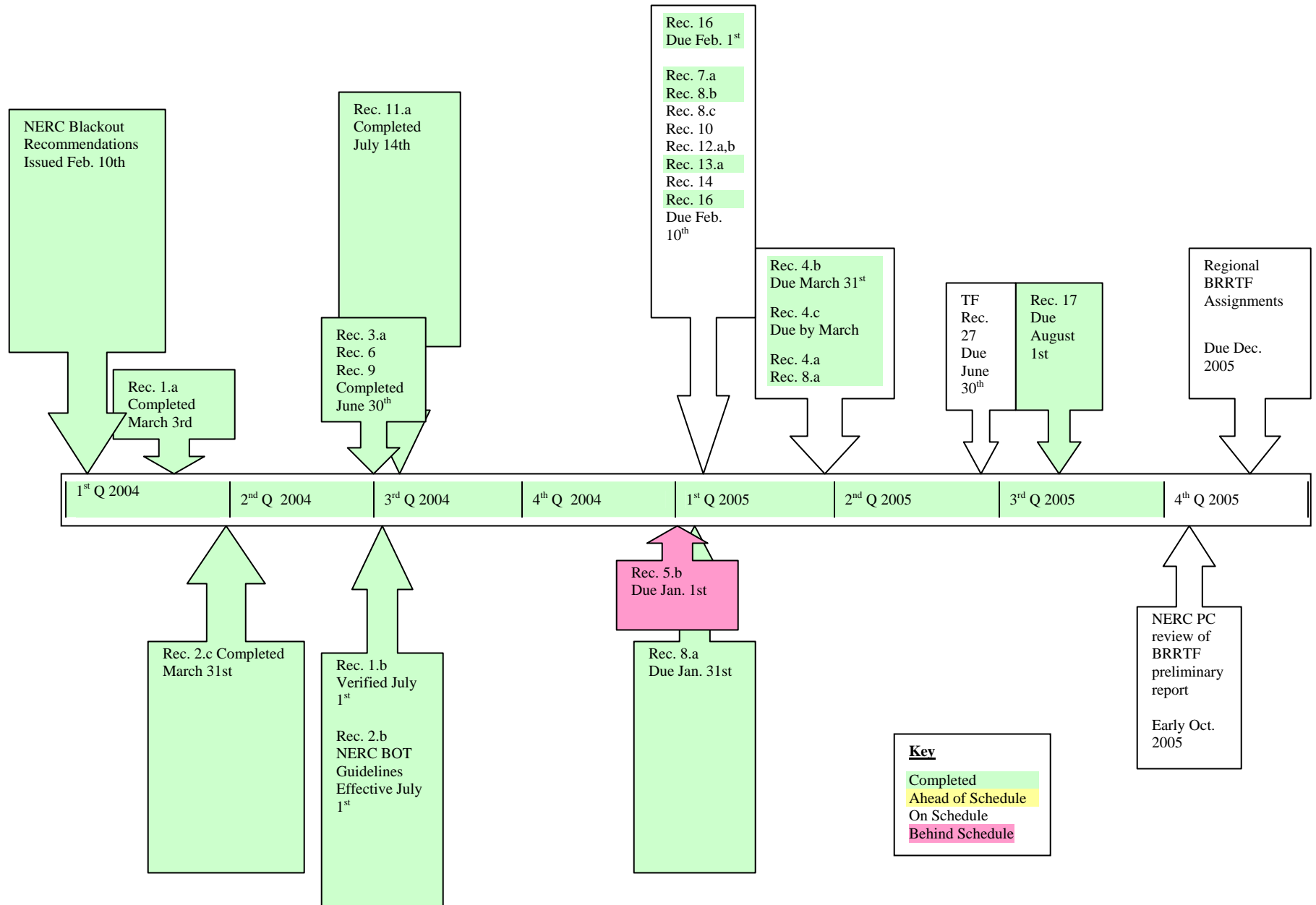


# NPCC Tasks Related to NERC Blackout Recommendations Timeline



NPCC 2005 October Status Report

Assignments to Address

NERC Board/US-Canadian TF Recommendations on Blackout

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NERC BOT #	Short Description	NERC		NPCC Staff	TFCO	TFSS	TFCP	TFSP	TFIST	CMAS							US-CA TF #	Comments	
		NERC	Other(s)																
1.a	Complete FE/MISO/PJM Remedial Actions	X	FE/MISO/PJM	S	P													15	Rec. 1.a - TFCO verified NPCC Control Areas meet identified mitigation measures. Completed - additional actions beyond what was required will continue in NPCC. TF Rec. 15 - Completed. Many operations measures have been reviewed and enhanced.
1.b	Assignment of Experts to Assist FE/MISO/PJM		NERC															15	Rec. 1.b - In March 2005, FE provided the PC with an update on follow-up activities on FE's plan to address blackout recommendations related to the completion of outstanding reactive capability tests on several fossil generation units, resolution of a 50 MW margin for voltage stability study purposes and its implementation within the MISO process, and the evaluation of automatic undervoltage load shedding (UVLS) and its implementation at thirty-three locations by the summer of 2005. This update provided closure on FE's reporting to the PC on implementation plan items scheduled for completion in 2005. NERC considers this recommendation closed.
2.a	Significant Violations/ Quarterly Violations Reporting	X	NERC	S						P								17.A	Rec. 2.a - No significant violations have been reported in NPCC. On August 2, 2005, the NERC BOT approved the Compliance Performance Reporting Process developed by the Compliance and Certification Committee.
2.b	Violation Corrective Actions	X*	NERC BOT	S						P								17.B	* Applicable if there is a significant violation for a member. No significant violations reported in NPCC. NERC BOT approved final "Guidelines for Reporting and Disclosure" on June 15th, to be effective July 1, 2004. On August 2, 2005, the NERC BOT approved the Compliance Performance Reporting Process developed by the Compliance and Certification Committee.
2.c	Review and Update Compliance Templates	X	PC/OC/CTTF	S						P								17.D	Rec. 2.c - Approved NERC Templates incorporated into the NPCC 2004 Compliance Program. Completed.

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2.d	ECAR Compliance Review	X	ECAR/NERC	S						P							17.C	Rec. 2.d - CMAS to review recommendations, when issued. Standards and Compliance Team report finalized on April 12, 2004; the final report has yet to be issued. CMAS met November 18-19 and completed the NPCC informal review.
3.a	Readiness Audit Program	X	NERC	S	S					P							18.A	Rec. 3.a - Completed. All five NPCC Areas have successfully completed the Control Area questionnaires: ISO-NE, NYISO, and the IMO were successfully audited on-site by NERC. TF Rec. 18.A - Completed. Additional audits will have NPCC participation based on NERC schedule. NPCC Staff participated in the New Brunswick System Operator readiness audit (Sept. 12-16, 2005) and the TransEnergie audit (Oct. 24-28, 2005).
3.b	Audit Criteria	X	NERC	S	S					P							18.A	Rec. 3.b - In progress. NPCC Staff has provided input into the development of the baseline audit criteria. NERC and ECAR compliance staff recommended improvements to the compliance process. TF Rec. 18.A - Completed. Additional audits will have NPCC participation based on the NERC schedule. NPCC Staff participated in the New Brunswick System Operator readiness audit (Sept. 12-16, 2005) and the TransEnergie audit (Oct. 24-28, 2005).

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3.c	Readiness Audits	X	NERC/FERC	S	S					P								18.A	<p><b>Rec. 3.c</b> - DOE (OETD) to take lead. Coordination with NERC CCC and CCMC required. No TFCO support requested yet. NPCC is working with its members to identify sub-operating entities through the process of Functional Model registration. This information was provided to NERC as per schedule.</p> <p><b>TF Rec. 18.A</b> - Completed. Additional audits will have NPCC participation based on the NERC schedule. <b>NPCC Staff participated in the New Brunswick System Operator readiness audit (Sept. 12-16, 2005) and the TransEnergie audit (Oct. 24-28, 2005).</b></p>
4.a	Vegetation Related Outage Reporting Program	X	NERC	S	P	S	S			S								16.A	<p><b>Rec. 4.a</b> - Primary responsibility assigned to the NPCC Task Force on Coordination of Operation (TFCO) with reports to NERC to be sent through the NPCC Compliance Monitoring &amp; Assessment Subcommittee (CMAS). Procedures for reporting in place and in use. Documentation in place. Completed.</p> <p><b>TF Rec. 16.A</b> - Standards to be developed through the NERC Standards process. NPCC criteria will be modified to be consistent with the NERC Standards. These have now been placed in the NERC Compliance program. <b>NERC Action required to complete.</b></p>
4.b	Vegetation Related Outages Annual Report	X	Transmission Operators	S	P					S								16.C	<p><b>Rec. 4.b</b> - NPCC Year 2004 Report was sent to NERC 4Q 2004 - Completed. Documentation under development.</p> <p><b>TF Rec. 16.C</b> - TFCO will continue to track the vegetation related outages on 230 kV and above but not all the ground-fault outages recommended.</p>

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4.c	Vegetation Management Procedures	X	Transmission Owners	S	P					S								16.B	<p><b>Rec. 4.c</b> - Next reporting due at the end of the fourth quarter; with the annual report due March 31, 2005. NERC has included this requirement in the Version 0 reliability Standards, "Vegetation Management Program."</p> <p>Documentation completed. TFCO believes that the Transmission Owners have necessary plans in place and have submitted a plan. Completed.</p> <p><b>TF Rec. 16.B</b> - The recommended reports currently are not posted on public websites.</p>
4.d	Vegetation Management Standard	X																16.A	<p><b>Rec. 4.d</b> - A new, more comprehensive standard on vegetation management has been developed and posted for industry comment through July 31, 2005. The new standard specifies minimum clearance between vegetation and energized conductors based on IEEE engineering criteria. This standard is expected to be balloted in Nov. 2005.</p>
5.a	Recommendations Actions Tracking Program	X	NERC	P	S	S	S	S	S	S								5.A	<p><b>Rec. 5.a</b> - RCC approved NPCC program and procedure July 14, 2004. The September 2005 NPCC Status Report was posted on the NPCC web site.</p> <p><b>TF Rec. 5.A</b> - NERC, DOE, FERC, and NRCAN continue development of a common database. Work underway to further develop NERC's existing database for tracking disturbances and unusual events. Completion scheduled for later in 2005. NERC is now looking to develop a web page for the Regions to monitor NERC requests made of them and the status of their responses.</p>
5.b	NERC Reliability Performance Monitoring		NERC															5.B	<p><b>Rec. 5.b</b> - NERC is working with the Outage Task Force to develop a database to track and report progress in implementing all applicable blackout recommendations. Monitoring function is still under development. NERC initiated a collaborative effort with the NRC to analyze reliability performance trends.</p>

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6	Improve Operator/Reliability Coordinator Training	X		S	P													19.A	<p><b>Rec. 6</b> - All NPCC Areas verified compliance by June 30th. All training completed. Documentation to confirm completion of training in all NPCC Areas completed. Will determine if formal NPCC self-certification is required.</p> <p><b>TF Rec. 19.A</b> - NERC has endorsed a program that will allow certified system operators to maintain their system operator credentials by earning continuing education hours (CEH) from NERC-approved training providers. This program would replace the current practice of requiring system operators to pass an exam once every five years.</p>
7.a	Reactive & Voltage Standards Evaluation	X	NERC PC	S	S	S	P											23	<p><b>Rec. 7.a</b> - The NPCC response was sent to the TIS in March 2005. The PC approved the TIS report at its March 2005 meeting - it was approved by the NERC BOT at its May 2005 meeting; they resolved that the appropriate organizations and committees implement the report recommendations. TFCP has developed a whitepaper to address and document what was done and how NPCC should follow up was approved at the Sept. 2005 RCC meeting.</p> <p><b>TF Rec. 23</b> - The PC approved a TIS study schedule for conducting reliability and adequacy analyses of several load centers; the regional studies are expected to be completed by December 31, 2005. The TFCP's Voltage and Reactive Power Practices Report was approved at the Sept. 2005 RCC meeting.</p>
7.b	ECAR Reactive Power Review		ECAR															23	<p><b>Rec. 7.b</b> - ECAR has contracted with a vendor to conduct a voltage/reactive study to help in establishing regional voltage/reactive criteria. TIS review of ECAR's responses was completed and accepted by the PC Executive Committee in mid-August and the PC in November 2004.</p>

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8.a	Zone 3 Relay Review/Analysis	X	Transmission Owners	S	S	S	S	P		S							21.A	<p><b>Rec. 8.a</b> - The SPCTF report was approved by the PC in July. The NERC BOT approved the EHV Transmission System Relay Loadability Report and its recommendations on August 2, 2005. NERC's Blackout Recommendation Review Task Force to report to the NERC PC in December 2005 regarding this activity (TR-1,2).</p> <p><b>TF Rec. 21.A</b> -The PC approved the SPCTF protective relaying loadability review for significant circuits between 100 kV and 200 kV at their June 2005 meeting, and directed the SPCTF to develop a "technical exception" for out-of-step special protection systems. The NERC BOT approved the EHV Transmission System Relay Loadability Report and its recommendations on August 2, 2005.</p>
8.b	Evaluate UVLS	X		S		P	S	S		S							21.B	<p><b>Rec. 8.b</b> - Each NPCC Area conducted the requested evaluation for their systems under the coordination of the SS-37 Working Group. SS-37 drafted a status report, sent to NERC on February 10, 2005. The draft UVLS Evaluation Report was submitted for discussion at the Sept. 2005 RCC meeting. The RCC directed the report undergo a joint review by CMAS and the Task Forces and that a final draft report be submitted at the Nov. 2005 RCC meeting. NERC's Blackout Recommendation Review Task Force to report to the NERC PC in December 2005 regarding this activity (TR-7, 8,9).</p> <p><b>TF Rec. 21.B</b> - The TIS expects a preliminary draft report and recommendations for PC comment by October 25, 2005 with a final report and recommendations for approval at the December 2005 PC meeting.</p>

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8.c	Evaluate Planning Standard III	X	NERC PC	S		S	P	S		S								21.C	Rec. 8.c - TFCP developed White Paper on the merits of controlled separation was discussed at the January 2005 TFCP meeting. TFCP presented the revised White Paper to the RCC in June 2005. The RCC directed the TFCP to translate the recommendations into TFCP Work Plan items. The Work Plan was presented and approved by the RCC at their Sept. 2005 meeting. The SS-37 Working Group has completed an analysis of the feasibility of UVLS for the NPCC Region as a part of the NPCC Overall Transmission Review and has forwarded the final report to the Task Forces for comment and approval.
9	Clarify Reliability Coordinator and Control Area Functions	X	NERC OC	S	P					S								20 26.A 30.B	Rec. 9 - Completed - no additional TFCO action is anticipated. NERC reviewing how the Homeland Security Information Network can be used to help improve real-time communications among RCs and CAs. TF Rec. 20 - The NERC RCWG had established guidelines for communication of alert and emergency states. The NPCC CO-8 WG has reviewed this and has developed a list of emergency alert states. TFCO will review this list for concurrence. TF Rec. 26.A - same status as TF Rec. 20. TF Rec. 30.B - Planned outages are well coordinated among the NPCC Areas. The NPCC Emergency preparedness and the NERC Hotline procedures address this. Completed.
10	Establish Guidelines for Real-Time Operating Tools	X	NERC OC	S	P				S									22	Rec. 10 - The NPCC CO-10 Working Group has identified the EMS/SCADA failure review practices used by the NPCC Areas. In addition, CO-10 and TFCO have put in place practices to review and analyze at each meeting any EMS/SCADA failures. This includes the priority and time deadlines for restoring the systems to full capability. TF Rec. 22 - NERC's Blackout Recommendation Review Task Force to report to the NERC PC in December 2005 regarding this activity (TR-3,4,5,6). CO-10 WG continues work on a document to replace the NPCC B-12 and C-17 Documents.



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11.a	August 14 System Restoration Evaluation	X	NERC PC/OC; PJM; NPCC, ECAR	S	P													29.A	<p><b>Rec. 11.a</b> - The IRCWG's NPCC Restoration Report was approved by the RCC on July 14th. Completed.</p> <p><b>TF Rec. 29.A</b> - The NPCC CO-11 IRCWG has completed this. The NERC OC approved the Restoration Report recommendations from the ORS at its June 8-9, 2005 meeting.</p>
11.b	Blackstart & Restoration Evaluation	X		S	P													29.B	<p><b>Rec. 11.b</b> - The IRCWG's (CO-11) NPCC Restoration Report on the August 14, 2003 system restoration was approved by the RCC on July 14th. TFCO waiting for the NERC Planning Committee's acknowledgement of NPCC's satisfactory completion of Rec. 11b.</p> <p><b>TF Rec. 29B</b> - NPCC CO-11 report satisfies this item. The NERC OC approved the Restoration Report recommendations from the ORS at its June 8-9, 2005 meeting. Completed.</p>
12.a	Regional Criteria for Synchronized Recording Devices	X	PC	S				P	S									28.B	<p><b>Rec. 12.a</b> - The RCC discussed the SEDR WG report on Synchronized Event Data Reporting at its June 1, 2005 meeting. Presentation of the associated cost/benefit was given at the Sept. 2005 RCC meeting. The NERC IDWG report was approved at the May 2005 NERC BOT meeting; they resolved that the regional reliability councils take steps to improve the disturbance monitoring capabilities as outlined in the report. This report also addresses <b>TF Rec. 23.A and 23.B</b>. The draft SAR(s) pertaining to requirements for reporting disturbances and the installation of disturbance monitoring equipment were approved by the PC EC in July and were sent to SAC for development as NERC standards. NERC's Blackout Recommendation Review Task Force to report to the NERC PC in December 2005 regarding this activity (TR-10).</p>

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12.b	Dynamic Recorder Upgrade/Installation	X	Facilities Owners	S				P	S									28.A	<p><b>Rec. 12.b</b> - The RCC discussed the SEDR WG report on Synchronized Event Data Reporting at its June 1, 2005 meeting. Presentation of the associated cost/benefit was given at the Sept. 2005 RCC meeting. The NERC IDWG report was approved at the May 2005 NERC BOT meeting; they resolved that the regional reliability councils take steps to improve the disturbance monitoring capabilities as outlined in the report. This report also addresses <b>TF Rec. 23.A and 23.B</b>. The draft SAR(s) pertaining to requirements for reporting disturbances and the installation of disturbance monitoring equipment were approved by the PC EC in July and were sent to SAC for development as NERC standards. NERC's Blackout Recommendation Review Task Force to report to the NERC PC in December 2005 regarding this activity (TR-10).</p>
13.a	Reevaluate System Operations Planning and Operating Criteria	X	NERC OC	S	P													30.A	<p><b>Rec. 13.a</b> - NERC's Blackout Recommendation Review Task Force to report to the NERC PC in September 2005 regarding this activity (TR-6).</p> <p><b>TF Rec. 30.A</b> - NPCC agreement on the Bulk Power System definition is needed to complete the identification of critical NPCC facilities. NPCC Areas have critical facilities lists, but they are not on a consistent NPCC basis. Within NPCC the CP-11 Working Group is addressing the Bulk Power System definition and which facilities are considered BPS. The <b>RCC approved</b> the Evaluation Study Plan for NPCC Document A-10 at their Sept. 7, 2005 meeting.</p>
13.b	ECAR Reevaluation		ECAR															15.D.1	<p><b>Rec. 13. b</b> - TIS's and RIS's reviews of ECAR's reports and responses were completed and accepted by the PC Executive Committee in mid-August 2004 and the PC in November 2005.</p>

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13.c	Evaluation of Planning Processes	X	NERC PC	S			P										24	<p><b>Rec. 13.c</b> - The CP-9 Working Group of the TFCP has begun their review and tracking of the Resource Adequacy Standard currently being drafted by NERC and has submitted comments through the SAR process. NPCC staff also made a presentation to the NERC TIS outlining the NPCC planning process and the various studies and reviews performed by the Regions and its Areas. The TIS is preparing an assessment of the NERC planning process and expects a preliminary draft report with recommendations for PC comment by October 25, 2005 with a final report and recommendations for approval at the December PC meeting.</p>
14	Model Data Validation	X		S		P	S										24	<p><b>Rec. 14</b> - NPCC developed a three-step plan: A Step 1 status report, including a summary of the existing model validation procedures, was sent to NERC on February 10, 2005. TFSS is now reviewing the adequacy of the existing procedures and considering what new procedures, if any, may be needed (Step 2). However, NERC is moving ahead with development and implementation of the "Phase III &amp; IV" planning standards, which include model validation. Consequently, the TFSS proposes to postpone consideration of new NPCC procedures pending developments regarding related NERC standards. NERC's Blackout Recommendation Review Task Force to report to the NERC PC in December 2005 regarding this activity (TR-3,4,5,6,9,11,12,13).</p>

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15	NERC to investigate future blackouts and disturbances	X																14	Rec. 15 - NERC has developed Blackout Disturbance and Response Procedures, which include requirements for the analysis of blackouts. These procedures were accepted by the board in May 2005, with the direction to obtain further input from the NERC standing committees and other stakeholders as the procedures are refined and upgraded. TF Rec. 14 - Creation of a standing Binational ERO Oversight Group has been completed. A bilateral working group from the United States and Canada will address key issues related to electricity reliability in North America. The terms of reference were announced June 30, 2005. TR-14. NERC should specify a standard set of system maps to be maintained and supplied for analysis of system disturbances. Maps should be regularly updated to reflect changes in system topology or generation facilities.
16	Accelerate the standards transition.	X																25.B	Rec. 16 - Completed - Version 0 standards adopted by NERC Board for implementation on April 1, 2005.
17	Evaluate NERC actions in the areas of cyber and physical security.	X																32.A	Rec. 17 - The NERC BOT extended the expiration date of Reliability Standard 1200, Urgent Action Cyber Security Standard, to the earlier of the effective date of the permanent cyber security standard or August 13, 2006.

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	Develop Enforceable Standards for Transmission Line Ratings	X																27	TF Rec. 27 - Facility Rating Methodology SAR posted, with comments due by July 15, 2005; balloting will take place in Nov. 2005.
	TLR Use	X																31	TF Rec. 31 - The NERC BOT approved the urgent action revision to Reliability Standard IRO-006, Attachment 1, "Transmission Loading Relief Procedures - Eastern Interconnection" on June 15, 2005.
	Establish EMS and SCADA Time Synchronization Standards	X																	TR-15a. EMS hardware and software designs should be accommodate time stamps recorded by remote telemetry units (RTUs). Each substation should have GPS synchronization capabilities. TR-15b. All real-time data exchanged via ICCC data (volts, flow, frequency data, ACE) between operating entities should be similarly time stamped, and those time stamps should be included in all transmittals. TR-15c. Data collection should be well monitored to detect equipment failures and data quality problems. TR-15d. Standards for data retention and archiving should be established.
	Evaluate and Implement "Defense in Depth" System Monitoring, Control, and Protection Measures to Slow Down and Mitigate the Severity of Cascades.	X																	TR-16. For each of the Interconnections, a defense-in-depth philosophy and integrated strategy should be developed based on the characteristics of that interconnection to limit the impacts of potential cascading outages.

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	Review the Response of Switch-on-to-Fault Relay Functions to System Disturbances.	X																TR-17. It is recommended that the SPCTF review the concept of "switch-onto-fault" logic and settings in relaying systems, and prepare a report for the Planning Committee on its merits, deficiencies, and setting requirements.
	Revise Industry Standards to Establish Under/Over Frequency Design Limits of Operation for Distance Relays.	X																TR-18. Standardize a frequency floor above which relays should not trip. Such a frequency set point should be coordinated with UFLS and generator underfrequency tripping schemes. IEEE Standard C37.90 should be revised to include this limit.
	Evaluate and Report on the Performance and Complexity of Protection and Control Schemes for Three Terminal Lines	X																TR-19. NERC should review and report on the advantages and disadvantages of the use of multi-terminal line configurations on the EHV system, and any associated complex protection and control (sequential) schemes. Particular attention should be paid to the performance of such configurations and its protection during emergency operation conditions, including expected system swings.
	Establish Guidelines on High Speed Reclosing.	X																TR-20. NERC should review and report on the advantages and disadvantages of autoreclosing methods on the EHV system including: <ul style="list-style-type: none"> <li>• High speed automatic reclosing for multi-phase and single phase relay operation</li> <li>• Synchronism check reclosing</li> </ul>

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	Require the Installation of Underfrequency Protection for Generators and Coordination with UFLS.	X																	TR-21. Underfrequency relaying should be installed on all generators, coordinated with the underfrequency load shedding relays.
	Evaluate and Implement Coordination Requirements for Generator Backup Protection Responses in Cohesive Generation Groups.	X																	TR-22. NERC should evaluate these protection schemes and their settings for appropriateness including coordination of protection and controls when operating within a coherent generation weakly connected to an interconnection or in as an electrical island. Generators directly connected to the transmission system using a 51V should consider the use of an impedance relay instead.
	Establish Regime for More In-Depth Analysis in Transmission Reliability Studies.	X																	TR-23a. NERC should re-examine the appropriateness of the 30-minute criteria for returning to a safe operation following an outage. TR-23b. NERC, the Regions, and the ISO/RTOs should conduct a comprehensive analysis of the bulk power system for identification of severe combinations of contingencies. TR-23c. NERC, the Regions, and the ISO/RTOs should develop study regimes that determine severe combinations of contingencies.
	Continue "What if" Analyses, Promote Research Based on the Blackout, and Preserve Forensic Analysis Techniques.	X																	TR-24. Evaluate significant "what-if" scenarios to learn how the overall system may have performed given varying system conditions or different sequence of events. Those studies should investigate the feasibility of preventative and "safety net" mitigation strategies.