questions may be added to the list below as appropriate):

- 1) On a requirement by requirement basis, are the Requirements effective in achieving the reliability objective of the Standard and if not, why?
 - 2) Are there alternative ways to achieve the draft Standard’s reliability objective? If so, what alternatives are there and which requirements would they replace?
 - 3) On a requirement by requirement basis, does each of the draft requirements, by itself, achieve or contribute to a level of reliability that is “adequate”, i.e. acceptable? If so, how? If not, why not?
 - 4) Are there additional “efficiencies” that could be realized for any requirement(s)? If so, which requirements, what “efficiencies”, and how realized?
 - 5) Is there any adverse impact to reliability or any other existing standard, NPCC Regional Criteria, or in-process project draft Standard(s), of which your organization is aware?
 - 6) What would the probabilistic risk be for an event/issue to occur which would otherwise be addressed by this Standard? (i.e. High, Medium, or Low)
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Typical CEAP Cost and Implementation Questions (Phase 2 of CEAP, may be included in SDT postings for comments or done separately as part of the CEAP. Additional questions may be added to the list below as appropriate):

- 1) Describe the size of your organization in broad general terms, e.g. GO-Total installed MWs, TOs circuit miles by kV and total load served, etc.**
- 2) What are the gross anticipated one-time and ongoing costs of implementing the Standard and its requirements as presently drafted (labor, materials, administrative)?**
- 3) If the Standard were not implemented, what would be the potential cost incurred if the perceived reliability risk was not mitigated, or the projected outcome, (i.e. lack of maintenance of UFLS could render it inoperable and lead to cascading)?**
- 4) How long would it take your organization to implement full compliance to the Standard as written? What would affect the implementation (i.e. outage scheduling, availability of materials, human resources, etc.)?**

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RSC Conducts Phase 2 CEAP, upon RSDT approval to continue

