

Improving Coordinated Operations Across The Electric Reliability Organization (ERO) Enterprise

February 2014

Purpose

The purpose of this paper is to describe a vision and path forward to achieving a highly effective and efficient Electric Reliability Organization (ERO) Enterprise. The North American Electric Reliability Corporation (NERC) and eight associated Regional Entities¹ comprise the ERO Enterprise². Part I provides background on why the ERO Enterprise was created in its current form, the unique aspects of the regulatory and delegation models applied, the relationship with the regulated industry and governance, benefits and successes of the ERO Enterprise approach thus far, and remaining opportunities.

Part II lays out a vision for a successful end state, and identifies changes needed to get there, including:

- Refining roles and responsibilities
- Coordinating strategic planning
- Coordinating operational decision-making
- Achieving consistency
- Sharing tools and infrastructure for delegated functions
- Coordinating communications

PART I – BACKGROUND

Creation of the ERO Enterprise

The mission of the ERO Enterprise is to ensure the reliability of the bulk power system in North America, including the continental United States and Canada, and the northern portion of Baja California, Mexico. Entities under the jurisdiction of the ERO Enterprise are the approximately 1,900 registered users, owners, and operators of the North American bulk power system – a system that serves the needs of over 334 million people, includes installed electricity production capacity of approximately 1,200 gigawatts, and operates 211,000 miles of high voltage transmission.

In the face of increasing competition and industry restructuring, and in the context of the August 2003 Northeast Blackout, the U.S. Congress added §215 to the Federal Power Act as part of the Energy Policy Act of 2005 to create the regime of mandatory reliability standards, to be developed and enforced in the U.S. by an Electric Reliability Organization (ERO) certified by, and operating under the oversight of, the Federal Energy Regulatory Commission. NERC was certified as the ERO in July 2006 and thereafter delegation agreements were established with the eight Regional Entities.

¹ The Regional Entities are: Florida Reliability Coordinating Council (FRCC), Midwest Reliability Organization (MRO), Northeast Power Coordinating Council (NPCC), Reliability First Corporation (RFC), SERC Reliability Corporation (SERC), Southwest Power Pool Regional Entity (SPP RE), Texas Reliability Entity (TRE), and Western Electricity Coordinating Council (WECC).

² As used here, “ERO Enterprise” refers to the informal affiliation of NERC and the eight Regional Entities for the purpose of coordinating goals, objectives, metrics, methods and practices across statutory activities. The ERO Enterprise does not supplant obligations of each organization through statutes, regulations, and delegation agreements, but rather enhances coordination through collaborative decision-making and communications.

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Equivalent relationships have been sought and for the most part realized in Canada and Mexico. Prior to adoption of §215 in the U.S., the provinces of Ontario (in 2002) and New Brunswick (in 2004) adopted all reliability standards that were approved by the NERC Board as mandatory and enforceable within their respective jurisdictions through market rules. NERC presently has legislation in place or memoranda of understanding with governmental authorities in Ontario, New Brunswick, Nova Scotia, Québec, Manitoba, Saskatchewan, and Alberta, and with the National Energy Board of Canada³.

Regulatory Model

When enacting legal authority for mandatory and enforceable reliability standards, Congress chose the model of audited self-regulation⁴, as reflected in the consensus legislative discussions. Audited self-regulation means congressional or agency (in this case FERC) delegation of power to a private organization to implement or enforce laws or agency regulations with respect to the regulated entities, with powers of independent action and review retained by the delegating agency. The advantage of the audited self-regulatory model is that the statute and agency rules are supplemented and enforced by those entities most directly involved in the regulated activity, which may provide more detailed knowledge of the operational or technical aspects of the regulated activities.

³ NERC standards are mandatory and enforceable in Ontario and New Brunswick as a matter of provincial law. The provincial law now provides for mandatory compliance and enforcement with Reliability Standards. Manitoba has adopted legislation setting out a framework for standards to become mandatory for users, owners, and operators in the province. In addition, NERC has been designated as the “electric reliability organization” under Alberta’s Transportation Regulation, and certain reliability standards have been approved in that jurisdiction; others are pending. NERC and the Northeast Power Coordinating Council (NPCC) have been recognized as standards setting bodies by the Régie de l’énergie of Québec, and Québec has the framework in place for reliability standards to become mandatory. NERC standards are now mandatory in British Columbia and Nova Scotia.

⁴ U.S. Code of Federal Regulations, Title 1, Chapter III, Part 305.94-1: “Audited self-regulation is defined as congressional or agency delegation of power to a private self-regulatory organization to implement and enforce laws or agency regulations with respect to the regulated entities, with powers of independent action and review retained by the agency. This self-regulatory organization is often an association of regulated entities formed for the explicit purpose of self-regulation. Audited self-regulation is an alternative for Congress to consider in legislating any regulatory program. Properly implemented and monitored, a program of audited self-regulation may effectively advance the statutory objectives consistent with the public interest and the interests of the regulated entities. In certain circumstances, this approach may result in better regulation because the agency’s statute and rules are supplemented and enforced by those entities directly involved in the regulated activity, which may have more detailed knowledge of the operational or technical aspects of that activity. The regulatory program also may be more effective because it can be tailored to the individual industry or group. In addition, the agency’s regulatory enforcement costs may be reduced by this approach, although such cost reductions should be considered only if they can be achieved without eroding the effectiveness of enforcement. On the other hand, audited self-regulation may present the significant risks of uneven enforcement, capture of the regulators by the regulated industry, and creating barriers to entry or competition. Where the potential for institutional self-interest is too great, self-regulation is undesirable. Other risks can be lessened by requiring the self-regulatory organization to establish and follow procedures similar to those that would be applicable if the self-regulatory organization were an agency. For these procedures to work, effective interest groups must exist, and must have access to the agency, to raise concerns about the conduct of the self-regulatory organization. And of course, the agency itself must vigilantly oversee the activities of the self-regulatory organization and of the regulated entities themselves.”

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As the international, multi-jurisdictional ERO, NERC is authorized to:

- Propose, monitor compliance with, and enforce mandatory reliability standards for the North American bulk power system, subject to regulatory oversight and approvals of FERC in the U.S. and applicable authorities in Canada;
- Conduct near-term and long-term assessments of the reliability and future adequacy of the North American bulk power system;
- Certify bulk power system operators as having and maintaining the necessary knowledge and skills to perform their reliability responsibilities;
- Maintain situational awareness of events and conditions that may threaten the reliability of the bulk power system;
- Coordinate efforts to improve physical and cyber security for the bulk power system of North America;
- Conduct detailed analyses and investigations of system disturbances and unusual events to determine root causes, uncover lessons learned, and issue relevant findings as advisories, recommendations, and essential actions to the industry; and
- Based on lessons learned identify the potential need for new or modified reliability standards, improved compliance, or other initiatives.

In executing its responsibilities, NERC delegates certain authorities to eight organizations, the Regional Entities. Under NERC's oversight, the Regional Entities perform certain aspects of the ERO functions through delegation agreements, which are approved by FERC in the U.S. The delegation agreements with each Regional Entity address, among other things: (i) development of regional reliability standards, (ii) monitoring compliance with and enforcing mandatory reliability standards (both North American wide and regional), certification of registered entities, registration of owners, operators and users of the BPS, (iii) reliability assessment and performance analysis, (iv) training and education, (v) event analysis and reliability improvement and (vi) situation awareness and infrastructure security.

The current regional delegation model was first adopted in 2006, with a January 1, 2007 effective date for the initial delegation agreements between NERC and the Regional Entities. It was at this time that NERC began approving regional business plans and budgets, and funding the statutory activities of the Regional Entities through revenues collected from Load-Serving Entities. NERC's oversight role and the obligations of the regions are addressed in NERC Rules of Procedure and the delegation agreements.

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As shown in Figure 1, the international ERO footprint covers North America and is comprised of eight reliability regions.

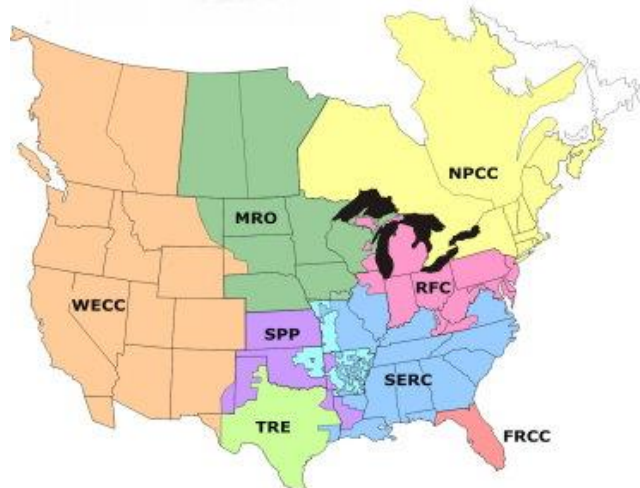


Figure 1 – Map of Regional Entities within NERC

The audited self-regulation model adopted by Congress and the further delegation of statutory functions to Regional Entities present some important benefits and opportunities, but also some challenges. Audited self-regulation results in better regulation because, “[t]he agency’s statute and rules are supplemented and enforced by those entities directly involved in the regulated activity, which may have more detailed knowledge of the operational or technical aspects of that activity.”⁵ This has been the experience with NERC and the Regional Entities since the inception of the ERO in 2006.

The ERO Enterprise is able to directly engage and leverage local and regional technical expertise regarding reliability matters, drafting and commenting on reliability standards, reviewing system events and determining lessons learned, assessing reliability performance and future reliability impacts of emerging issues, just to name a few activities. There exist complex risks, with numerous interdependencies at both the regional and international level, and the regional structure allows us to leverage the expertise across this entire footprint. The regional structure brings greater input from industry experts than could be accommodated in a single ERO organization, and encourages senior utility executive involvement on Regional Entity boards. Experts participate in regional technical committees, providing local and regional system knowledge and experience essential in maintaining a strong technical understanding of the reliability of the interconnected bulk power system. Industry engagement in NERC and the Regional Entities builds commitment, or buy-in, from industry in successful reliability outcomes. The current model can foster reliability excellence whereas a traditional top down regulatory model would tend to enforce reliability adequacy.

Bulk power system risks are dispersed, interdependent and can be asymmetrical across North America. Combining centralized and regional activities is well-suited to identifying and addressing these risks. Given the highly technical and intricate complexities of planning and operating the bulk power system – and given that an interconnected system is a “system of systems” - the concept of local, regional and wide-area views

⁵ U.S. Code of Federal Regulations, Title 1, Chapter III, Part 305.94-1

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on risk is necessary and has been long accepted.⁶ It follows that a “top-down” view of interconnected system risks and a “bottom-up” view of individual system risks is most effective at triangulating the priority risks to be addressed at both a local and interconnection-wide level.

With active engagement of industry experts in the ERO Enterprise technical committees and activities, it is important to maintain effective governance to ensure entities that are regulated do not unduly influence the determination and/or conclusions of the ERO Enterprise. Balance is achieved through governance controls including, but not limited to: an independent board at NERC and segregation of responsibilities and decision-making, especially on compliance and enforcement matters; governance measures at the regions, such as legal and operational separation from registered entities and in some regions the inclusion of independent directors; and, maintaining compliance and enforcement matters as confidential and separate from direct stakeholder participation. Independence and objectivity of NERC and the Regional Entities are further enhanced by government authority oversight, including periodic audits. This layered delegation approach – government to NERC, and NERC to Regional Entities – allows much more active participation by industry participants at the regional level, while maintaining independent oversight by NERC and applicable government agencies.

The distributed governance structure of the ERO Enterprise, with NERC and each Regional Entity having its own board, understandably presents challenges in coordinating ERO Enterprise activities and priorities. At the same time, this distributed governance provides an opportunity to create reliance and trust of the overall enterprise through greater transparency and accountability among all nine entities – the nine entities are mutually interdependent and must be transparently accountable to each other and their respective stakeholders to ensure overall success.

It is also significant that the North American bulk power system is an interconnected, international grid. A single integrated forum – the ERO Enterprise working at the North American and regional levels – ensures that the interests of multiple governmental jurisdictions and their stakeholders can be considered and addressed. Outcomes that are mutually satisfactory across all of North America can then be taken by NERC to the applicable regulatory authorities for approval, without concerns over intrusions by governmental agencies in one country over another country’s sovereignty.

ERO Enterprise Progress and Accomplishments Through 2013

The ERO Enterprise has been effective in mitigating a number of important risks to the reliability of the bulk power system since 2006. Results do matter and the achievements since 2006 support the notion that the delegation model works. Using the ground-up approach, the ERO Enterprise has taken advantage of the ability of the Regional Entities to uncover trends and leading indicators of potential reliability problems, such as protection system misoperations and transmission facility right-of-way clearances. The ERO Enterprise was able to use this information to craft strategies to prevent these potential risks from causing actual harm to the bulk electric system. The ERO Enterprise has developed a system of bulk power system reliability metrics based on actual measured performance of the grid. This system of metrics is driven by analysis of event reports, transmission and generator outage data, and relay misoperations. The most recent annual *State of Reliability 2013* report indicates the bulk power system remains reliable and that certain risks have been reduced. Excluding weather-related events, the number of significant system events

⁶ For example, over forty years ago, regional reliability organizations were formed; over fifteen years ago, regional reliability coordinators were formed.

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resulting in loss of firm load decreased from nine per year on average from 2008 to 2011 down to two events in 2012, and a similar trend is continued through 2013.

Transmission outages caused by grow-in of vegetation, a major cause of the 2003 and several preceding large blackouts, have been virtually eliminated in recent years. NERC introduced a new mandatory standard in 2007 requiring transmission owners to implement vegetation management programs to maintain safe clearances. Strong enforcement actions by NERC and Regional Entities were effective in eliminating grow-ins and reducing the risk of cascading failures initiated from vegetation contacts as seen in the past. Industry experts helped to shape the standard, including a recent update to focus on reliability performance outcomes and risk management while maintaining practicality.

Working with industry system protection experts, NERC developed new relay-loadability requirements for transmission line relays. In the August 2003 Northeast Blackout, over 300 high voltage transmission lines tripped in a high speed cascade due to a previously little understood issue with the relay settings, even though no fault conditions existed on those lines. Industry experts were able to determine that the settings could be modified to prevent a similar future cascade and the requirements were included in new reliability standards. The risk of repeating this mode of uncontrolled high speed cascade of transmission lines has been substantively mitigated.

Industry experts have worked with NERC and the Regional Entities to develop new standards for frequency response to address decades of gradual decline in resources available to respond to frequency disturbances. Experts are currently developing technical methods and tools to mitigate the risks and potential consequences of solar magnetic disturbances. Guidelines have been developed and training implemented to prevent a repeat of a February 2011 loss of generation and firm load in Texas due to extreme cold weather. These are but a few examples of how direct engagement of industry experts through the ERO Enterprise can result in reliability improvements that benefit the public.

The compliance monitoring and enforcement program implemented by NERC and the Regional Entities has been effective in ensuring that compliance violations are identified and mitigated, thereby reducing reliability risk. The ERO Enterprise processed 5,115 confirmed violations of Reliability Standards through 2012 year end. Of these, 85% were deemed to present minimal risk to bulk power system reliability, 13% presented moderate risk, and 2% high risk. The *State of Reliability 2013* report indicates that risks due to noncompliance have trended significantly lower in recent years. NERC and Regional Entities have encouraged self-reporting of violations and timely mitigation – to date, more than 70% of all violations are self-identified by registered entities.

The ERO Enterprise has implemented uniform procedures for compliance monitoring and enforcement, including penalty guidelines, and continues to focus on improving consistency of implementation. FERC has approved the vast majority of notices of penalty without comment since 2008. In recent years, the ERO Enterprise developed greater efficiencies in processing enforcement issues through the find, fix and track (FFT) and spreadsheet notice of penalty (SNOP) initiatives. Work is now continuing to develop the Reliability Assurance Initiative (RAI) to ensure risks are effectively and efficiently addressed through the compliance monitoring and enforcement programs. RAI specifically seeks to improve the reliability of the BPS due to enhanced focus on high reliability risks and registered entities' internal controls relative to those risks, performance of self-assessments and corrective actions, and enhancement of the enforcement processes to process violations in accordance with risk.

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The ERO Enterprise has implemented registration criteria to identify entities that can have an impact on bulk power system reliability. There are approximately 1,900 entities registered and an even greater number of entities engaged in reliability activities through the ERO Enterprise. Industry engagement is significantly greater than the number of entities that historically were engaged in NERC during the voluntary era.

The ERO Enterprise has developed a systematic approach to capturing and analyzing bulk power system events. Industry has been very responsive to a program established in 2011 for the voluntary reporting of system events, including sequence of events, root causes, and mitigating actions. Though voluntary, the ERO Enterprise is experiencing nearly 100% participation by industry. The information arising from this program is valuable in identifying reliability risks and trends and in developing lessons learned and mitigating actions for industry.

Since the initiation of the ERO model, major progress has been made in securing critical infrastructure in the bulk power system. Mandatory cyber security standards have been established, and the ERO Enterprise has actively monitored compliance with these standards, noting significant numbers of compliance gaps mitigated by registered entities.

Finally, NERC and the Regional Entities have developed electronic tools, forms, and templates to support information management across the ERO Enterprise, and NERC and Regional Entities are looking to standardize these tools to drive more efficiencies

The outcomes outlined above are a sampling of the positive results that have been developed within the current ERO Enterprise framework, demonstrating that the ERO Enterprise model based on the principles of audited self-regulation and delegation to Regional Entities can be and has been effective in improving reliability and serving the public interest.

PART II – VISION FOR A SUCCESSFUL END STATE

A Vision for the ERO Enterprise

Despite the successes outlined above, the current nine-entity model is not without challenges and risks. The formative years, identified as 2006 through 2013, were focused mainly on achieving the substantial work at hand, guided by the rules of procedure, delegation agreements, and extensive amounts of coordination of activities. With the experience gained and the maturation of the ERO Enterprise, however, it is clear that substantial benefits can be envisioned for an end state.

At its core, the ERO Enterprise must exercise effective and well-coordinated reliability oversight that mitigates reliability risks to the bulk power system. The ERO Enterprise programs must be effective at the mission of ensuring risks are addressed to maintain reliable operations of the bulk power system.

The end state should include more clarity around the roles and responsibilities between NERC and the Regional Entities which will lead to better coordination of goals, more uniform work processes/tools, and performance measures across the enterprise, along with an understanding that all parties comprising the ERO Enterprise must be vested in each other's success. These improvements will create a framework for higher levels of productivity, less duplication, and greater efficiency through more standardization.

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The ERO Enterprise must adhere to certain principles. The ERO Enterprise must:

- Apply technical expertise that is focused on risks to the bulk power system and important reliability outcomes;
- Achieve results and methods across the enterprise that are predictable, consistent and timely;
- Share common goals, objectives and measures of success;
- Build relationships that are founded on candor and mutual trust, openness and cooperation;
- Apply collaborative decision-making;
- Ensure efficiencies, minimize duplication and any activities not affecting reliability outcomes;
- Avoid undue burden, discrimination, or capriciousness affecting regulated entities.

The remainder of this paper identifies a path forward to achieving excellence in the oversight and execution of statutory functions and mitigation of bulk power system reliability risks. This discussion is organized in the following areas:

- Clarifying and refining roles and responsibilities
- Coordinating strategic planning
- Coordinating operational decision-making
- Achieving consistency
- Sharing tools and infrastructure for delegated functions
- Coordinating communications

Each section describes the key goals that must be achieved to implement the ERO Enterprise vision for effective, coordinated operations across the enterprise.

Clarifying and Refining Roles and Responsibilities

Achieving the vision requires a clear understanding of the roles and responsibilities of both NERC and the Regional Entities and a clear set of expectations in the execution of the activities performed across the ERO Enterprise.

As the single ERO certified in the U.S. and sanctioned in Canada, NERC has unique responsibilities within the nine-entity ERO Enterprise. NERC is accountable to be the program designer and architect for statutory functions, setting necessary qualifications and expectations for the performance of delegated activities. NERC should respect and be responsive to the expertise and views of Regional Entities, whose staffs have a technical understanding of regional operations, are experienced in the direct interactions with registered entities, and promote the entire ERO Enterprise as one collective thought leader in setting direction and expectations. NERC should also set expectations, provide necessary training and coaching and assess performance of delegated statutory functions.

These roles suggest different qualifications and activities for NERC staff than in the past. Rather than observing regional activities and providing feedback or reviewing and approving final results submitted to

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NERC, the emphasis needs to shift toward a different set of skills involving program design and setting management controls to ensure effectiveness. Essential capabilities at NERC include identifying personnel qualifications for program implementation, which itself suggests senior and experienced qualifications, and being able to determine when program adjustments are needed to address bulk power system risks or program risks.

All of this suggests NERC should design its oversight of program areas to encompass program design and development, operational oversight and leadership, coaching and support, and ongoing assessment with feedback to the corresponding regional programs. The goal is to add value and ensure the successful performance of the enterprise. The NERC program staffs must be experts in their field and competent program designers and managers, and teachers and coaches for the regional program staffs. The NERC staff needs to be able to recognize risks, to guide the program and introduce necessary adjustments along the way.

Furthermore, given the distributed and regional nature of the risks being managed and the external environment of a diverse industry across North America, this leadership role must be conducted in a consultative fashion. While NERC has overall responsibility for program design, the goal is to leverage the expertise across the ERO Enterprise in developing future program enhancements. Once designed, the program must be implemented by all Regional Entities consistently in accordance with the approved design. Any variations that do exist must be planned and coordinated for the overall betterment of the ERO Enterprise, within existing fiduciary responsibilities.

NERC is positioned to review data and information from all of the Regional Entities to identify trends and leading indicators of potential reliability risks, develop responsive strategies, and communicate this information to all of the Regional Entities to ensure a uniform, consistent manner of implementation. As the ERO Enterprise matures, process controls should be well established and routinely monitored, allowing greater emphasis on identifying and addressing threats and risks to reliability of the bulk power system.

Implementation of the oversight role must include well-defined and transparent procedures and controls so that all parties understand the qualifications and expectations surrounding execution of delegated functions and how results will be measured. Just as the delegated activities should apply consistent methods, practices, procedures, and tools, the oversight layer should also not be ad hoc, arbitrary, or opaque. It must be known and documented in advance, complete with reporting requirements and performance measures. NERC should be providing ongoing feedback to Regional Entities on patterns and trends, affecting both bulk power system risks and enterprise risks.

ERO Enterprise program oversight should include the following ***essential oversight elements*** to be provided by NERC in consultation with Regional Entities:

- An overall program design indicating the program purpose and goals, and design of controls to manage risks;
- Documentation of common methods, practices and procedures to be applied in the program and performance expectations for each;
- Statements of necessary qualifications of key positions within the regions for conducting certain statutory activities (*e.g.*, for auditors and investigators), and identification of any standards for critical positions;

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- Training of NERC and Regional Entity staff for select positions in the conduct of delegated functions;
- A documented and transparent set of process controls and measures to assure delegated responsibilities are properly completed, and to assess the effectiveness of the delegated activities in assess effectiveness of delegated activities in managing bulk power system and enterprise risk; and
- Periodic reporting of results and feedback to Regional Entities on trends and providing opportunities to enhance consistency and effectiveness of results.

The objective is to integrate these elements into the ERO Enterprise operating model on a consistent basis across all the program areas. This is also an area where NERC executive management needs further work on a best design for managing functional area relationships with the regions.

The success of the ERO Enterprise requires NERC and the Regional Entities to recognize that each delegated activity is part of a single overall ERO Enterprise program, such as compliance assurance, enforcement, reliability assessment, or event analysis.

While NERC is responsible for the program design, the Regional Entities are responsible for providing insight and input into the overall design and development of each program area. In support of this, NERC should ensure there are mechanisms for the Regional Entities to provide meaningful insight and direction for incorporation into program design. Regional Entities should adopt conforming methods, practices, and procedures identified in the program design, with exceptions limited to those areas identified in coordinated plans for the purpose of promoting innovation or addressing material regional variations. Regional Entities need to report results using the tools provided, and consistent with reporting requirements identified in the program. Regional Entities should be receptive to feedback from NERC and making responsive adjustments. Regional Entities should ensure staffs are provided the training and development necessary to meet the qualifications required to implement the ERO Enterprise programs.

Regional Entity and NERC staff have an obligation to meet the highest ethical and professional standards in conducting ERO Enterprise work, including independence, objectivity, and providing the best available expertise for addressing bulk power system risks. Regional Entity staff should operate as part of the broader ERO Enterprise and communicate solidarity with the overall enterprise-wide program objectives, methods, and practices.

The ERO Enterprise is aimed at achieving the following goals:

Action item 1 – NERC includes in its review of Regional Entity business plans adequacy of resources and alignment of the plans for achieving delegated function objectives and outcomes described in the three-year plan.

Action item 2 – NERC, in collaboration with Regional Entities:

- a) develops a comprehensive overarching design and set of controls, reporting requirements, and feedback mechanisms for each delegated statutory function, including the essential oversight elements listed above;***
- b) reevaluates its organizational structure and leadership qualifications necessary to provide effective design and oversight of statutory activities;***

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- c) identifies functional qualifications for select delegated activities, such as auditors and investigators; and,*
- d) adopts risk-based approaches to monitoring performance of delegated functions and providing effective feedback and coaching to continuously improve overall ERO Enterprise performance;*

Action item 3 – Regional Entities:

- a) work in a coordinated fashion to support NERC in the development of comprehensive functional program designs and controls;*
- b) adapt existing regional programs for delegated functions to conform with emerging program designs provided by NERC; and*
- c) ensure Regional Entity staffs meet qualification and training requirements.*

To improve the delegation process, NERC and the Regional Entities should work together to update and refine the delegation agreements, which are due for renewal in May 2015, to provide a clearer division of responsibilities, both related to the division of performance of statutory functions and oversight of those functions, and to provide effective mechanisms to resolve routine differences.

Coordinated Strategic and Business Planning

There has been significant progress, achieved through collaboration among senior executives of NERC and the regions, in developing a shared, rolling three-year strategic plan for the ERO Enterprise. Adoption of the ERO Enterprise goals and objectives into business plans across all of the regions has been varied and incomplete. Common performance measures are just emerging and have not yet been adopted into performance management systems across the ERO Enterprise.

The end state for enabling excellence in the execution of statutory reliability activities is that NERC and the eight Regional Entities must work from a common strategic plan, with success measured by a shared set of performance metrics. A common strategic plan and measures does not suggest performing every activity in lock step, but every activity must be coordinated across the enterprise and must be performed consistently. For example, several regions have been working on pilot programs to develop and demonstrate RAI methods as well as the transition to the CIP Version 5 standards.

Action item 4 – NERC and Regional Entities develop and maintain a joint three-year strategic plan for the ERO Enterprise describing the goals and deliverables for statutory functions and this plan should guide the development of each Regional Entity’s annual business plans. Additional goals and deliverables that are complimentary or supplemental to the strategic plan may be developed at the Regional Entity level.

Action item 5 – NERC and Regional Entities develop and transparently report results based on a common set of performance measures focused on bulk power system reliability outcomes and effectiveness of the statutory programs. These measures are considered in the performance management program at each entity.

Coordinated Operational Decision-Making

The current model allows and depends on successful delegation of activities. Although statutory functions are delegated, there remains substantial need to coordinate operational decisions that arise in the execution of these duties.

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NERC and the Regional Entities have institutionalized a number of mechanisms to coordinate operational decisions across the enterprise. Note that this discussion and the ensuing recommendations focus on operational decisions that need to be made regarding implementation of statutory functions across the ERO Enterprise and is not intended to reach into the internal management decisions of each organization.

For policy and directional decisions, NERC and Regional Entity CEOs have been meeting periodically for most of the lifetime of the ERO Enterprise although more sporadically in the beginning. In the most recent two years, coordination meetings have been at least monthly, including 6-8 face to face meetings annually. There is an agreed upon protocol for reaching consensus decisions. Although this process has seen partial success, it is still a work in progress. The group is still working on issues such as what level of decisions should be brought to the CEO group for consensus decisions.

In addition to senior leadership coordination, there are approximately two dozen working groups collaborating across various functional areas of the ERO Enterprise. There are groups coordinating compliance monitoring and audits, enforcement, legal, finance, registration, and reliability assessments, just to name a few. Generally these groups are effective in working out common templates for information sharing and resolving common practices and methods at the working level. As with the senior leadership group, most of these groups have achieved good results and are effective in coordinating practices, methods and formats, but there remain opportunities for improvement. One challenge is shifting these working groups from being mainly self-directed problem solvers to being more focused on the strategic plan objectives and having accountability to the CEO leadership team. Also there are concerns that need to be addressed regarding the magnitude of the staff resource commitments stemming from these coordinating activities.

The preferred approach is to proactively establish a more collaborative model and recognize that regional staffs for most functions typically have valuable first-hand experience in implementing the activities on the front lines with registered entities. However, success depends on collaboration that results in timely and effective decisions that all entities in the enterprise agree to implement, and the avoidance of unilateral decision-making that steers portions of the ERO Enterprise off into alternative methods and practices for delegated functions.

Action item 6 – ERO Enterprise senior leadership (ERO-Executive Management Group or “ERO-EMG”) continues maturing the collaborative decision-making process and setting the direction and policy for the enterprise as well as driving this collaboration throughout the ERO Enterprise organizations.

Action item 7 – All nine ERO entities abide by the joint enterprise decisions of the ERO-EMG, and the NERC CEO should make final determinations if consensus is otherwise not achievable for an action that is required.

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Achieving Consistency

Consistency of methods, practices, procedures, and tools has been a challenge since the onset of the ERO Enterprise. Consistency is defined by the ERO Enterprise as the use of common methods, practices and tools. The principle initial challenge was that the majority of processes were new and NERC did not foresee the importance of developing common processes and procedures in effective oversight. Instead NERC relied on the Rules of Procedure and the Delegation Agreement to deliver a basic level of consistency which has failed to meet the expectations of industry. Therefore, given the lack of common processes and procedures from NERC, Regional Entities developed their own methods, practices, procedures and tools. While there has been significant progress in working out substantive differences through the leadership and working group processes described previously, there also remain significant variations in methods, practices, procedures, and tools across all nine entities. Today, the biggest challenge in addressing consistency is gaining common agreement on processes and procedures with the backdrop of years of institutionalized differences among NERC and the Regions. Over the past few years there has been significant work toward converging disparate practices across the enterprise. The recent RAI activity, for example, has resulted in some convergence of methods and practices in compliance. In 2013, joint projects saw the completion of a common auditor checklist and an auditor handbook.. A common business process has been developed for managing exceptions to the Bulk Electric System definition. Regions are implementing a common event analysis program and root cause analysis tools.

Some convergence has also been initiated through the use of common electronic tools. Early in the formative years of the ERO Enterprise some of the regions began to deploy common portals to manage compliance information. While these tools helped drive more consistent reporting of results from the regions, even today all nine entities are not using the same information management tools. Tools and infrastructure are covered in more detail in the next section.

Therefore, progress has been made but if common methods, practices, procedures and tools are the yardstick, the enterprise remains very immature. The ultimate success of the ERO Enterprise depends on there being one compliance program, one enforcement program, one event analysis program, etc. Regulated entities will have greater confidence and trust in the ERO Enterprise if they believe their regulatory oversight is not subject to arbitrary variations and possible discrimination from one region to the next. Outcomes will be more predictable and consistent if each statutory function is operated in a unified fashion across the ERO Enterprise. Outcomes will also be more readily measurable to demonstrate the reliability impacts and benefits of the enterprise programs. In the long term, getting past the transition from legacy approaches, there will be significant efficiencies. Such a transition requires the development of a core set of common methods, practices, procedures, and tools, which are principally the responsibility of NERC to produce, but in collaboration with Regional Entities.

Achieving consistency in the end state does not necessarily require identical internal procedures at each Regional Entity, although efficiency would dictate there should be more commonality than exists today. Consistency does not require that each Regional Entity produce identical outcomes given a particular set of circumstances. However, consistency does mean that the approach, methods and practices are the same across the ERO Enterprise and that outcomes produced from the application of local and regional expertise and judgment of the Regional Entity staff are fair, reasonable, and without bias. The goal is consistent methods, practices, procedures and tools that deliver fair and reasonable outcomes.

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While consistency is desired, the ERO Enterprise must be flexible to permit progress through innovation. Therefore, some variations may be necessary in the interest of progress. However, Regional Entity and NERC leadership need to be prepared to adapt to new approaches, methods, and practices. Some regional variations can actually have value, when implemented on a planned and coordinated basis. Differences for the purpose of testing new approaches, such as during the current RAI pilots and CIP Version 5 pilots, can be helpful in advancing innovation and experimenting with alternative methods. There may also be appropriate variations due to regional differences. An example would be the unique framework in Texas for involving the utility commission in review of enforcement actions. The drive to consistent methods, practices, procedures and tools should not inhibit innovation and the emergence of continuous learning and adaptation. However, managing the balance between consistent approaches and regional differences driven by necessity or creative adaptation should not succumb to the tendency to hold tightly to legacy methods. This shift must remain under the close scrutiny of the ERO-EMG, with accountability for progress to the respective boards, and all entities must be prepared to adopt changes to drive to more consistent methods, practices, procedures, and tools.

Action item 8 – With NERC leading, the ERO Enterprise develops a core set of methods, practices, procedures, and tools to support unified implementation of the major statutory functions of NERC. In doing so, the ERO Enterprise commits to put the best talent available throughout the collective organizations to achieve this goal.

Sharing Tools and Infrastructure for Delegated Functions

As previously described, the infrastructure and electronic tools used by NERC and the eight Regional Entities to implement delegated functions began the ERO era as nine islands. In 2008, the Regional Entities started collaborating on the sharing of portals in an effort to converge onto best practices and provide efficiencies. From this effort emerged two primary platforms for the management of information to support delegated functions. There are two systems which support regional CMEP work:

- OATI webCDMS. The Compliance Data Management System (CDMS) was internally developed by MRO and SPP during the voluntary compliance era of standards. The system was transferred to OATI, a Minneapolis-based software company, in 2008 and became webCDMS. The OATI webCDMS is used by MRO, RFC, WECC, TRE and SPP.
- Guidance. A portal system initially developed by SERC through Guidance a software company in Southern California. SERC, FRCC, and NPCC use the Guidance system.

These early implements were principally focused on compliance information management.

Beginning in 2009, NERC became engaged and built the Compliance Reporting and Tracking System (CRATS) as a further development of the Guidance portal solution. An interface was built to allow data from the CDMS solution to flow into CRATS. Since this time a majority of the regions use the CDMS solution, further emphasizing the importance of this data interface. For several years the flow of compliance information was subject to breakdowns and was very labor intensive for NERC and regional staffs to find the disconnects blocking the consistent flow of compliance information. In late 2012 and 2013 NERC contracted with OATI to manage the CRATS system and staffs across the enterprise were able to resolve the vast majority of information disconnects so that the compliance information flow today is reasonably satisfactory and consistent, albeit built on a patchwork underlying system.

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During this evolution, each entity of the enterprise developed other tools as needed to implement activities. For example, NERC developed a tool for maintaining records of the standards registered ballot body and for the conduct of ballots on reliability standards. There are portals at NERC and some of the regions for issuing alerts and tracking recommendations. For the most part, these various applications were developed in isolation from other applications, using various contractors or using in-house resources. Many of these applications are running to the end of their lives and becoming increasingly difficult to maintain at an expected level of functionality.

In 2011 a shift started to take place from the top. The senior leadership across the ERO Enterprise began to articulate a common vision in support of unifying and modernizing the infrastructure and applications needed to support NERC statutory functions. Arriving at an integrated set of applications for management of information in each of the principle delegation areas would enable the enterprise to leverage future efficiencies and eliminate manual data manipulation and validation that is prevalent in the existing tools. Integrated applications across the enterprise would also lead to greater consistency and trust in the NERC processes, and registered entities would see a more seamless interface on which to manage all of its interactions with the ERO Enterprise. Another benefit, lacking today, would be the sharing of information across functional activities, such as information from event analysis and compliance providing useful feedback to standards development.

As part of this shift, NERC hired a contractor in 2011 to conduct a comprehensive study of the ERO Enterprise functional processes and needs. The final report at the end of 2011 led to the formation of an ERO Enterprise Project Management Organization (PMO) that was staffed by NERC but focused on enterprise-wide applications and enabling infrastructure and support services. A first application, the bulk electric system (BES) exception management tool, has been developed and tested ready to handle the expected flow of industry requests in response to the new BES definition. Plans and projects are underway for enterprise-wide applications to manage reliability assessments, event analysis, and establish a common database for information sharing.

In parallel NERC is developing several applications that are uniquely tied to NERC's responsibilities, such as standards information management and balloting tools. The path forward is that, where appropriate, enterprise-wide tools are being developed by NERC through the PMO under the oversight of the ERO-EMG and NERC is developing compatible applications on the same platform for NERC-only activities.

The vision of a comprehensive set of integrated and seamless applications to support the core delegated functions of the ERO Enterprise is essential for the future success of the entire enterprise. The necessary sharing of information between Regional Entities and NERC is essential and the efficiencies and consistencies in methods and practices will be unachievable without the infrastructure to manage extraordinarily large volumes of data that need to be converted into useful information for the purpose of identifying and managing bulk power system risks. However, any enterprise-wide systems approach presents significant risk itself and requires that the projects be executed well and the resulting applications fully meet the needs of the enterprise. A usable, uniform set of tools will drive consistency and lower costs across the ERO Enterprise.

Action item 9 - The ERO EMG develops ERO Enterprise IT Applications, where appropriate, to support common processes, to enhance the efficiency and effectiveness of Regional Entities' practices, to increase the consistency of the interface with registered entities, and to facilitate NERC's oversight function.

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Coordinating External and Cross – ERO Enterprise Communications

Communications are important to the effectiveness of the ERO Enterprise. Communications can help set expectations for registered entities and stakeholders and demonstrate a common and consistent approach for regulators and the public.

Starting in May 2013, the NERC Board of Trustees initiated a practice of meeting twice yearly as a group with all of the chairs and vice chairs of the Regional Entities. A portion of the meeting is conducted with the NERC and regional CEOs present, followed by a session in-camera. This high level outreach among the nine boards holds significant promise in communicating common purpose and direction, and sharing any concerns among the boards of the ERO Enterprise. These meetings will further help to ensure the mutual accountability previously described that is essential to the successful operation of an enterprise comprised of nine distinct organizations.

A communications working group has been active for several years, coordinating consistent messaging across the ERO Enterprise, particularly with regard to media relations, incident response, and external branding.

NERC and Regional Entities have also coordinated outreach to FERC Commissioners and staff, and Canadian governments. These efforts are typically coordinated through the NERC Office of External Affairs.

The more challenging aspect of coordinating communications is around the operations of the enterprise and key initiatives, such as RAI. Although recent efforts to coordinate key messages and direction have been successful, there remain too many instances of disjointed communications across the entire spectrum of the enterprise. This creates confusion and anxiety with stakeholders and rather than gaining support for necessary initiatives, it creates concern and pushback over the uncertainty of direction.

Action item 10 – All parties of the ERO Enterprise, including leadership and staffs, convey shared and consistent messages from the enterprise perspective and communicate together to minimize messages emphasizing self-importance or uniqueness.

Action item 11 – NERC and Regional Entities continue the joint board coordination to ensure oversight and accountability of all elements of the enterprise, and should continue to refine and expand coordinated outreach to government entities in the U.S. and Canada, stakeholders, and media.