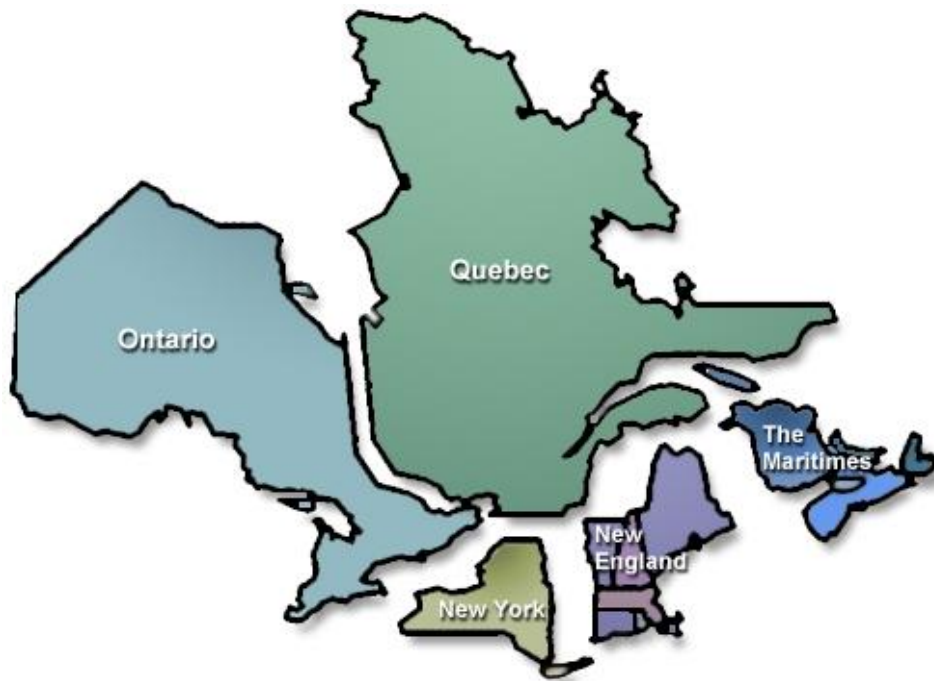


*Approved at the September 7, 2006
NPCC Executive Committee Meeting*



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Northeast Power Coordinating Council 2007 Business Plan – September 7, 2006

(Including the member reliability functions & services of NPCC Inc. and the contracted reliability services and the delegated authorities of NPCC CBRE)

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Introduction

The Northeast Power Coordinating Council (NPCC) was originally formed as a voluntary, non-profit regional electric reliability organization in January 1966 shortly following the Northeast Blackout of November 9, 1965. NPCC is one of eight Regional Reliability Organizations located in North America. In response to U.S. energy legislation (EPAct 2005 signed into law August, 2005) and in preparation for the certification of an Electric Reliability Organization (ERO) in 2006 and subsequent execution of a Regional Delegation Agreement (RDA) and Memorandums of Understanding (MOUs) with appropriate Canadian Provincial regulatory and governmental authorities, NPCC has restructured. The Membership interests in NPCC have been transferred to a regional reliability assurance not-for-profit corporation, NPCC Inc., and a separate and independent, affiliated, not-for-profit corporation, NPCC: Cross-Border Regional Entity, Inc. (NPCC CBRE) has been created which will perform functions delegated or contracted to it from the ERO, to be backstopped by the Federal Energy Regulatory Commission (FERC) and Canadian Provincial authorities.

NPCC Inc., as the international Regional Reliability Organization (RRO) for Northeastern North America, and successor to NPCC, will provide its members regional reliability assurance services and will act as the vehicle through which States and Provinces can fulfill their political mandate to oversee the Northeastern North American electric infrastructure through development, assessment and enforcement of regionally-specific reliability criteria. NPCC CBRE will serve as the Cross-Border Regional Entity for the Northeast with delegated functions from the ERO pursuant to an RDA and Canadian Provincial MOUs, backstopped by FERC and Canadian Provincial authorities, and a Reliability Services Agreement (RSA) intended to include activities that are in the furtherance of NERC's responsibilities as the ERO under EPAct 2005. (*See Appendix A for Organizational Profiles*)

Executive Summary

As implementation of the U.S. Energy Legislation progresses with the issuance by FERC of the EPAct 2005 Rules and the filing of an ERO application by NERC, NPCC's Mission and Vision for a reliable Northeast remain focused. The Draft 2007 Business Plan outlines a comprehensive and flexible strategy for NPCC to be able to respond to emerging reliability and organizational issues. NPCC, Inc. as the successor to NPCC, will continue to promote the reliable and efficient operation of the international, interconnected Bulk Power Systems in Northeastern North America and to provide its members regional reliability assurance services and to act as the vehicle through which States and Provinces can fulfill their political mandate to oversee the Northeastern North American electric infrastructure through development, assessment and enforcement of regionally-specific reliability criteria, the coordination of system planning, design and operations, and assessment of reliability. NPCC CBRE, through the execution of a service agreement with NPCC, Inc., will perform the Cross-Border Regional Entity functions for the Northeast.

The purpose of NPCC CBRE, an independent affiliate of NPCC Inc., is to enhance the reliability of the international, interconnected Bulk Power System in Northeastern North America through the development of regional reliability standards and compliance assessment and enforcement of continent-wide and regional reliability standards pursuant to the execution and implementation

of an RDA with the ERO and Canadian Provincial MOUs that are backstopped through the ERO by the FERC and Canadian Provincial authorities.

1. BUSINESS PLAN OBJECTIVES

I. Regionally-Specific Reliability Criteria and Reliability Standards (ERO Section 300)

A. NPCC Inc.

NPCC has a comprehensive set of regional reliability Criteria, developed, periodically revised, and published on a publicly accessible website. These Criteria represent forty years of experience and technical expertise specific to Northeastern North America and, along with the NPCC guidelines and procedures, succinctly state what is required to ensure the reliable operation and adequacy of the international Bulk Power System. The development and continual review of NPCC Criteria is done by technical groups of experts and in an open, inclusive and transparent process allowing participation through a web-based comment forum. The Criteria have been developed to be “*not inconsistent with*” the NERC Operating Policies, Planning Standards and subsequent NERC Reliability Standards filed with FERC. Criteria in some cases represent more stringent and more specific requirements that the NPCC membership has agreed to which are necessary to meet all Northeast reliability objectives. NPCC membership is currently bound, through the execution of the NPCC *Membership Agreement* to adhere to these Criteria and enforcement of compliance with the Criteria is achieved through the NPCC Enforceable Compliance Program with the support of State and Provincial authorities. NPCC Inc. Bylaws are consistent with the *Membership Agreement*, to the greatest extent possible, and will shortly replace the *Membership Agreement* as the vehicle to outline member rights and obligations as restructuring has moved forward and the membership has transferred from the NPCC Council to NPCC Inc. the Corporation. It is anticipated that NPCC Council will be dissolved before the end of 2006.

Reliability Criteria activities planned for 2007 include:

- Enhance the NPCC Inc. Regional Criteria Development process by encouraging and implementing procedures allowing for greater interregional interaction, communication and review
- Review and revise Criteria, guides and procedures as per NPCC Reliability Assessment Program schedule with the following Criteria:
 - A-02 Basic Criteria for Design and Operation of the Interconnected Power System
 - A-03 Emergency Operations Criteria
 - A-04 Maintenance Criteria for Bulk Power System Protection
 - A-07 NPCC Glossary of Terms
 - A-11 Special Protection System Criteria
- Review and update NPCC Inc. “mapping” of NPCC Criteria to NERC/ERO Standards
- Develop a new Criteria, A-12 System Restoration Criteria

- Develop and maintain regional procedures, guides, white papers, data, website(s) and databases to comply with NERC Reliability Standards and to promote reliability improvement in the NPCC Inc. Region.
- Monitor developments at NERC for blackout related recommendations and incorporate into the Criteria as necessary to meet the reliability objectives of North-eastern North America.
- Strengthening the design-based approach in regionally – specific criteria.
- Document the NPCC definition of Bulk Power System and define the methodology for determining Bulk Power System facilities.

B. NPCC Inc. - RSA Activities (could be contracted from ERO to NPCC CBRE) identified:

Possible future activity in which regional technical expertise could be made available to the ERO upon their request.

C. NPCC CBRE (Delegated through RDA and Canadian Provincial MOUs)

The majority of the proposed regional reliability standards development activities for 2007 will be directly related to those NERC/ERO Reliability Standards that the FERC staff has referred to as “fill in the blank” standards. Those standards assign to regional reliability organizations the responsibility of establishing reliability requirements for regional members. However, Section 215 of the U.S. Federal Power Act does not allow enforcement of an ERO reliability standard upon a Bulk Power System owner, operator or user, including the setting of financial penalties and sanctions, to the extent a portion of the requirements exists outside the standard. Therefore, although the NPCC Inc may have regionally-specific Criteria that address the requirements contained in these continent-wide standards, the Criteria themselves are not Regional Standards. A plan to address these fill-in-the-blank standards is scheduled to be jointly developed by all regional entities by November 1, 2006.

Regional Reliability Standards activities for 2007 include:

- Develop an NPCC Regional Reliability Standard Development Process to conform to the principles set forth in §39.5 of FERC Order 672
- Design and implement a standards development procedure that utilizes groups of subject matter experts and a design-basis approach to the establishment of reliability requirements
- Promote and facilitate open process reviews and balloting of standards, through the use of internet based technologies and databases, automating where feasible
- Utilize the NPCC Regional Reliability Standard Development Process, as necessary, to develop and submit the following regional standards for ERO Board approval:
 - EOP-007 Blackstart Capability Plan
 - EOP-009 Documentation of Blackstart Gen. Unit Test Results
 - MOD-001 TTC, ATC Calculation Methodologies
 - MOD-002 TTC, ATC Transmission Service Provider

- MOD-003 TTC, ATC Regional Procedures
- MOD-004 Regional CBM methodologies
- MOD-005 CBM verification procedure
- MOD-008 Regional TRM methodology
- MOD-009 TRM verification procedure
- MOD-011 Steady-State Data Requirements
- MOD-012 Dynamic Data Modeling and Simulation
- MOD-013 Dynamics Data Requirements
- MOD-016 Reporting Requirements, Actual and Forecast Demands
- PRC-002 Disturbance Monitoring Equipment Requirements
- PRC-003 Transmission Protection System Misoperations
- PRC-006 Underfrequency Load Shedding
- PRC-012 Special Protection System Review Procedure
- PRC-013 SPS Database
- PRC-014 SPS Assessment
- MOD-024 Verification of Generator Gross and Net Real Power
- MOD-025 Verification of Generator Gross and Net Reactive Power
- MOD-026* Verification of Models for Generator Excitation System Functions
- MOD-027* Verification of Generator Unit Frequency Response
- PRC-019* Coordination of Generator Voltage Regulator Controls with Unit Capabilities
- PRC-024* Generator Performance during Frequency and Voltage Excursions
- BAL-002 Disturbance Control Performance
- EOP-004* Disturbance Reporting

** If approved during 2006*

- Standards for which no SARs have been submitted, but which are planned for completion in 2007 and for which NPCC: CBRE regional reliability standards may be required include:
 - Operating Tools
 - Operating Reserves
 - Reactive Reserves and Voltage Control in the Operating Horizon
 - Enhanced Version 0 Reliability Standards (including compliance elements)
 - Voltage and Reactive Planning
 - System Protection and Control
 - System Modeling and Data Exchange
 - Fuel Infrastructure Reliability (Delivery-Disruption)
 - Definition of NPCC Bulk Power System and Associated Elements
- Regional activities planned for Standards under development by NERC/ERO include:
 - Continue to encourage participation by volunteer subject matter experts from within the NPCC membership on Standard Drafting Teams

- Participate in ERO sponsored workshops to promote understanding and to educate with regard to best practices including activities underway in the Northeast and specifics on how to participate
 - Coordinate and consolidate comments by regional members and NPCC Staff on standards posted for comment
 - Distribute information from the NERC/ERO and FERC websites regarding the latest standard development status to support regional involvement in due process and implement approved standards
- Regional activities associated with Reliability Standards development by other regional entities include:
 - Encourage participation by subject matter technical experts from within the NPCC CBRE membership on other regions' Standard Drafting Teams and provide cross review with NPCC Inc. regional criteria to ensure there will be no adverse impact to reliability
 - Coordinate and consolidate comments by CBRE members on standards posted for comment
 - Distribute information from regional entity, NERC/ERO, and FERC websites regarding the latest regional reliability standard development status to support regional entity involvement in due process

II. NPCC Inc. and NPCC CBRE Compliance Enforcement (ERO Section 400)

A. NPCC Inc. – Regional Reliability Criteria Compliance

The NPCC Inc. Regional Criteria Reliability Compliance and Enforcement Program will be used to assess and enforce compliance with NPCC Regional Reliability Criteria, focusing on NPCC's regionally-specific criteria and resource adequacy requirements. Actions taken by NPCC under the Program, including the imposition of non-monetary sanctions where applicable shall in no way be construed to relieve the Member from its continuing obligation to fully comply with NPCC Regional Reliability Criteria. As such the Member remains responsible for providing its plan and schedule to achieve compliance.

The Program is designed to be consistent with the concept that compliance assessment and enforcement is most effectively accomplished by the entities that are closest to the complying party. The Program establishes the following assessment structure: NPCC will assess and enforce compliance to those Regional Reliability Criteria for which the Control Areas have the reporting responsibilities, and the Control Areas will assess and enforce compliance to those Regional Reliability Criteria for which the market participants have reporting responsibilities.

A Member, through whose facilities a non-member connects with or proposes to connect with the NPCC Bulk Power System, shall assure that the arrangements for such connection are consistent with NPCC Criteria. It is further noted that the Program requirements are applicable only to the elements of the Bulk Power System as defined by NPCC Inc..

This program will continue to be administered by the NPCC, Inc. Board of Directors and implemented by the Reliability Coordinating Committee, the Compliance Monitoring and Assessment Subcommittee (CMAS) and the Enforcement Panel.

NPCC Inc. will accomplish this by:

- Utilizing CMAS and the Task Forces for the initial assessment of compliance.
- Utilizing the RCC for the final compliance determination.
- Utilizing the NPCC Enforcement Panel to implement sanctions and resolve any disputes related to a final compliance determination or application of a sanction. Non-monetary sanctions will be based on NPCC Inc. Sanction Guidelines.
- Developing and implementing an appropriate compliance audit and investigation program.
- Implementing a comprehensive recommendation tracking and completion process for the mitigation of identified violations and providing periodic status reports on progress.
- Utilizing the NPCC Website for all compliance filings.
- Establishing reporting procedures with the ERO for all violations.

B. NPCC Inc. - RSA Activities (could be contracted from ERO to NPCC CBRE) identified:

Possible future activity in which regional technical expertise could be made available to the ERO upon their request.

C. NPCC CBRE (Delegated through RDA and Canadian Provincial MOUs) – Reliability Standards Compliance

The U.S. energy legislation and comparable statutes within the Canadian provinces require that all users, owners, and operators of the Bulk Power System comply with applicable reliability standards. NPCC CBRE will develop a Reliability Standards Compliance Enforcement Program within the U.S. that conforms to the Regional Delegation Agreement with NERC, and within Canada, that is consistent with Memorandums of Understanding with provincial regulatory and governmental authorities. For example, the IESO will continue to monitor, assess and enforce compliance, with oversight from NPCC CBRE, in accordance with existing agreements between the Ontario Energy Board, IESO and its market participants.

NPCC CBRE will accomplish Reliability Standard Compliance Enforcement in the following manner:

- Implement a new compliance review and assessment process directed by independent NPCC CBRE in a fair, unbiased and consistent manner
- Develop and post the annual Reliability Standards Compliance Enforcement Plan via the NPCC public web site to all registered users, owners, and operators of

elements of the Bulk Power System within NPCC CBRE's geographic boundaries (See Section III for Registration)

- Conduct a Compliance Seminar during the first quarter of 2007 to explain the overall plan content and objectives, and to discuss applicable standards for Planning, Operating, and Cyber Security. The CBRE compliance program will contain all of the Reliability Standards NERC has designated as monitored and all other Reliability Standards in effect at the beginning of 2007.
- Provide compliance audit training to staff, member participant representatives and any contractors utilized for compliance monitoring to achieve maximum effectiveness and consistency of monitoring, reporting, enforcement
- Utilize the NPCC website for all required filings
- Modify existing forms, as appropriate, for 2007
- Create new filing documents for new standards
- Expand the compliance audit and investigation program to incorporate new registrations through:
 - Establishing, consistent with ERO requirements, a schedule for on site compliance audits of RCs, BAs, and TOPs
 - Establishing, consistent with ERO requirements, a schedule for in house or “table top” audits of other registered entities
 - Conducting investigations as required
- Participate in ERO annual audit of CBRE Reliability Standards Compliance Program
- Establish reporting procedures with the ERO for all violations
- Report all alleged violations of standards to the ERO on a confidential basis
- Report significant, and other designated, violations of NERC Reliability Standards to NERC within 48 hours of occurrence, or within 48 hours of when NPCC CBRE learns of the violations, except for reporting and administrative requirements
- Require timely mitigation plans for all compliance violations that include:
 - Reason for non compliance
 - Actions taken to correct the non compliance
 - Date to become compliant
 - Actions taken to prevent a reoccurrence
 - Addresses the effect on reliability of the Bulk Power System
- Identify any non-compliance trends and recommend follow-up activities as appropriate
- Determination and Imposition of Penalties and Sanction
 - Upon the determination of a non compliance, NPCC CBRE implements a penalty or sanction utilizing approved ERO Sanction Guidelines.
 - Conduct hearings for contested findings or sanctions
 - Identify disbursement mechanism of any financial penalties imposed
- Utilize subject matter expertise from the membership to design and continuously improve compliance forms for collecting self assessments and data in response to special requests for analysis of identified reliability concerns in the following

areas: available transfer capability, generation dynamics data and model validation, telecommunications and vegetation management

- Review enforcement actions for consistent application of standards
- Benchmark against measurable performance targets
- Implement a comprehensive Recommendation Tracking and Completion Process and provide periodic status reports on progress

III. Organization Registration and Certification (ERO Section 500)

A. NPCC Inc.

(See below)

B. NPCC Inc. - RSA Activities (could be contracted from ERO to NPCC CBRE)

Certification

- Certify Functional Model entities, including RCs, BAs and TOPs utilizing NERC-approved methodology and process
- Conduct certification audits as required
- Re-certify entities as required by certification standards

C. NPCC CBRE (Delegated through RDA and Canadian Provincial MOUs)

Registration

- Register all users, owners, and operators of elements of the Bulk Power System, as defined by NPCC utilizing a reliability impact based methodology approved by the ERO, within the NPCC geographic area on the NPCC website
- Assign applicable Reliability Standards and compliance filing requirements, and establish compliance accounts for each registered entity
- Ensure that all net energy for load in the region is accounted for, as well as the entities to which funding of the ERO and Regional Entities will be allocated

IV. Personnel Certification (ERO Section 600)

A. NPCC Inc.

No regionally-specific certification of system operating personnel is currently performed. Certification of personnel for other Functional Model responsibilities could be considered as a future activity. (Also see Section VII. for ongoing NPCC Inc. activity.)

B. NPCC Inc. - RSA Activities (could be contracted from ERO to NPCC CBRE)

Possible future activity in which regional technical expertise could be made available to the ERO upon their request.

C. NPCC CBRE

Non statutory activity

V. Reliability Readiness Audit and Improvement (ERO Section 700)

A. NPCC Inc.

- Support the Readiness Program and follow-up within the NPCC geographic area
- Support implementation of the Readiness Program in other regions
- Coordinate with NERC development of a three-year cycle of readiness assessments of RCs, BAs and TOPs
- Update Readiness Program cycle annually to establish specific assessment schedule
- Coordinate with NERC and ISOs readiness program and schedule for local control centers (LLCs)

B. NPCC Inc. - RSA Activities (could be contracted from ERO to NPCC CBRE)

(1) Readiness Assessments within NPCC

- Staff serve as team co-lead
- Establish entity single point of contact
- Coordinate completion of assessment questionnaires, processes, data requests, and documentation
- Participate in on-site visits as requested (grant interviews, provide access to facilities, describe processes, etc...)
- Review readiness reports and provide feedback on factual matters and clarifications according to a designated schedule
- Track a response plan to address report recommendations, and include a timeline for implementation

(2) Readiness Assessments external to NPCC

- Apply expertise and experience by serving as an assessment team member
- Participate in readiness program skills training as developed and provided by NERC
- Implement NERC confidentiality policies and procedures

- Participate in pre-readiness assessment activities such as reviewing questionnaire responses, identifying areas requiring further investigation, coordinating interview processes, etc.
- Conduct on-site assessment to include interviews, observations, and examinations of documentation
- Present findings and recommendations, and prepare readiness report
- Implement a comprehensive Recommendation Tracking and Completion Process and provide periodic status reports on progress

C. NPCC CBRE

Non-statutory activity

VI. Reliability Assessment and Performance Analysis (ERO Section 800)

A. NPCC Inc.

NPCC through its Reliability Coordinating Committee, Task Forces and Working Groups (*See Appendix B for committee and task force scopes*) performs assessments of future adequacy of the Region. These efforts are summarized below:

- Review the adequacy of the NPCC systems to supply load considering forecast demand, installed and planned supply and demand resources and required reserve margins in accordance with Guidelines for Area Review of Resource Adequacy (NPCC Document B-8).
- Coordinate the review of the compliance of future Area plans with the Basic Criteria including an analysis of resource and transmission system additions, and the potential inter-Area effects of special protection systems, in accordance with Guidelines for NPCC AREA Transmission Reviews (NPCC Document B-4). Specific projects, which in the opinion of the task force could have an impact on the reliability of the NPCC Bulk Power System, may be reviewed outside of the set schedule.
- Periodically reviewing NPCC Area's Triennial Reviews of Resource Adequacy.
- Periodically performing an overall interregional resource adequacy overview of NPCC and its neighboring Regions.

B. NPCC Inc. - RSA Activities (could be contracted from ERO to NPCC CBRE)

NPCC through its Reliability Coordinating Committee, Task Forces and Working Groups performs assessments of future reliability of the Region, including neighboring Regions, and prepare reports to present to the ERO. These efforts are intended to support and complement current NERC and anticipated future ERO activities, and are summarized below:

Coordination of Planning

The NPCC Task Force on Coordination of Planning promotes reliability through the coordination of NPCC Area planning processes. Its ongoing activities, as defined by its scope, include:

- Initiate reviews of the Basic Criteria for the Design and Operation of Interconnected Power Systems (NPCC Document A-2), of other NPCC criteria, guidelines, and procedures related to planning, and of those documents which provide for the uniform implementation, interpretation and monitoring of compliance with criteria, guidelines and procedures related to planning. These reviews will be coordinated with the Task Force on Coordination of Operation.
- Assist the NPCC Compliance Monitoring and Assessment Subcommittee to monitor and coordinate the compliance efforts of the Areas with NPCC planning documents.
- Completing any outstanding Blackout Recommendation Follow-Up analyses, including any further Blackout Recommendation activities as they are developed by the NERC Blackout Recommendation Task Force (BRTF) or NPCC.
- Coordinating all activities related to the “TFCP Whitepaper on NERC Recommendation 7a Reactive Power and Voltage Control Practices” with the Task Force on Coordination of Operation and the Task Force on System Studies to ensure that developments in the NERC Planning Committee and its Subcommittees are addressed.
- Evaluating system protection and control to address the limiting propagation of a cascading failure.
- Defining and determining the requirements for synchronized reserve.
- Coordinating, monitoring, reviewing, and making recommendations on proposed or modified Special Protection Systems
- Facilitating Wide-Area Planning by supporting the Joint ISO/RTO Planning Committee Activities, implementation of the Northeast Planning Protocol, and perform interconnection reliability analyses, as required.
- Evaluating Under Voltage Load Shedding (UVLS) applicability and capability within NPCC. Coordinate to ensure that further UVLS analysis beyond the initial feasibility/screening study is completed according to schedules.
- Following the DOE Eastern Interconnect Phasor Project.
- Participating in the DOE Congestion Study and designation of National Interest Electric Transmission Corridors.
- Reviewing the overall reliability of the NPCC Areas and performing pre-seasonal (summer/winter) multi-Area probabilistic reliability assessments.
- Reviewing the Phase I NERC Planning Standards that have been placed into final NERC due process. Recommend changes to those NERC Planning Standards that are scheduled for implementation in latter phases of the NERC Compliance Program. Reviewing the Standards Authorization Requests and Reliability Standards as well as participating in the NERC process. Educating and informing NPCC membership of developments.
- On a consistent basis, periodically estimating the amount of interconnection as-

sistance available to the NPCC Areas for today's system and for the near term.

System Studies

The Task Force on System Studies provides active overall coordination of system studies of the reliability of the interconnected Bulk Power Systems. Its ongoing activities, as defined by its scope, include:

- Participating in reviews of the *Basic Criteria for the Design and Operation of Interconnected Power Systems* (Document A-2) and other NERC and NPCC criteria, guidelines, procedures and documents which provide for the uniform implementation, interpretation and monitoring of conformance to criteria, guidelines and procedures related to system studies.
- Conducting Area Reviews to assess the impact of planned transmission and resource additions or modifications on system reliability, and determine each Area's conformance with the Basic Criteria.
- Reviewing and classifying new and modified Special Protection Systems, and annually updating of the NPCC SPS list.
- Conducting such load flow, transient stability, and other studies as required analyzing the overall reliability of the planned bulk power transmission systems of NPCC and the interconnections between NPCC and other regional reliability councils. As a part of this effort, analyze potential inter-Area effects of Special Protection Systems.
- Conducting an annual review and update of the NPCC library of power flow base cases and associated dynamics data, for use in and support of planning studies, operating studies, and reliability assessments. Participating in the NERC inter-regional base case development process.

Starting with the prior year library base cases, prepare a consistent set of power flow, dynamics, and short circuit cases appropriate for use in the Area Reviews by April of each year. The Areas adjacent to other regional reliability councils (i.e. New York and Ontario) will be responsible for providing the system representations outside of NPCC.

- Analyzing dynamic phenomena which may affect interconnected system reliability, especially in the area of low frequency oscillations.
- Assessing the adequacy and suitability of existing underfrequency load shedding settings.
- Periodically reviewing the characteristics of NPCC recording devices used to capture power system dynamic phenomena.
- Periodically conducting a reliability review of each NPCC Area's future (4-6 years in the future) transmission plans.
- Periodically performing an overall assessment to evaluate the thermal and dynamic performance of the NPCC Region, including the calculation of Inter-Area transfer capabilities and Extreme contingency performance.

Completing Outstanding Blackout Recommendation Follow-Up analyses:

- Reviewing Type 1 and Type 2 Special Protection Systems (SPSs) that use indirect sensing to determine whether any improvements are warranted that could be made relatively easily and that would reduce the likelihood of their operating for conditions other than those for which they are designed. More specifically, the review of improvements to the "Loss of 3001" SPS should be considered and is recommended first.
- Investigating specific protection system changes on NPCC interfaces whose performance proved to be critical during the Blackout sequence of events.
- Investigating the coordination between generating unit (generator, excitation system, and prime mover) protections and the Underfrequency Load Shedding (UFLS) program by participation on the NERC System Protection and Control Task Force. Cases where generating unit protection cannot be coordinated with the UFLS program without compromising unit protection in future assessments of the UFLS program will be identified. Review NPCC Criteria to ensure that any required coordination between the UFLS program and generators is included.
- Ensuring that future assessments of the Underfrequency Load Shedding (UFLS) program include: sensitivity studies to examine: a) the impact of unexpected load or generation loss near the electrical center of unstable swings during island formation; b) simulation of island formation across Area and regional boundaries and modeling more severe conditions including modeling of initiating disturbances and non-coincident tripping of circuits across the island boundary; c) the impact of low voltages on UFLS relay performance including under-voltage supervision and accuracy of frequency measurements; and d) identification of large load areas within NPCC that are frequently deficient in generation by more than 25% and that are susceptible to islanding and assessment of the performance of such islands.
- To make improvements in modeling tools and data, .validate the reactive power, load power factor, and voltage profile data in the NPCC library power flow cases. Survey methods available now to create accurate power flow models based on actual operating data, what initiatives are underway by NERC, how much effort it would take to develop a common approach within NPCC and identify associated costs.
- Review past industry efforts to study dynamic load behavior, and contact others within the industry to benefit from their research. Focus on load behavior during large frequency and voltage excursions and the ability to model when load is tripped. Recommend whether to develop improved models for use in analysis of major disturbances or to develop appropriate models at the time of analyzing a disturbance.

System Protection

The NPCC Task Force on System Protection (TFSP) establishes the criteria, guidelines, and procedures and coordination of design, relative to the protection associated with the Bulk Power Systems. Its ongoing activities, as defined by its scope, include:

- Assessing proposed protection systems and special protection systems in accordance with NPCC Procedure for Reporting and Reviewing Proposed Protection Systems for the Bulk Power System.
- Reviewing and analyzing the performance of protection systems following selected major power system disturbances and events, inside as well as outside NPCC.
- Providing technical advice on protection issues to NPCC and coordinate with other Task Force on the application of Intelligent Electronic Devices (IEDs) that include functions related to energy management systems in addition to their protective functions, in order to safeguard the integrity of the protective functions.
- Reviewing and assessing significant protection issues of common interest or informational value.
- Reviewing and assessing regulatory and industry based documents as they relate to system protection. Providing technical representation to working groups for review of such documents.
- Maintaining an effective liaison with North America groups working in the protection areas, for example NERC System Protection & Control Task Force.
- Exchanging information with other power pools, Regional Reliability Councils, Regional Transmission Organizations and other industry groups on matters concerned with system protection.
- Identifying the need for special studies and new documents, recommending action and performing special assignments and studies as directed or authorized.
- Collecting Bulk Power Maintenance Practices system protection system maintenance data to evaluate protection system maintenance costs and the impact on Bulk Power System performance due to alternative methods and intervals for protection system maintenance.
- Reviewing and analyzing the performance of protection systems of power system disturbances and event, inside as well as outside NPCC. Issuing recommendations for changes to NPCC Documents, as appropriate.
- Completing the Triennial Review of NPCC Special Protection System Criteria.
- Monitoring the development of NERC Phase III/IV Standards on Control Protection and Disturbance Monitoring and serve as lead Task Force to ensure NPCC compliance in accordance with approved implementation plan.
- Developing a new NPCC Guide to Time Synchronization of Substation Equipment
- Developing a new NPCC Guide for Application of Disturbance Recording Equipment – by December 2006
- Assessing Protection System Review Program Beyond Zone 3 within NPCC for Circuit 200 kV and above and or operationally significant circuits 100 kV to 200 kV as determined by NPCC.
- Meeting with the WECC Relay Work Group, as can be arranged, to share best practices.
- Developing a web-based application for reporting protection misoperations. The reported information will be organized into a knowledge base.
- Providing assistance on consideration of implementing the proposed Phasor Measurement Systems.

Completing Outstanding Blackout Recommendation Follow-Up analyses:

- Reviewing Type 1 and Type 2 Special Protection Systems (SPSs) that use indirect sensing to determine whether any improvements are warranted that could be made relatively easily and that would reduce the likelihood of their operating for conditions other than those for which they are designed; specifically, review improvements to the "Loss of 3001" SPS first.
- Investigating specific protection system changes on NPCC interfaces whose performance proved to be critical during the Blackout sequence of events.
- Completing the implementation of the 300 ms time delay on Underfrequency Load Shedding (UFLS) relays as determined in the 2002 UFLS Assessment.
- Investigating the coordination between generating unit (generator, excitation system, and prime mover) protections and the Underfrequency Load Shedding (UFLS) program by participation on the NERC System Protection and Control Task Force. Cases where generating unit protection cannot be coordinated with the UFLS program without compromising unit protection in future assessments of the UFLS program will be identified. Review NPCC Criteria to ensure that any required coordination between the UFLS program and generators is included.
- Ensuring that future assessments of the Underfrequency Load Shedding (UFLS) program include: sensitivity studies to examine the impact of low voltages on UFLS relay performance including under-voltage supervision and accuracy of frequency measurements.
- Determining whether existing NPCC criteria is sufficient to ensure that recording devices for generating units document event times for mechanical and electrical protection and control actions. If not they should recommend appropriate revisions to criteria. Event recording devices should be time synchronized to allow expedient development of an accurate and precise Sequence of Events following system disturbances.

Coordination of Operation

The NPCC Task Force on Coordination of Operation promotes and provides a forum for the active coordination of reliability and operation among the NPCC Areas and NERC Regions to enhance the reliability of the interconnected Bulk Power System. Its ongoing activities, as defined by its scope, include:

- Coordinating the development of operating criteria and procedures affecting the reliability and operability of interconnected power systems in coordination with, and as directed by, NERC and NPCC.
- Conducting seasonal reviews of the overall reliability of the generation and transmission systems in NPCC. Reviewing the operational readiness of NPCC and recommending possible actions to mitigate any potential problems identified for the coming operating period.
- Reviewing, and acting upon, NERC Standards, actions, motions and recommendations. Formulate positions on NERC Standards and provide this position to the NPCC Working Group CP-09 as appropriate.

- Ensuring the effectiveness of NPCC operations through: the review of operations and disturbances and by providing any necessary follow-up, including the recommendation of remedial or mitigating actions; and the development of criteria and procedures.
- Promoting and sponsoring inter-Area and interregional studies to enhance reliability and operational effectiveness through the development of common operating criteria, standards and procedures.
- Providing coordination of operating issues with NPCC and other Regions.
- Assisting the NPCC Compliance Monitoring and Assessment Subcommittee to monitoring and coordinating the compliance efforts of the Areas.
- Reviewing the procedures developed by the Regions (or sub-regions) for determining Available Transfer Capability (ATC) to ensure that the procedures are in concert with the ATC Principles in NERC's June 1996 Available Transfer Capability Definitions and Determination report.
- Insuring coordination between adjacent control areas in establishing interchange schedules, review time error correction procedures, and monitor the conformance of the Areas with NPCC Control Performance Criteria and Operating Reserve Criteria. Conduct investigations of control performance problems.
- Enhancing the relationship between the control room personnel and NPCC, and insure a continued understanding and effective implementation of the criteria and guides.
- Providing a forum for NPCC control centers to identify and discuss security concerns in the operation of the interconnected bulk power supply system, and specific concerns related to the integration of operation between and among the ISO/RTOs, concentrating on issues related to system security and the operation of the ISO/RTOs.
- Taking a lead role in the development of NPCC and NERC operational tools (e.g. electronic tagging, the NERC Interchange Distribution Calculator and electronic scheduling), including hardware, software and integrated systems. Define the need for operational tools, evaluate the cost benefits of operational tools, coordinate their implementation within NPCC and coordinate common training in the use of operational tools.
- Reviewing the overall reliability of the generation and Planning transmission system in the NPCC Region for the Summer and Winter Seasonal condition.
- Addressing the issue of ensuring appropriate Restoration Coordination operation of key system restoration facilities and their critical components.
- Establishing and reviewing Lake Erie line loading relief procedures developed by representatives from Ontario Hydro, the New York, the PJM Interconnection Association and the Michigan Electric Coordinated Systems.

Market Reliability Interface

- Identify potential reliability impacts associated with existing and proposed NPCC Area and neighboring Regions market mechanisms, and provide Regional liaison with NERC/NAESB goals, objectives and activities.

- Maintain the NPCC Major Projects List, of major generation and transmission projects. The list will be updated at least twice each year or more often if necessary.
- Through the NERC and NPCC base case development groups, improve the quality and consistency of models and data used in system studies.

Supporting Current Interregional Activities

- NERC Multiregional Modeling (MMWG)
Develop a library of solved load flow and dynamic simulation models for use by the Regions and their member systems in planning and evaluating future systems and current operating conditions.
- NERC Reliability Assessment Subcommittee (RAS)
Conduct an annual review of the overall reliability of the existing and planned generation and transmission systems of the eight Regional Reliability Councils for a ten year horizon. Conduct semiannual seasonal assessments of the overall reliability of the existing generation and transmission systems of the eight Regional Reliability Councils.

Supporting Other Reliability Activities

- MEN Working Group
Under the direction of the MEN Study Committee, conduct appraisals of the Reliability *First* – NPCC interconnected systems for expected summer and winter periods.
- Data Reporting Coordination
Coordinate with the Department of Energy (DOE) and the Energy Information Administration (EIA) in submitting yearly data and in negotiating the requirements for data submission to the EIA. An extensive data collection effort is required as part of the reliability assessment effort performed by NPCC. Data collection is accomplished through a staff-facilitated Data Collection Task Force consisting of representatives from each U.S. and Canadian reporting entity in NPCC. NPCC utilizes surveys and compliance and data forms, for gathering and compiling data.

During 2007, significant overhaul of the data collection mechanism is anticipated to accommodate changes to data elements collected for the Department of Energy, Energy Information Administration (EIA) Form 411 which will be incorporated for the 2008 data collection period. The collection of data for the EIA 411 has historically been a part of Reliability Assessment activities.

C. NPCC CBRE

Non statutory activity

VII. Training and Education (ERO Section 900)

A. NPCC Inc.

NPCC will continue to support education and system operator/scheduler training and certification by sponsoring meetings and workshops to achieve this purpose.

- Establish a program for system dispatcher training relating to NPCC inter-Area matters, criteria, terminology, policies and operating instructions.
- Prepare and present material at dispatcher training sessions, and exchange information on internal dispatcher training methods.
- Evaluate and propose new techniques and training aids as they become available.
- Organize and staff two system operator-training seminars
- Develop training initiatives to satisfy emergency training Continuing Education Hours (CEH)
- Achieve NERC Continuing Education approval of the two 2007 system operator seminars with the award of Continuing Education Hours (CEHs) for seminar participants.

B. NPCC Inc. - RSA Activities (could be contracted from ERO to NPCC CBRE)

- Support the NERC transition to the Continuing Education program in lieu of testing for operator certification
- Sponsor NPCC operator meetings for the purpose of discussing topics of interest relating to reliability and exchanging awareness/knowledge of regional reliability issues
- Establish increased consistency and coordination among the continuing education training programs in the NPCC Areas.

C. NPCC CBRE

Non statutory activity

VIII. Situational Awareness and Infrastructure (ERO Section 1000)

A. NPCC Inc.

Coordination of Operation

- Weekly Area Coordination Conference Calls

A weekly conference call, including operations management personnel from the NPCC Areas, is initiated by the NPCC Staff to discuss operations expected during the forthcoming ten-day period (weekend and week following).

- Emergency Preparedness Coordination Conference Call
The NPCC Emergency Preparedness Coordination Conference Call is a tool that augments the weekly conference call process to enable the Area Operations Managers in NPCC, and, as required, their counterparts in neighboring Regions, to rapidly communicate the status of current operating conditions and facilitate the procurement of assistance during emergency conditions.
- Daily Area Control Room Coordination Conference Call
The senior shift supervisor of the NPCC Area control rooms of NPCC take part in a daily conference call to serve as a complement to the NPCC Emergency Coordination Conference Call and the Weekly Area Coordination Conference Call. The goal of the call is to alert all neighboring Areas of emerging problems. Subjects for discussion are limited to credible events which could impact the ability of an Area to serve its load and meet its operating reserve obligations or would impose a burden to the inter-connection

B. NPCC Inc. - RSA Activities (could be contracted from ERO to NPCC CBRE)

Operational Security

- Security Conference Call
The NPCC Security Conference Call establishes communications among the Area Operations Managers in NPCC in the event of a physical threat to the security of the interconnected bulk power supply system of the Northeast Power Coordinating Council.
- NPCC Alerts of Solar Magnetic Disturbances
The NPCC Areas receive, on a continual twenty-four by seven basis, the status of solar activity and geomagnetic storm alerts from the Solar Terrestrial Dispatch (STD). The primary mechanism for notification to the NPCC Areas is the Solar Terrestrial Dispatch's Geomagnetic Storm Mitigation System (GSMS), an active communications software package installed on the operator's console. Upon receipt of a geomagnetic storm alert from Solar Terrestrial Dispatch of level Kp 6 or higher, the GSMS simultaneously displays a flashing dialog box advising the operator of a "Major or Severe Geomagnetic Storm Warning" together with a main screen providing the operator with all information currently known about possible solar activity. The detailed information includes the time of the notification, the history of actual hourly Kp readings for the previous seven hours and the Kp prediction for the next twenty-four, forty-eight and seventy-two hours periods.

Infrastructure Security

The ongoing activities of the NPCC Task Force on Infrastructure Security & Technology, as defined by its scope of activities, include:

- Providing a forum for NPCC review of proposed and posted documents from the NERC Critical Infrastructure Protection Committee (CIPC).
- Providing recommendations regarding NPCC's position concerning proposed NERC security guidelines/standards.
- Annually reviewing infrastructure security & technologies and providing appropriate recommendations to enhance physical and cyber security in compliance with NERC guidelines/standards.
- Representing and advocating NPCC's position in the activities at NERC in the development and/or implementation of Physical and Cyber Security, focusing on the activities of the NERC Critical Infrastructure Protection Committee (CIPC).
- Formulating and recommending Criteria, Guidelines and Procedures to monitor and report conformance pertaining to the reliability, Cyber Security, Physical Security, availability and performance of member systems Energy Management Systems, SCADA and the Telecommunications Networks which serve and interconnect them.
- Holding periodic workshops to address timely issues and update NPCC member personnel associated with infrastructure security and technology to identify, discuss and advance the technology of :
 - Telecommunications Infrastructure
 - EMS-SCADA technology
 - Cyber Security System; and.
 - Physical Security for the reliable operation of the NPCC Bulk Power System.
- Keeping current on all governmental agencies, such as the Homeland Security Information Network, regarding applicable security recommendations and requirements, and other applicable security guidelines.

C. NPCC CBRE

Non statutory activity

IX. Administrative Services

A. NPCC Inc. and NPCC CBRE

NPCC General and Administrative staff provide the following services and functions

- Payroll and expense administration
- Meeting facilitation
- Office Administration
- Management

- Regulatory Affairs
 - Liaison with identified Governmental and Regulatory Regional Advisory Groups
 - Liaison with Federal, State and Provincial Regulatory Authorities
- Project Management
- Legal
- Telecommunications
 - Webcast
 - Conference Bridge
 - Frame Relay Hotline for Emergency Communications
- Information Technology Services
- Crisis Communication Plan

B. NPCC Inc. - RSA Activities (could be contracted from ERO to NPCC CBRE)

Possible future activity in which regional technical expertise could be made available to the ERO upon their request.

APPENDIX A

Northeast Power Coordinating Council, Inc., and
Northeast Power Coordinating Council: Cross-Border Regional Entity, Inc

ORGANIZATIONAL PROFILES CBRE Bylaws Approved 8/23/06

NPCC Inc.'s international membership is comprised of electric utilities, transmission providers, independent generators, power marketers, transmission customers, Independent System Operators (ISOs), an Independent Electricity System Operator (IESO), a state-wide sub-regional reliability council, and Canadian provincial and governmental authorities and state regulatory authorities. NPCC Inc. is governed by a Board of Directors which is comprised of Transmission Provider and Transmission Customer Voting Class representatives.

Full Membership (voting) in NPCC Inc. is open to all entities and industry sectors participating in the electricity market in Northeastern North America. The NPCC Inc. Bylaws define the membership requirements and obligations, and are consistent with changes affecting the electric industry structure. Public Interest Membership (non-voting) is open to regulatory agencies with jurisdiction over participants in the electricity market in Northeastern North America and to public-interest organizations expressing interest in the reliability of electric service in Northeastern North America.

NPCC CBRE's international membership will be comprised of any person or entity that has an interest in the reliable operation of the Northeastern North American Bulk Power System and that registers with NPCC CBRE as a Member and complies with the conditions and obligations specified in the Bylaws.

NPCC CBRE will be governed by a hybrid Board of Directors consisting of stakeholders balanced by sector and an independent Chairman and will establish rules that ensure its independence from the users, owners and operators of the Bulk-Power System, while assuring stakeholder representation in the selection of its directors and balanced decision-making in any committee, including a provision specifying that no two industry sectors should control any decision and no single segment should be able to veto any matter.

APPENDIX B

Northeast Power Coordinating Council, Inc Reliability Coordinating Committee Scope

Purpose

The purpose of the NPCC Reliability Coordinating Committee (RCC) is to:

- (a) Provide a technical forum for the discussion and approval of actions related to the development, implementation and maintenance of NPCC Criteria; reliability assessment of Members; and monitoring and enforcement of Member compliance with Criteria contained in the NPCC Reliability Compliance and Enforcement Program.
- (b) Provide direction and guidance to the NPCC Compliance Monitoring and Assessment Subcommittee and the NPCC Task Forces that report to it.
- (c) Identify, develop and implement long-term strategies related to issues affecting the reliability of the Bulk Power System of NPCC. To address assignments generated by this charge the RCC will utilize the existing CMAS and NPCC Task Forces as well as ad hoc RCC Working Groups.

In conducting its business, the RCC assures that the Council promotes the reliable and efficient operation of the interconnected Bulk Power System in Northeastern North America.

The RCC is comprised of senior-level representatives from the two voting classes of NPCC – the Transmission Customer and the Transmission Provider and operates under the direction of the Executive Committee.

Responsibilities

The responsibilities of the RCC will include:

- 1. Review and endorse new or modified NPCC Criteria (“A” Documents) and present to Membership for final approval vote.
- 2. Review and approve NPCC Guidelines (“B” Documents).
- 3. Review and approve Area Transmission Reviews and Area Reviews of Resource Adequacy.
- 4. Review and approve the implementation of any new or modified Type I Special Protection System (SPS).
- 5. Review and approve NPCC Overall Transmission Assessment.
- 6. Review and approve NPCC Assessment of Under-Frequency Load Shedding Adequacy.
- 7. Review and approve TFCO Annual Review of Operating Reserve Response.
- 8. Review and approve CMAS, Task Force and Working Group studies.

9. Review and approve reliability assessments related to significant transmission and or generation projects that impact the Bulk Power System.
10. Review and approve, prior to issuance, NPCC Summer Reliability Assessment done by the Operations Planning Working Group and the Multi-Area Probabilistic Summer Assessment done by CP-8 Working Group.
11. Review and either grant or deny Member requests for exemptions, in accordance with NPCC Document B-10, *Guidelines for Requesting Exclusions to Sections 5.1(B) and 6.1(B) of the NPCC Basic Criteria for Design and Operation of Interconnected Power Systems*.
12. Review and approve compliance reports presented by CMAS.
13. Review and approve annual NPCC RCEP Report.
14. Render Final Compliance Determination (FCD) for the specific requirements contained in the NPCC Reliability Compliance and Enforcement Program (RCEP), based on the recommendation from the Compliance Monitoring and Assessment Subcommittee (CMAS.) In instances of non-compliance to these specific requirements forward sanctions recommendation to the NPCC Enforcement Panel (EP) for implementation. Also forward any disputed FCD to the EP for resolution.
15. Develop NPCC technical input and position on NERC Standing Committee activities and oversee coordination of Northeast participation in NERC's Reliability Standards Development Process.
16. Review inter-regional reliability assessment activities including MAAC-ECAR-NPCC (MEN) studies.
17. Review RCC Scope.
18. Develop annual RCC Work Plan.
19. Review and approve the CMAS Scope, the NPCC Task Forces Scopes and the Task Force Working Group Scopes.
20. Review and approve annual Work Plans for CMAS and the NPCC Task Forces.
21. Conduct Joint Chairs Conference Calls/Meetings on a regular basis.
22. Approve CMAS and Task Force rosters.
23. Recommend and oversee NPCC Project Budget.

**Northeast Power Coordinating Council
Compliance Monitoring and Assessment Subcommittee**

SCOPE & PROCEDURES

RESPONSIBILITIES

The Compliance Monitoring and Assessment Subcommittee (CMAS) is responsible for performing independent monitoring and assessment of compliance with the criteria and standards included in the NPCC Compliance Program. CMAS is charged to manage the on-going NPCC Compliance Program, which consists of the NPCC Reliability Compliance and Enforcement Program (RCEP), the compliance monitoring and surveys requirements in NPCC Reliability Assessment Program (NRAP) and NPCC participation in the NERC Compliance Program.

SCOPE OF ACTIVITIES

To carry out the above responsibilities, CMAS will:

1. Monitor and assess Area compliance with NPCC criteria including requirements in the NPCC RCEP, NRAP, and the NERC Compliance Program. Request technical inputs and reports from the NPCC Task Forces as needed.
2. Document results and provide appropriate reports (e.g. to RCC, to NERC, etc.)
3. For instances of identified non-compliance, provide a report fully explaining the reason for the non-compliance and recommend to the RCC the appropriate sanction and review any mitigation plan or action proposed to achieve compliance.
4. Develop and implement the necessary processes and procedures to efficiently execute the NPCC Compliance Program.
5. Provide information and feedback on compliance program to NPCC Members, RCC, Task Forces and participants in the program. Conduct workshops as necessary to communicate NPCC Compliance Program requirements and obtain feedback from the program participants.
6. Conduct compliance surveys as required.
7. Manage the Review Process for the NPCC RCEP.
8. Provide oversight review of Area compliance programs.
9. Review and propose changes to existing documents as required for the NPCC Compliance Program, and propose new documents as required.

PROCEDURES

The following procedures establish the rules and conducts of the Compliance Monitoring and Assessment Subcommittee (CMAS or the Subcommittee).

ORGANIZATION AND MEMBERSHIP

Representation on CMAS is open to all NPCC members. Membership on CMAS is subject to the approval of the NPCC Reliability Coordinating Committee as a body the CMAS reports to. The CMAS consists of the officers (the Chair, the Vice-Chair, and the Secretary) and members. In accordance with Article 3.3 of the *NPCC Reliability Compliance and Enforcement Program*, Document A-8, an Enforcement Panel member or alternate member may not be a member of CMAS.

The term of office of the CMAS members shall be a minimum of one year.

OFFICERS:

The officers of the CMAS shall be a chair, a vice-chair, and a secretary. The chair and vice-chair are elected by the CMAS Members to serve two-year. The term of office begins upon adjournment of the meeting in which the election was held. The NPCC Staff shall appoint the secretary.

The Chairperson represents the Subcommittee, and provides reports, recommendations and technical advice to the RCC, as necessary, to carry out the assigned functions of the Subcommittee.

The Vice-Chairperson shall act in the Chairperson's absence, and may provide other assistance to the Chairperson. The Vice-Chairperson would normally succeed the chairperson.

VOTING

Issues related to compliance matters shall be resolved by voting. The resolution of such issues shall require the approval of a simple majority vote of the voting representatives attending the meeting. A member may vote by personal representative, by teleconference, by prior written consent, or by written proxy. When appropriate, CMAS may provide to the RCC with a minority and a majority opinion on unresolved matters.

QUORUM REQUIREMENTS

CMAS does not make final decisions; therefore there are no quorum requirements for this Subcommittee.

MEETINGS

Meetings of the Subcommittee may be held on such dates and places as CMAS from time to time determines at its meetings. Special meetings may be called from time to time by the Chair or by three or more members of the Subcommittee. Written notice of a meeting shall be given at least seven days in advance of the meeting date. Such notice of a meeting shall include the agenda of the topics to be discussed and any materials deemed by the Chair or the Secretary to be necessary for the CMAS to establish a position on the issues.

CMAS MEMBER'S RIGHTS

CMAS members shall have the rights to:

1. Attend all meetings of the CMAS and express views on any matter to be acted upon at any CMAS meeting, subject to the established meeting rules and procedures.
2. Make or second motions and vote on any action brought before the CMAS.
3. Receive access to all the Subcommittee's minutes and reports, subject to procedures established by the CMAS and to the terms of applicable confidentiality agreements.
4. Participate in any sub-group activities established by the CMAS, subject to established procedures.

CMAS MEMBER'S OBLIGATIONS

1. CMAS member shall participate fully in all activities of the Subcommittee in support of the CMAS Responsibilities as defined above and the Northeast Power Coordinating Council's purpose as defined in its Membership Agreement.
2. CMAS member shall inform the Chair and the Secretary of his or her inability to attend a meeting or if an alternate member will be attending the meeting on his or her behalf.

Revised and approved at March 8, 2006 RCC Meeting

**Northeast Power Coordinating Council
Task Force on Coordination of Planning
SCOPE**

General Statement

Promote reliability through the coordination of NPCC Area planning processes and activities.

Responsibilities

1. Initiate reviews of the Basic Criteria for the Design and Operation of Interconnected Power Systems (Document A-2), of other NPCC criteria, guidelines, and procedures related to planning, and of those documents which provide for the uniform implementation, interpretation and monitoring of compliance with criteria, guidelines and procedures related to planning. These reviews will be coordinated with the other Task Forces, based on a schedule set forth in the Reliability Assessment Program.
2. Initiate reviews of any documents in response to lessons learned from major system events.
3. Review the adequacy of the NPCC systems to supply load considering forecast demand, installed and planned supply and demand resources and required reserve margins in accordance with Guidelines for Area Review of Resource Adequacy (Document B-8) and Guidelines for Transmission Area Reviews (Document B-4), based on a schedule set forth in the Reliability Assessment Program.(review for consistency with Documents)
4. Coordinate the review of the future Area plans for compliance with the Basic Criteria including an analysis of resource and transmission system additions, and the potential inter-Area effects of special protection systems, based on a schedule set forth in the Reliability Assessment Program. Specific projects, which in the opinion of the task force could have an impact on the reliability of the NPCC Bulk Power System, may be reviewed outside of the set schedule.
5. Coordinate the review of proposed new or modified special protection systems in accordance with the Procedure for NPCC Review of New or Modified Bulk Power System Special Protection Systems (Document C-16).
6. Coordinate assessments related to new applications from entities requesting membership in NPCC in accordance with the Procedure for Review of an Entity's Application for Membership.
7. Maintain close liaison with other task forces of NPCC and coordination with adjoining councils, with reference to system planning activities.
8. Review the implications of various reliability related issues and make recommendations to the Reliability Coordinating Committee as appropriate.
9. Encourage Area planning organizations to initiate inter-Area and interregional studies where improved reliability may be achievable through joint planning.
10. Establish working groups and initiate studies, including joint efforts with other task forces as appropriate, relative to the overall reliability of the planned Bulk Power System.
11. Assess requests by member systems for exclusions in accordance with the Guidelines for Requesting Exclusion to Section 5.1(B) of the NPCC Basic Criteria for Design and Operation of Interconnected Power Systems (Document B-10) and make recommendations to the Reliability Coordinating Committee regarding such requests.

12. Interface with and provide information to the North American Electric Reliability Council Reliability Assessment and Reliability Criteria Subcommittees, as required. Ensure NPCC Criteria are not inconsistent with the NERC requirements as set forth in their Reliability Standards.
13. Coordinate NPCC responses to related FERC and regulatory/governmental agencies. Ensure NPCC Criteria are reviewed with respect to approved governmental regulatory orders.
14. Promote use of emerging technologies that are not inconsistent with current best practices.
15. Review and modify documents to reflect prudent application of new technologies.
16. Report to the Reliability Coordinating Committee on these and other matters as required.

**Northeast Power Coordinating Council
Task Force on System Studies**

SCOPE

General Statement

Provide for active overall coordination of system studies of the reliability of the interconnected Bulk Power System and for the review of certain NPCC documents, in accordance with the schedule set forth in the Reliability Assessment Program.

Responsibilities

1. Participate with the Task Force on Coordination of Planning, the Task Force on Coordination of Operation and the Task Force on System Protection in reviews of the "Basic Criteria for the Design and Operation of Interconnected Power Systems" and other NERC and NPCC criteria, guidelines, procedures and documents which provide for the uniform implementation, interpretation and monitoring of conformance to criteria, guidelines and procedures related to system studies.
2. Conduct Area Reviews, in accordance with the "Guidelines for NPCC Area Transmission Reviews (Document B-4)" based on material presented by the Areas. These reviews will assess the impact of planned transmission and resource additions or modifications, on system reliability and determine the Area's conformance with the Basic Criteria.
3. Review and classify new and modified Special Protection Systems, in accordance with the "Procedure for NPCC Review of New or Modified Bulk Power System Special Protection Systems (Document C-16)." Participate in the annual review and update of the NPCC SPS list and present it to the RCC.
4. Conduct such load flow, transient stability, and other studies as required to analyze the overall reliability of the planned bulk power transmission system of NPCC and the interconnections between NPCC and other regional councils. As a part of this effort, analyze potential inter-Area effects of Special Protection Systems.
5. Conduct analytical studies as appropriate to support the coordination of system planning, system operation and system protection in NPCC.
6. Maintain, through the SS-37 Working Group, a library of load flow base cases and associated dynamics data, for use in and support of Area Reviews, overall transmission assessments, operational studies, inter-Regional studies, etc.
7. Participate in ad hoc reviews of specific projects as requested by the Task Force on Coordination of Planning.
8. In conjunction with other Task Forces, review major system disturbances to ascertain the adequacy of the interconnected system. Also, review any associated recommendations for system modifications and consider the need for criteria changes.
9. Coordinate with the Compliance Monitoring and Assessment Subcommittee on compliance-related activities.

10. Identify and recommend improved system study techniques. This includes, but is not limited to, the following:
 - (a) improved techniques and models for power system simulation;
 - (b) improved techniques for power system reliability assessment;
11. Conduct a periodic review of the adequacy of the NPCC underfrequency load-shedding program.
12. Maintain a listing and monitor status of major transmission and generation projects within NPCC.
13. Maintain liaison with other NPCC Task Forces and report to the Reliability Coordinating Committee as required.
14. Monitor the work of industry research and development organizations such as the IEEE, Canadian Electricity Association, Electric Power Research Institute, CIGRE and other technical organizations.

**Northeast Power Coordinating Council
Task Force on Coordination of Operation**

SCOPE

Mandate

To promote, and provide a forum for, the active coordination of reliability and operation among the NPCC Areas and NERC Regions to enhance the reliability of the interconnected Bulk Power System. To operate under the direction of the Reliability Coordinating Committee. To accomplish this mandate, the Task Force on Coordination of Operation (TFCO) has the following specific responsibilities:

1. Coordinate development of operating criteria and procedures affecting the reliability and operability of interconnected power systems in coordination with, and as directed by, NERC and NPCC.
2. Establish standing working groups and ad hoc working groups to assist in carrying out the mandate of the TFCO. Monitor the progress of these Working Groups.
3. Conduct seasonal reviews of the overall reliability of the generation and transmission systems in NPCC. Review the operational readiness of NPCC and recommend possible actions to mitigate any potential problems identified for the coming operating period.
4. Review, and act upon, NERC Standards, actions, motions and recommendations. Formulate the position of the TFCO on NERC Standards and provide this position to the NPCC Working Group CP-09 as appropriate.
5. Ensure the effectiveness of NPCC operations through:
 - the review of operations and disturbances and by providing any necessary follow-up, including the recommendation of remedial or mitigating actions; and
 - the development of criteria and procedures.
6. Promote and sponsor inter-Area and interregional studies to enhance reliability and operational effectiveness through the development of common operating criteria, standards and procedures, on such matters as:
 - inter-Area operations;
 - the derivation, application and interpretation of operating limits;
 - operating reserve criteria;
 - recovery to a secure state following contingencies; and
 - the principles of operator actions in emergencies as they affect inter-Area reliability.
7. Provide coordination of operating issues with NPCC Task Forces and other Regions.
8. Provide recommendations for the NPCC representation on the NERC Operating Committee and its Subcommittees.
9. Assist the NPCC Compliance Monitoring and Assessment Subcommittee to monitor and coordinate the compliance efforts of the Areas.
10. On an annual basis, develop a two year statement of measurable goals and specific action plans that will be presented to the Reliability Coordinating Committee.

November 29, 2005

**Northeast Power Coordinating Council
Task Force on Coordination of Operation**

Terms of Reference

The following Procedures define the composition and conduct of the NPCC Task Force on Coordination of Operation.

Participation

Participation is open to all NPCC Members, and they shall have a reasonable opportunity to express views on any matter to be acted upon at the meeting. Any NPCC Member may request membership to the NPCC Task Force on Coordination of Operation. All guests attending a meeting of the NPCC Task Force on Coordination of Operation shall be identified at the meeting to the members and alternates present.

Due to the commercially sensitive real time nature of some of the material discussed, only entities responsible for system operation, and having no market function responsibility, may be a party to such discussions. In the context of sharing information pertinent to maintaining reliability among the Areas of the Northeast Power Coordinating Council, it may be necessary for the members of the NPCC Task Force on Coordination of Operation to disclose to each other certain information and materials which are, or may be, confidential, proprietary, secret or protected by state, Canadian provincial and governmental authorities and U.S. federal laws relating to trade secrets. Use of such confidential information is solely for the purpose of allowing the members of the NPCC Task Force on Coordination of Operation to discuss, assess and evaluate reliability within the Northeast Power Coordinating Council. Members and guests taking part in the activities of the NPCC Task Force on Coordination of Operation must not disclose to merchant entities any information concerning the transmission system obtained through his or her participation. Members and guests taking part in the activities of the NPCC Task Force on Coordination of Operation must not share market information acquired from their respective markets.

All attendees of a meeting of the NPCC Task Force on Coordination of Operation are asked to so advise the Chair and Secretary of the Task Force in advance to facilitate the logistics of the meeting.

Representation and Voting

Two voting representatives are selected by each of the five NPCC Areas, defined as Ontario, the New York ISO, the ISO New England Inc., the Maritimes Area and Québec, one of whom must be a representative of the Area's Reliability Coordinator. The second voting representative for the Area should be a representative of a Transmission Operator from that Area. Voting representatives should serve a minimum of two years. A vote may be cast in person by the voting representatives or the voting representative's alternate, or by another person provided with a written designation or proxy dated not more than one month prior to the meeting and delivered by the member or alternate to the Secretary of the NPCC Task Force on Coordination of Operation at, or in advance of, the meeting at which the vote is cast. A member or alternate may revoke their des-

ignation of a proxy by delivering written notice of the revocation to the Secretary of the NPCC Task Force on Coordination of Operation.

A quorum of the NPCC Task Force on Coordination of Operation must be participating for any action to be taken by the Task Force other than adjournment of the meeting. Eight of the ten Area voting representatives must be present, and all NPCC Areas must be represented, to establish a quorum. When a quorum has been obtained, affirmative action of any issue submitted to the NPCC Task Force on Coordination of Operation for vote shall require approval by two-thirds vote of the voting representatives present but no less than six affirmative votes. The results of the vote conducted by the NPCC Task Force on Coordination of Operation will be recorded in the minutes of the Task Force.

The NPCC Task Force on Coordination of Operation elects a Chair and Vice Chair whose terms are not to exceed two years. Upon the completion of the term of the Chair, the current Vice Chair of the Task Force will normally succeed as Chair for a term not to exceed two years. A Secretary to the NPCC Task Force on Coordination of Operation is appointed by the Staff of the Northeast Power Coordinating Council.

Each member shall have the right to express views on any matter to be acted upon at any meeting of the TFCO (subject to the established meeting rules and procedures), make or second motions, request a special meeting, and, if a voting member, vote on any action properly brought before the Task Force on Coordination of Operation.

Meetings

The NPCC Task Force on Coordination of Operation shall normally meet six times per year.

Additional meetings, as requested by a member and approved by the Chair, shall be held as necessary to conclude issues before the Task Force.

Conference calls of the NPCC Task Force on Coordination of Operation, as requested by a member and approved by the Chair, shall be held as necessary to address urgent issues before the Task Force.

Members of the NPCC Task Force on Coordination of Operation may participate in a meeting of the Task Force in person, by telephone, or, as available, by means of conference telephone, electronic video screen communication, or other communications equipment by means of which all persons participating in the meeting can communicate in real time with each other, and such participation in a meeting shall constitute presence in person at the meeting. To the extent that meetings are to be held in person, upon request and if practicable, provisions shall be made for a member or alternate to listen to the meeting by telephone and, if authorized, to vote at the meeting.

Notice of Meeting

Written or electronic notice of each meeting of the NPCC Task Force on Coordination of Operation shall be given to each member and alternate not less than seven days prior to the date of the meeting. Such notice of the meeting shall include the agenda of those topics to be addressed and all background materials available and deemed by the Chair or Secretary to be necessary for the TFCO to establish a position on all issues to be discussed. Background materials must be pro-

vided to the Secretary of the NPCC Task Force on Coordination of Operation prior to the date the notice of a meeting is required to be given to each member and alternate so that such background materials can reasonably be included with the notice. Notice shall be deemed to have been given if sent electronically to the member and alternate at his or her designated electronic mail address and when posted on the Web site of the Northeast Power Coordinating Council. As deemed necessary, the NPCC Task Force on Coordination of Operation may vote to waive the notification requirements.

November 29, 2005

**Northeast Power Coordinating Council
Task Force on System Protection**

SCOPE

Statement of Purpose

The purpose of the NPCC Task Force on System Protection (TFSP) is to promote the reliable and efficient operation of the interconnected Bulk Power Systems in Northeastern North America through the establishment of criteria, guidelines, and procedures and coordination of design, relative to the protection associated with the Bulk Power Systems. (Terms in bold typeface are defined in the *NPCC Glossary of Terms* (Document A-7)).

Responsibilities

1. Based upon the requirements set forth in the NPCC Reliability Assessment Program:
 - A) Initiate, and coordinate with designated Task Forces, review of the:
 - *Maintenance Criteria for Bulk Power System Protection* (Document A-4)
 - *Bulk Power System Protection Criteria* (Document A-5)
 - *Special Protection System Criteria* (Document A-11)
 - *Guide for the Application of Autoreclosing to the Bulk Power System* (Document B-1)
 - *Automatic Underfrequency Load Shedding Program Guideline* (Document B-7)
 - *Guide for Analysis and Reporting of Protection System Misoperations* (Document B-21)
 - *Guide for Maintenance of Microprocessor Based Protection Relays* (Document B-23)
 - *Security Guidelines for Protection Systems IEDs* (Document B-24)
 - *Procedure for Reporting and Reviewing Proposed Protection Systems for the Bulk Power System* (Document C-22)
 - *Procedures for Task Force on System Protection Review of Disturbances* (Document C-30)

Conduct other appropriate reviews, modify existing documents and submit reports as required.
 - B) Review, in cooperation with the Task Force on Coordination of Planning, the Task Force on Coordination of Operation, and the Task Force on System Studies, the *Basic Criteria for Design and Operation of Interconnected Power Systems* (Document A-2) and other NPCC Criteria, Guides and Procedures. Develop and recommend modifications as required.
 - C) Review and analyze the performance of protection systems following selected major power system disturbances and events, inside as well as outside NPCC in accordance with *Procedures for Task Force on System Protection Review of Disturbances* (Document C-30). Issue recommendations for changes to NPCC Documents, as appropriate.

- D) Assess proposed protection systems and special protection systems in accordance with the *Procedure for Reporting and Reviewing Proposed Protection Systems for the Bulk Power System* (Document C-22).
- 2. On an as-needed basis:
 - A) Provide technical advice on protection issues to the Compliance Monitoring and Assessment Subcommittee (CMAS) and any other NPCC groups.
 - B) Coordinate with the Task Force on Infrastructure Security and Technology (TFIST) on application of Intelligent Electronic Devices (IEDs) that include functions related to energy management systems in addition to their protective functions, in order to safeguard the integrity of the protective functions.
- 3. Review and assess significant protection issues of common interest or informational value.
- 4. As required, review and assess regulatory and industry based documents as they relate to system protection. Provide technical representation to working groups for review of such documents.
- 5. Maintain an effective liaison with North America groups working in the protection areas, for example NERC System Protection & Control Task Force.
- 6. Exchange information with other power pools, Regional Reliability Councils, Regional Transmission Organizations and other industry groups on matters concerned with system protection.
- 7. Identify the need for special studies and new documents, recommend action to the Reliability Coordinating Committee, and perform special assignments and studies as directed or authorized.
- 8. Report to the Reliability Coordinating Committee on these and other matters as required.

**Northeast Power Coordinating Council
Task Force on Infrastructure Security and Technology (TFIST)**

SCOPE

General Statement

The mission of the NPCC Task Force on Infrastructure Security and Technology (TFIST) is to:

- advance the Physical and Cyber Security of the electricity infrastructure of Northeastern North America
- advance the technology of EMS, SCADA and their associated telecommunications for the reliable operation of the NPCC Bulk Power System

Responsibilities

It shall be considered within the scope of the activities of this task force to:

1. Provide a forum for NPCC review of proposed and posted documents from the NERC Critical Infrastructure Protection Committee (CIPC).
2. Provide recommendations to NPCC Committees, Task Forces and Working Groups to facilitate NPCC's position regarding proposed NERC security guidelines/standards.
3. On an annual basis provide recommendations to RCC to enhance compliance with NERC Standards within TFIST's General Statement.
4. Represent and advocate NPCC's position in the activities of NERC groups involved in the development and/or implementation of Physical and Cyber Security, EMS, SCADA and Telecommunications. TFIST will focus on the activities of the NERC Critical Infrastructure Protection Committee (CIPC).
5. Participate in information sharing activities at national, regional, and interregional levels.
6. Coordinate and communicate with those responsible for both Physical and Cyber Security within all NPCC Members.
7. Keep current on all Department of Homeland Security and other applicable security guidelines.
8. Address potential Security implications from Interdependencies with the electric utility industry, including telecommunications, Gas, Water, Coal, transportation industries.
9. Assess areas in which process improvements or sharing can improve the reliability of the NPCC Bulk Power System.
10. Provide guidance in areas such as corporate continuity, and disaster recovery.
11. Develop and maintain levels of expertise in those areas of concern to the task force through activities such as periodic workshops, seminars, and meetings, open to the general NPCC membership.
12. Solicit input from NPCC membership to assess the future needs of the Northeast in the area of Physical and Cyber Security, Telecommunications, Energy Management.
13. Formulate and recommend Criteria, Guidelines and Procedures to monitor and report conformance pertaining to the reliability, Cyber Security, Physical Security, availability and performance of member systems Energy Management Systems, SCADA and the Telecommunications Networks which serve and interconnect them.

14. Provide coordination for the administration of inter-Area and inter-Regional data communications networks used to interconnect control centers.
15. Under policy direction of the Reliability Coordinating Committee provide assistance to the other NPCC Task Forces, and to NPCC staff.
16. TFIST will submit a work plan and a progress report to RCC, or concerned Task Force annually or when required and when necessary, attend meetings.

Membership

Membership on the TFIST is open to representatives from all NPCC members. Participants should have experience and responsibilities in the areas of cyber security, physical security, EMS, SCADA or Telecommunications.

May 25, 2005