

# 2012-2015 SHARED BUSINESS PLANNING AND BUDGET ASSUMPTIONS

---

## PURPOSE AND SCOPE

---

Between January and March 2011, NERC and the eight Regional Entities collaborated in the development of a common set of business planning assumptions. The results from that effort are contained in this document. These assumptions are based on the ERO goals and objectives [[ERO Enterprise Strategic Direction](#)].

The document will be used by NERC and each of the Regional Entities as an input to each organization's 2012 business plans and budgets and longer term business and budget planning, recognizing there may be unique factors that drive differences in each organization's final business plans and budgets subject to the approval of their respective governing bodies.

Where additional Program Area resource needs are anticipated or specific Program Area undertakings are anticipated, it is the intention that this document will also address the allocation of those resource requirements and needs between NERC and the Regional Entities, as well as identify assumptions with respect to industry resource support with respect to particular programs (e.g., standards development).

---

## OVERVIEW OF BUSINESS ENVIRONMENT

---

### LEGAL CONTEXT

NERC and the Regional Entities will continue to work under the regulatory framework governing the establishment and enforcement of reliability standards for the bulk electric system established by applicable governmental authorities in the United States and Canada.

NERC and the Regional Entities do not at this time anticipate substantive generic amendments to the terms of their existing delegation agreements, which will not expire during the planning period, or changes to Regional affiliations, but individual amendments may be necessitated by changes in certain Regional Entities' rules documents. NERC and the Regional Entities, will, however, make significant strides toward implementing the ERO Enterprise model for the benefit of stakeholders.

Although the scope of each Regional Entity's delegated authorities and responsibilities will remain relatively constant and incremental process improvements and efficiency gains are expected throughout the planning period, workload associated with the

delegated authorities is expected to increase in a manner that offsets and exceeds the efficiency gains.

NERC and its Regional Entities will continue to work in a collaborative way with the North American Transmission Forum, Inc. and North American Generator Forum (collectively Forums) and anticipates the Forums will also provide public lessons learned, industry training, and opportunities for the industry to further advance reliability. Additionally, NERC and the six Regional Entities comprising the Eastern Interconnection will work in closer collaboration on reliability issues that impact the Interconnection.

### **BUSINESS ENVIRONMENT**

Economic conditions will continue to place cost pressures on NERC and the Regional Entities to work as efficiently as possible and leverage overall ERO resources. Cost pressures on the electric utility industry may affect stakeholder resources available to participate in NERC and Regional Entity activities.

Since NERC and the Regional Entities business plans, budgets, and resource requirements were and will continue to be established based upon the assumption of continued industry participation in support of key program areas, including but not limited to event analysis, reliability assessments, and standards development, any significant change in the quality or availability of industry resources will increase NERC's resource and funding requirements.

### **NERC COMMITTEES**

There will be increased coordination with respect to resource and workload planning between and among NERC management and NERC's committees, including, but not limited to the Operating Committee, Planning Committee, Critical Infrastructure Protection Committee, Standards Committee, and Compliance and Certification Committee. The coordination is expected to result in improved identification of incremental resource needs, more effective resource management, and increased efficiency in resource allocation.

## **RELIABILITY STANDARDS PROGRAM**

1. Over the planning period, NERC will implement a results-based standards program based on a NERC Board of Trustees endorsed prioritization process with regular consideration of substantive standards developments and FERC rulings containing standards directives. The program deliverables will focus on revisions to existing reliability standards and development of new reliability standards that are expected to lead to the greatest improvement in bulk electric system reliability. Training materials will be developed, training will be provided, and the results-based approach will be applied to applicable existing and future standards projects. Additional NERC resources will be required to support his effort. At the NERC level technical personnel with training skills either in training department or within standards will be needed to assure training is available for drafting teams as their membership changes due to attrition or when new teams are created. At the Regional level resource allocation of time to receive training will be necessary, at a minimum.
2. NERC will modify the standards development process to improve speed and quality, and to explicitly address cost-effectiveness, while maintaining ANSI accreditation for those standards which qualify as ANSI standards. Examination of equivalent registration in Canada will be undertaken. The process modifications will involve the use of pilot programs in 2012 and possibly additional pilot programs in later years.
3. NERC and the Regions will address and appropriately prioritize all fill-in-the-blank standards over the planning period. NERC standards development staff is expected to provide increased coordination of regional standards development by becoming more involved earlier in the regional standard development efforts to help assure consistency in regional and continent-wide standard technical content, format, and quality. Depending on the number of regional standards, additional NERC resources beyond those currently dedicated to supporting the regional programs may be required.
4. NERC and the Regional Entities continue to expect cyber and critical asset security to be a priority in the United States and Canada, with significant oversight by applicable government authorities. CIP-002 through CIP-009 ( or other applicable designation), version 4, is targeted for submittal to the NERC board and filing in 2012, with regulatory response expected in 2012 and expected implementation in 2013 at the earliest.
5. NERC and the Regional Entities will lead the development of a revised definition of adequate level of reliability (ALR) of the bulk electric system. This will be accomplished through the efforts of the NERC Member Representatives Committee, and the Operating and Planning Committees. The revised definition will be delivered to the Board of Trustee’s for consideration in February 2012. In

- the event the ALR revision process results in a need for standards revisions or additions, additional resources may be required at NERC, as well as from the Regional Entities and industry.
6. Assumptions with respect to highly specialized technical resource requirements associated with critical infrastructure standards development are addressed under the Critical Infrastructure Protection Program Area.
  7. Assumptions regarding additional Compliance Program Area resources to support standards development are addressed under the Compliance Area.
  8. A decrease in workload is expected in the later years of the planning period, after based on the results-based standards initiative and improved standards development process due to improvements in standards. The number of projects contained in the Reliability Standards Development Plan is expected to increase over the planning period as the results-based standards initiative is fully implemented, work necessary to complete the response to FERC Order 693 directives is finalized, and the existing requirement to review each standard every five years is implemented. However, the scope of these projects is generally expected to be narrower than would otherwise potentially exist in the absence of the Results- Based Standards initiative. NERC will need more expertise in the project management, technical writing disciplines in the Standard Department, along with additional standards process administrator support to manage the standards development governance and stakeholder interface. Additional analyst resources for website content are anticipated over the period to aid in fulfilling the ERO obligation to provide a comprehensive status of standards (effective dates, implementation plans) in the US and the Canadian Provincial regulatory jurisdictions.
  9. NERC projects to continue its current development and regulatory filing activity level in 2012-2015 in accordance with the prioritization process of the Standards Committee. Generally, NERC will plan on a one year timeline to respond to future FERC directives on standards development while addressing the directives backlog over the next five years. This will require additional NERC resources to support regulatory coordination. No regional impacts are expected.
  10. NERC projects to develop and process 12-15 substantive NERC standards related filings per year, conduct approximately 25 ballots, and provide 25 commenting rounds under the successive balloting process for standards or interpretations.
  11. The Regional Entities expect to work with NERC to limit the number of Regional Standards submitted during the planning period by focusing on international solutions where possible. Less than 10 Regional Standards are expected to be submitted during the planning period.
  12. Regional Standards Development processes will be periodically reviewed and updated as necessary to keep pace with similar changes with the NERC process.

This may have an impact on Regional Entity resource requirements. NERC will provide increased standard drafting team training to enable all drafting team members to understand their role in the standards development process. This added training will require additional resources at the NERC level in the near term.

13. NERC and the Regional Entities will:

- Increase communication and outreach opportunities with stakeholders and NERC standing committees;
- Increase project level communications, education, and training for new or revised standards;
- Continue to improve the standards portion of the NERC and Regional Entity Websites;
- Work with stakeholders to jointly identify needs for new or revised standards or standards products; and
- Provide the necessary information and background to allow the industry stakeholders to perform a cost effectiveness analysis.

These efforts will require additional resources to provide management oversight and accountability for these key standards interface and communication activities. At the NERC level this requires additional resources in Standards Information to support website content and regulatory coordination.

14. NERC will continue to transform its standards organization to sustain a higher level of activity, output and quality. It is anticipated that this effort will require additional Regional Entity and Industry resources and will require an increase in NERC resources including:

- Increased technical resources to support drafting teams in the development of results-based standards and associated training;
- Increased resources to support greater stakeholder outreach in the Standards information function;
- Dedicated support for standards database development and maintenance in support of the ERO compliance and standards information system; and
- Additional project management support for North American, standards development activity.

## **COMPLIANCE MONITORING AND ENFORCEMENT AND ORGANIZATION REGISTRATION AND CERTIFICATION PROGRAM**

1. Assumptions with respect to highly specialized technical resource requirements associated with compliance monitoring and enforcement of critical infrastructure standards are addressed under the Critical Infrastructure Protection Program Area.
2. The Technical Feasibility Exception (TFE) program will continue to require significant staffing resources within NERC and across the industry as Regional Entities perform reviews and gauge compensating measures. TFE development, review and approval will result in additional compensating measure validation checks, quarterly reporting tracking, and change management. Experiences gained through existing operations will be utilized to guide the development of resource recommendations.
3. The number of interpretation and guidance requests is assumed to remain constant in the near term. CANs, case notes and industry-trial implementation periods are expected to continue, as are formal interpretation requests.
4. Continue refinement of risk-based methodologies to support more effective and efficient compliance monitoring activities such as; appropriately focused Annual Implementation Plan and Actively Monitored List (AML), audit scoping and various enforcement activities. This refinement, while improving the reliability enhancement component of the compliance program, is not anticipated to require additional NERC, Regional Entity, or Industry resources and will be accomplished by making use of standard auditing practices.
5. NERC and the Regional Entities will coordinate development of a risk-based approach to compliance monitoring. The first step will be to develop appropriate risk profile determination for registered entities as a pilot in 2011 with further expansion throughout the planning period.
6. NERC and regional staff will continue to collaborate to define ongoing training needs, priorities and implementation schedules for NERC and Regional Entity auditors, enforcement, and investigation staff. The Regional Entities should assume that NERC will include in its budget the cost of these training programs, other than Regional Entity costs (e.g., labor, travel, and lodging) to participate and attend.
7. NERC and Regional Entity staff should be provided the time to maintain critical industry certifications, such as NERC System Operator Certification. Additionally blending in the appropriate audit and investigative skills must be provided. Budgets and long term work plans should reflect recertification and training time for NERC and Regional Entity staff.
8. NERC will conduct semi-annual three day ERO auditor workshops to provide auditors with updates on compliance policies, actions and requirements in order to

- promote consistency of audit practices and procedures. Goal is to have at 100 percent of auditors, including CIP auditors as their schedules permit, attend at least one of the semiannual three day workshops which will be scheduled for the third week of February and September. The Regional Entities should assume that NERC will be responsible for the cost of these training programs, other than Regional Entity costs (e.g., labor, travel, and lodging) to attend.
9. Increase the number of spot checks over the next three years in conjunction with a risk-based approach to compliance monitoring. While this will initially increase auditor preparation time and resources, appropriately scoped audits based on entity risk and performance profiles should lead to efficiencies in the audit program. Notwithstanding these improvements in efficiency Regional Entities may be required to increase their audit resources in the near term.
  10. Audits, which will continue under a schedule to complete BA, TOP, and RC audits each three years and other entities each six years in the first few years of the planning period, will transition to a periodicity more reflective of the risk profile of registered entities as the planning period progresses. Compliance monitoring will be based on a risk and performance review of the individual entity; where necessary audits will have an increase in depth and complexity, including an increased number of unscheduled audits or spot checks. While some audits will be more in-depth and of greater complexity, other audits may require less resources based on the risk and performance based assessment of each entity and all audits will become more focused and perhaps reduced in scope. Regional Entities may nevertheless find it necessary to increase their audit resources to satisfy these workload requirements. It is reasonable to expect that entities having a higher risk profile will be audited more often, while those with a lower one will be subjected to audits more infrequently.
  11. Changes to the Rules of Procedures affecting the Compliance Monitoring and Enforcement Program will continue to be made as appropriate in order to enhance efficiency in compliance operations and enforcement. However, it is not possible at this time to predict the impact of these yet to be identified improvements on the need for further resource additions in the ERO compliance and enforcement areas.
  12. In addition to the regular schedule of workshops and other communications, NERC and Regional Entities will also continue to collaborate and provide special industry communications, focusing on both the most-violated, as well as recently adopted, standards and those most critical to reliability. It is anticipated that additional Regional Entity resources will be needed to support this effort.
  13. NERC and the Regional Entities compliance and standards program area management will work collaboratively to provide more compliance guidance to support industry's efforts to achieve compliance prior to the effective date of new and revised standards. This increased collaboration is expected to mitigate the

- need for additional resources to support compliance application notices. However additional resources are required at NERC in the near term to support dedicated compliance input to standards and conduct field testing of standards approved by the NERC BOT or approved by FERC and still in the implementation phase.
14. NERC and Regional Entities will coordinate and expand registered entity training in the application of reliability standards in order to better prepare registered entities, improve compliance and reduce the number of erroneous self reports and self-certifications. NERC's and the Regional Entities' compliance program area will require resource additions in 2012 to provide more input and support to facilitate standards development and forward looking guidance to assist industry in meeting compliance deadlines. These additional resources will also be used to conduct webinars of revised and new standards' implementation plans.
  15. NERC and Regional Entities will refine audit guidance for all new Reliability Standards. NERC and Regional entity compliance staffs will need to conduct semiannual workshops to improve guidance and instruction on certain standards in 2012 and 2013. Given the complexity and number of number of standards and requirements NERC will require additional resources in the near term to develop guidance and training to industry on MOD standards. These additional resources will also consider linkages between the modeling and planning standards to assist NERC and the Regional Entities in providing overall compliance guidance. Regional Entities estimate that the auditing of these standards will be accomplished with existing resources.
  16. NERC and the Regional Entities estimate that, with the introduction of a robust, registered entity focused Events Analysis process, approximately 40 CI's per year are probable and will require additional resources.

#### **ENFORCEMENT**

1. NERC and the Regional Entities will continue to establish streamlined mechanisms to expedite the disposition of minor, administrative violations and look to gain more discretion to handle minor violations before they enter the enforcement process to better focus existing resources on significant violations.
2. NERC and Regional Entity resources will be required to develop and implement an enforcement process that encourages "good" self-reporting, one that results from a systematic compliance "culture" to detect, report, and correct problems, obtains adequate recognition in the enforcement processes.
3. Utilizing existing resources, follow-up to NERC's education of the industry on lessons learned from violations that pose the most risk to the bulk electric system with "targeted aggressive enforcement" for further instances of non-compliance.
4. The current trend of alleged violations is expected to continue during the planning period.

5. Through efficiency gains and limited additional resources, NERC and Regions will strive to achieve a 12-month total average processing time for alleged violations over the planning period.

#### **REGISTRATION**

1. The number of registered entity functions may increase as a result of the possible expansion of the Bulk Electric System definition. However, this may be mitigated (in part) through increases in joint registration and the application of the Multi-Region Register Entity (MRRE) process, alleviating the need for resource additions.
2. It is assumed that a uniform BES definition will be implemented in 2012 and it will result in increased workload for the Regions as they deal with exclusion requests in 2012 and 2013. The program area resource impacts will vary by Regional Entity, as will the Program Area under which this work is performed.
3. NERC does not expect significant number of registration challenges, with efforts in registration focusing on refining the current registries across the Regional Entities.
4. The number of certifications of BA, RC, and TOP may increase as entities adjust footprints and responsibilities. At present no major additional resources are envisioned.
5. The number of Joint Registration Organization and Coordinated Functional Registrations will likely increase as entities better delineate shared responsibilities and seek to achieve efficiency and effectiveness through better alignment of responsibilities and compliance liabilities.
6. Over the planning period, NERC will review its registration criteria to enhance its joint and coordinated functional registration to better approximate registration by requirement or by asset.

#### **RELIABILITY ASSESSMENT AND PERFORMANCE ANALYSIS PROGRAM**

1. NERC and the Regional Entities will lead the development of a revised definition of adequate level of reliability (ALR) of the bulk electric system. This will be accomplished through the efforts of the NERC Member Representatives Committee, and the Operating and Planning Committees. The revised definition will be delivered to the Board of Trustees for consideration in February 2012. NERC will continue to incrementally refine data reporting requirements from registered entities, and review adequate level of reliability related metrics used in reliability assessments.
2. NERC and Regional Entities will gather data or complete analysis in support of U.S. Federal or Canadian Provincial initiatives. For example, the following reliability considerations are being or may be reviewed:

- a. High impact/low frequency events such as geomagnetic disturbances
  - b. System frequency response analysis
  - c. Analysis of low-inertia operations of the bulk power system
  - d. Climate change
  - e. Environmental regulations
  - f. New technology integration such as renewable energy, smart grid, energy storage, and/or electric vehicles
3. NERC will continue to require resources to analyze TADS data and support the TADS system. NERC will also publish an annual report assessing trends once sufficient data is collected.
  4. Generator Availability Data System (GADS) and Spare Equipment Database (SED) collection may become mandatory in 2012 and, together with Demand Response Availability Data System (DADS) collection which becomes mandatory in 2011, will require Regional Entity resources support, similar to the current TADS process. NERC will provide industry training regarding the mandatory submittal of SED, DADS and GADS data. Additionally, NERC staff will be required to provide both administrative and analysis support to the SED, DADS, and GADS system.
  5. NERC and the Regional Entities will continue to provide independent reviews of assessments to assure a high level of technical rigor.
  6. Resources in this program area will continue to provide subject matter expertise to support standards development and improvements, respond to requests for determinations of exceptions to bulk electric system, as well as support other program area technical needs.
  7. Resources will be required to support the development and validation of models, mitigation strategies, studies and education related to geomagnetic disturbance events.
  8. NERC will continue to develop analysis of TADS data in 2012. Additionally, NERC staff will be required to provide both administrative and analysis support to the TADS system, resulting in an annual report assessing trends once sufficient data is collected.
  9. To meet NERC's Three-Year Performance Assessment commitments, NERC will continue to:
    - a. Vet proposed and future metric development, collection, and analysis with industry stakeholders through the Reliability Metrics Working Group (RMWG).

- b. Identify and spotlight system and equipment trends through assessments of the availability data systems and metrics (e.g., TADS, GADS, TADS, reliability metrics, etc.)
  - c. Two limited focus post-seasonal overviews will be completed annually (Summer and Winter). NERC and the Regional Entities will prioritize and budget for two reliability assessment initiatives (scenario and special reliability assessments) per year. Specialized contractors may be used to complete detailed analysis to support scenario assessments. Three special assessments are currently scheduled to be completed between 2011 and 2014 (change in resource mix, gas dependency, delays in transmission development).
10. To meet NERC's Three-Year Performance Assessment commitments, NERC may be required to add resources to:
- a. Quarterly updates of metric analysis results through NERC's website, NERC News, and via Webinars and an annual report assessing the State-of-Reliability in North America based on this analysis.
  - b. Develop a centralized data collection, reporting and validation process, and calculation tools in 2012 and beyond for reliability assessments, (electricity supply and demand database) metric development and availability data systems such as TADS, GADS, DADS, and SED.
    - i. Develop integrated database to support the collection, validation, and distribution of reliability assessment information including generation, transmission, and demand data in 2011 through 2012. NERC may need to develop information system enhancements for the Regional Entities to support automation. The requirements for any such enhancement at NERC would be developed by the RAPA Program Area, procured by the NERC's IT department and budgeted as a RAPA Program area cost. It is anticipated that Regional Entity resources will be needed to support this effort.
    - ii. Support increased coordination and data collection, analysis to support tracking and data analysis to calculate associated risks to reliability identified in future NERC alerts (advisory, recommendations, and essential actions).
  - c. Increased coordination with event analysis, lesson learned, and model validation activities. Specialized contractors may be used to complete detailed analysis to support model data collection and validation. Resources will be required to administer and monitor data quality and model validation, as well as develop and maintain associated training materials.
  - d. Complete work plans supporting reliability assessment and input into NERC's reliability standards process for technology integration and high-impact, low-frequency event risks.

- i. NERC will implement probabilistic assessments into the Long-Term Reliability Assessment with a trial run in 2012. A common regional set of probabilistic reliability indices and probabilistic-based work products will be used to supplement the NERC's Long-Term Reliability Assessment. Information system enhancements and modeling support may be required by Regional Entities to support this effort. By 2013, the Regional Entities may be required to work with stakeholders to generate suitable probabilistic indices which may include composite (generation and transmission) reliability comparisons for future year trending.
- ii. Probabilistic energy and high-risk hours analysis to be included in seasonal and long-term reliability assessments to supplement capacity assessment with trials in 2013.

### **TRAINING, EDUCATION, AND OPERATOR CERTIFICATION PROGRAM**

1. NERC and the Regional Entities will coordinate the delivery of educational materials to registered entities through NERC's development and implementation of a centralized, robust learning management system (LMS). The LMS is expected to provide standards technical guidance, compliance guidance, lessons learned, examples of excellence, best practices, alerts, and other technical resource information. To maintain support for this system, NERC will require the addition of staff.
2. In 2012, NERC and the Regional Entities will begin to implement a compliance auditor training program that will require staff and contractor resources to implement. The priority of implementing training programs for additional technical functions (i.e., CIP Auditors, Investigators, Root Cause Analysts, Training Instructors, etc.) will be determined. NERC and the Regional Entities will continue to support core ERO function training courses (e.g., auditors, root cause analysis, CIP auditing) throughout this development.
3. NERC and the Regional Entities will place priority on developing educational materials for Registered Entities regarding expectations for new and existing reliability standards, and for supporting a culture or reliability excellence.
4. NERC will continue to provide training to NERC and Regional Entity standards development staff and drafting teams on results-based standard development.
5. In 2012, NERC will centralize the coordination and management of all internal and external training. This will include development and management of an overall budget for internal and external training and education activities for all program areas. The functional requirements for particular training and education programs will be developed by the Program Area(s) with the relevant subject matter expertise (e.g., Standards Program Area for standards training, Compliance Program Area for auditor training, Human Resources department for code of conduct training, etc.) The Training, Education, and Operator Certification

Program Area will manage and be staffed with resources necessary to support the organization, planning and execution of, and registration for, specific training activities within the parameters of the overall training and education budget, with individual program areas providing subject matters experts as required in support particular activities. The applicable portion of the overall budgets, as well as costs, associated with specific program area training (e.g., standards, compliance, etc.) will continue to be allocated and charged to those program areas (e.g., standards training costs will be reflected in the standards budget, compliance training in the compliance budget, etc.). Operator training and certification programs will continue to be organized, managed, budgeted and funded consistent with the requirements of the rules of procedure. Additional resources requirements will be needed at NERC in 2012 to implement this approach and support Program Area training activities. Notwithstanding these resource additions, the centralized management of these activities is expected to enhance overall coordination, efficiency and quality of training and education activities. The Regional Entities are planning to manage this effort within existing budgeted training resources.

6. Each Regional Entity will host a minimum of two different compliance workshops each year.
7. NERC standards and compliance staff will conduct at least one joint workshop for industry each year; focusing on inter-relationships and feedback mechanisms.
8. In the case of NERC, the incremental costs of hosting workshops and other educational activities where stakeholders attend in person will be recovered through attendance fees in most cases.
9. NERC will contract for professional training for NERC and Regional Entity staffs to improve their effectiveness, including training in facilitation, negotiation, project management, and leadership.
10. No significant changes are expected in system operator certification CEH requirements through 2013.

#### **SITUATION AWARENESS AND INFRASTRUCTURE SECURITY PROGRAM**

1. NERC and the Regional Entities will continue to evaluate and coordinate their differing and complementary roles in CIP and Situation Awareness for budgeting and/or operational purposes.
2. During 2011 NERC made a significant investment to support the implementation of a situation awareness tool for FERC, NERC, and Regional Entities. NERC will incur ongoing licensing, maintenance, and support services fees for SAFNR within its budget with no attendant impact on the Reliability Coordinator budgets and may seek FERC funding support. Regional Entities will be responsible for costs associated with establishing and maintaining monitoring displays.

3. NERC will fund and implement a new alerts system in 2012 that provides increased functionality to satisfy NERC's business needs in alerts development and processing and ensure the alerts are issued to the appropriate parties.
4. During 2012, NERC will continue to undertake significant activities and funding to facilitate third party development and management of North American Phasor Concentration System (NASCON) software and regional node communication integration. Commencing in 2013, NERC anticipates a reduced need for a direct NERC funding role related to NASPI development, with any NERC funding tied to NERC's internal situation awareness capabilities.
5. NERC will evaluate and implement steps during the 2012-14 to transfer some or all of its reliability tools and functions to third parties, including but not necessarily limited to the Interchange Distribution Calculator and [list other potentially affected tools]. One of the key challenges continues to be the development of an alternative funding mechanism with the users of the tools providing direct funding for the development, operation, and maintenance of the tools. Prior to implementation of these steps NERC will seek input from the Regional Entities, appropriate NERC committees and working groups, and other affected parties.

#### **CRITICAL INFRASTRUCTURE PROTECTION**

It is anticipated that major incidents, events, threats, or vulnerabilities may result in re-prioritization of CIP initiatives through 2015.

1. NERC's Critical Infrastructure Protection Program Area will have responsibility for the identification and management of the specialized critical infrastructure protection resources needed to support overall ERO CIP goals and objectives, as well as the specialized CIP resources needs of the other program areas (e.g., Standards, Compliance, Situation Awareness)
2. NERC and the Regional Entities will face increased competition in attracting well-qualified staff to address expanding CIP challenges, particularly in cyber security.
3. CIP activities will continue to increase significantly across the electricity sector. Risk analysis, incident response, CIP compliance requirements, information sharing and intelligence, CIP standards oversight, security training and awareness, and other functions are expected to increase in NERC CIP resource requirements throughout the planning period. In light of these resources pressures, throughout the planning period, NERC and Regional Entities will need to establish strategic priorities and CIP resource allocations to support those priorities.
4. NERC will strengthen CIP partnership with U.S. and Canadian Government authorities to facilitate two-way information exchanges that enhance and expand knowledge of critical infrastructure threats and risk. NERC will promote CIP incident reporting and work with the Regional Entities to conduct security event

- and incident analysis and improve security practices in conjunction with the ES-ISAC.
5. In support of the Compliance program, the Technical Feasibility Exception (TFE) program will continue to require significant staffing resources within NERC and across the industry as Regional Entities perform reviews and gauge compensating measures. TFE development, review and approval will result in additional compensating measure validation checks, quarterly reporting tracking, and change management. Experiences gained through existing operations will be utilized to guide the development of resource recommendations.
  6. Staff resources necessary to effectively conduct industry-wide CIP audits will continue to be a challenge. There are too few auditors with the necessary skill and experience to monitor compliance with all CIP requirements. Active training and recruitment will be critical to success of the ERO CIP audit program.
  7. The new CIP-002 V4 standard is expected to result in a substantial increase in the number of entities and critical assets required to be monitored for CIP compliance in 2012-2015.
  8. NERC and the Regional Entities will develop and support a training and implementation program for registered entities to successfully implement CIP-002 V4. The training and implementation program will be based on a well developed audit plan and provide technical application guidance.
  9. NERC will develop a robust ES-ISAC and Threat and Vulnerability Management Program (TVMP) with the following organic capabilities:
    - a. Bi-directional sharing of sanitized information and other intelligence products with government and federal law enforcement agencies;
    - b. A secure communications portal for information sharing with electricity sector stakeholders;
    - c. ERO-wide visibility and situational awareness of network infrastructure to monitor for cybersecurity threats and identify ICS/EMS/SCADA control system protocols and signature vulnerabilities and provide reporting to potentially affected entities in near real time;
    - d. Industry-wide awareness of emerging threats and risks;
    - e. Security incident analysis and lessons-learned that enhance the electricity sector security posture.
  10. More comprehensive understanding of confidential and time sensitive standards development processes is necessary. In the event of a national security emergency the NERC board may direct development of a standard in response to the emergency that is deemed confidential with information that can only be

- shared on a “need to know” basis. This will require resources to develop an infrastructure capable of accommodating these obligations.
11. The Cyber Risk Preparedness Assessment (CRPA) program is designed to assess the current cyber resiliency capabilities of BPS entities and the adequacy of existing reliability mechanisms related to the highly unique nature of cyber threats. This sustaining program is a valuable resource to both NERC and industry and is expected to expand considerably through 2015 as more entities take advantage of the opportunity provided by the CRPA experience.
  12. The NERC Sufficiency Review Program will be re-architected to address CIP-002 Version 4.
  13. NERC will collaborate with governmental organizations including federal agencies, law enforcement, and DOE national laboratories to:
    - a. Develop case studies at government determined critical facilities to further understanding regarding requirements for “flow of power.”
    - b. Develop certification guidelines for the Smart Grid Cybersecurity Operator.
    - c. Partner with the Industrial Control Systems Cyber Emergency Response Team (ICS-CERT) to share threat, vulnerability, and security incident information.
    - d. Investigate benchmarking of vendor products and systems that improve cybersecurity protection.
    - e. Develop joint security Advisory products
    - f. Develop a comprehensive Cybersecurity Risk Management Process Guideline for the enterprise electricity sector
    - g. Integrate security event analysis from government agencies and national laboratories.
  14. The ERO will implement requirements of the ESCC Roadmap and Coordinated Action Plan in coordination with the Critical Infrastructure Protection Committee (CIPC) and industry volunteers to support the:
    - a. Severe Impact Resilience Task Force (SIR TF)
    - b. Cyber Attack Task Force (CA TF)
    - c. Smart Grid/Cyber Security Task Force (SGCS TF)
    - d. GeoMagnetic Disturbance Task Force (GMD TF)
    - e. Spare Equipment Database Task Force (SED TF)
    - f. NERC Crisis Response Plan
  15. CIP Compliance Application Notice (CAN) guidance is expected to be provided in greater volume and with increased frequency to registered entities.

16. National level security exercises will be conducted to examine industry's cybersecurity and physical security preparedness and response capabilities through simulation of coordinated cyber and physical attacks on industrial control system, SCADA, and information technology assets.
17. NERC will develop comprehensive cyber security training program that validates knowledge and technical competency.

#### **EVENTS ANALYSIS**

1. NERC and the Regional Entities will define clear, uniform criteria/ranking for reporting and categorizing of system events and security incidents.
2. NERC and the Regional Entities will work together to develop joint processes and resourcing for triage, analysis, and reporting of system events to the regulators and will coordinate with regulators regarding these issues.
3. NERC and the Regional Entities will provide timely publication of lessons learned and recommendations and track responses to recommendations.
4. NERC and the Regional Entities will refine the criteria and process to require prompt and complete self-analysis of events and disturbances to promote continuous improvement and information sharing.
5. NERC will work with the Regional Entities to develop and provide root cause analysis training for NERC, Regional Entity staffs and the industry at large and subject matter experts who participate in event analysis and investigation teams.
6. The number of events requiring review and analysis will increase, with approximately 175 of those events qualify for review per year. The heavy lifting for review of these events will be at the registered entity and Regional Entity levels – they will need to be logged and tracked and reviewed by NERC and regional staff to verify that all parts of the review are completed, including compliance reviews.

#### **CORPORATE SUPPORT FUNCTIONS**

1. In 2012, NERC will establish an ERO-wide risk assessment framework. This function will include internal audit capabilities with respect to NERC's compliance with the Rule of Procedure and other legal requirements, as well as the compliance by Regional Entities with the Regional Delegation Agreement. This framework will also address the roles and responsibilities of the NERC Board of Trustees, Board committees and the various standing committees.
2. NERC and the Regional Entities will continue to work collaboratively to improve the efficiency and effectiveness of ERO processes, taking into consideration the results and recommendations of NERC's business process improvement initiative.

3. As part of its business process initiative, NERC is conducting a detailed and structured assessment of the technology platforms that support each of the major business processes including such factors as the inventory of users, capability of the tools for supporting the existing processes, opportunities to enhance program and process efficiency, the cross-process support provided by the tools, the support provided by the tools for regional entity and other stakeholder input processes, etc. NERC will seek input and feedback from the Regional Entities as part of this initiative. The intent of this assessment is to establish a baseline view of the tools and capabilities that are available to support NERC and ERO business process needs, as well as identify the IT needs that are not being met by the existing infrastructure that could be satisfied with other tools, such as SharePoint. Taking into consideration the outputs of this initiative, NERC and the Regional Entities will collaborate to develop and implement the most effective and efficient protocols and tools for the exchange of data and information between and among the Regions and NERC while optimizing organizational efficiencies as contemplated by the delegation agreements. Funding responsibility will be addressed based on specific organizational needs taking into account agreed upon common objectives and requirements for the applicable budget year.
4. NERC and the Regional Entities will continue to make improvements to their individual and collective business planning and budgeting processes, as well as cash flow forecasting and budget management practices.
5. NERC and the Regional Entities will maximize the cost effective use of conferencing facilities for hosting ERO meetings and conferences.
6. NERC and the Regional Entities will work together to evaluate and implement, where practical, joint purchasing activities and cost control measures to reduce costs of common operating expenses.
7. NERC and the Regional Entities will continue to maintain reserves and/or lines of credit to assure adequate funding resources, including the ability to request supplemental funding, for extended, major investigations and contested proceedings. NERC and the Regional Entities should plan to have short-term and intermediate term internal means to handle funding of hearings to permit effective due process for registered entities.
8. NERC and the Regional Entities will continue to face challenges and will require resources and programs to support the hiring and retention of qualified personnel.
9. Increased support services resources may be required to facilitate and support operations requirements and achievement of objectives.

10. Technology (software and hardware) investments will be required to support accounting, human resources and communications requirements and objectives.
11. Health care premiums, liability insurance and leasehold operating costs will likely continue to increase during the planning period.