NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

2010 Reliability Assessments

Mark Lauby, Director of Reliability Assessments and Performance Analysis

August 4, 2010

to ensure the reliability of the bulk power system

Preliminary Results – NOT FOR CITATION

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

2010 Long-Term Reliability Assessment

2010 Long-Term Reliability Assessment

Enhancements

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

- Comprehensive assessment performed on operating boundaries of Midwest ISO and PJM
- Present results by interconnection
- Gathered more information on delayed transmission projects and resulting potential reliability issues
- Enhanced Demand Response modeling for reserve margins
- More comprehensive energy-limited resources
- Include the severity/risk reference case curves

2010 Long-Term Reliability Assessment:
Preliminary Key Highlights

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

- Peak demand projections lower due to economic recession
  - 2018 Summer Total Internal Demand: 923,625 MW *(5.7% less than last year's forecast for 2018 Summer)*
  - NERC's *Swift Economic Recovery* report indicates potential for tight reserve margins in some areas
  - Impact of economic downturn on construction should be monitored

2010 Long-Term Reliability Assessment:
Preliminary Key Highlights

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

- Sufficient Planning Reserve Margins in the short-term; tighter in the long-term
  - 2019 Summer Peak Reserve Margins – US: 18%
  - 2019/20 Winter Peak Reserve Margins – Canada: 9%
- Demand response projections plateau in the long-term *(highlighted as an Emerging Issue)*
  - 30,000 MW of demand response identified in the 2010 Summer Reliability Assessment
  - Primary driver is reduced certainty in forecasting demand response resources

2010 Long-Term Reliability Assessment:
Preliminary Key Highlights

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

- Continued growth of wind resources
  - 50,000 MW additional installed/nameplate capacity planned for 2019 (Future - Planned)
  - Additional 120,000 MW installed/nameplate classified as conceptual
  - 5-15% of installed/nameplate contribute to on-peak reserve margins
- More transmission planned in the 10-year period
  - 25,000 circuit miles are planned
  - Additional 17,000 miles are conceptual

2010 Long-Term Reliability Assessment:
Emerging Issues

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

- Emerging/continuing reliability issues
  - Uncertainty of sustained participation in demand response
  - Transmission siting and construction
  - Changing resource mix (more natural gas, more variable generation, less coal, new nuclear…)
  - Diminishing frequency response (in the Eastern Interconnection)
  - Consistent modeling of remote resources
  - Lower inertial response (behind long transmission)

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

2010 Scenario Reliability Assessment

2010 Scenario Reliability Assessment

- Potential EPA regulations effect on unit retirements
  - Compound impacts of environmental regulations
- Planning Committee directed Reliability Assessment Subcommittee to:
  - Develop Special Reliability Assessment on the impacts of these scenarios
  - Document the results in a report to the Planning Committee
  - Draft report in August, final approval in September 2010

2010 Scenario Reliability Assessment

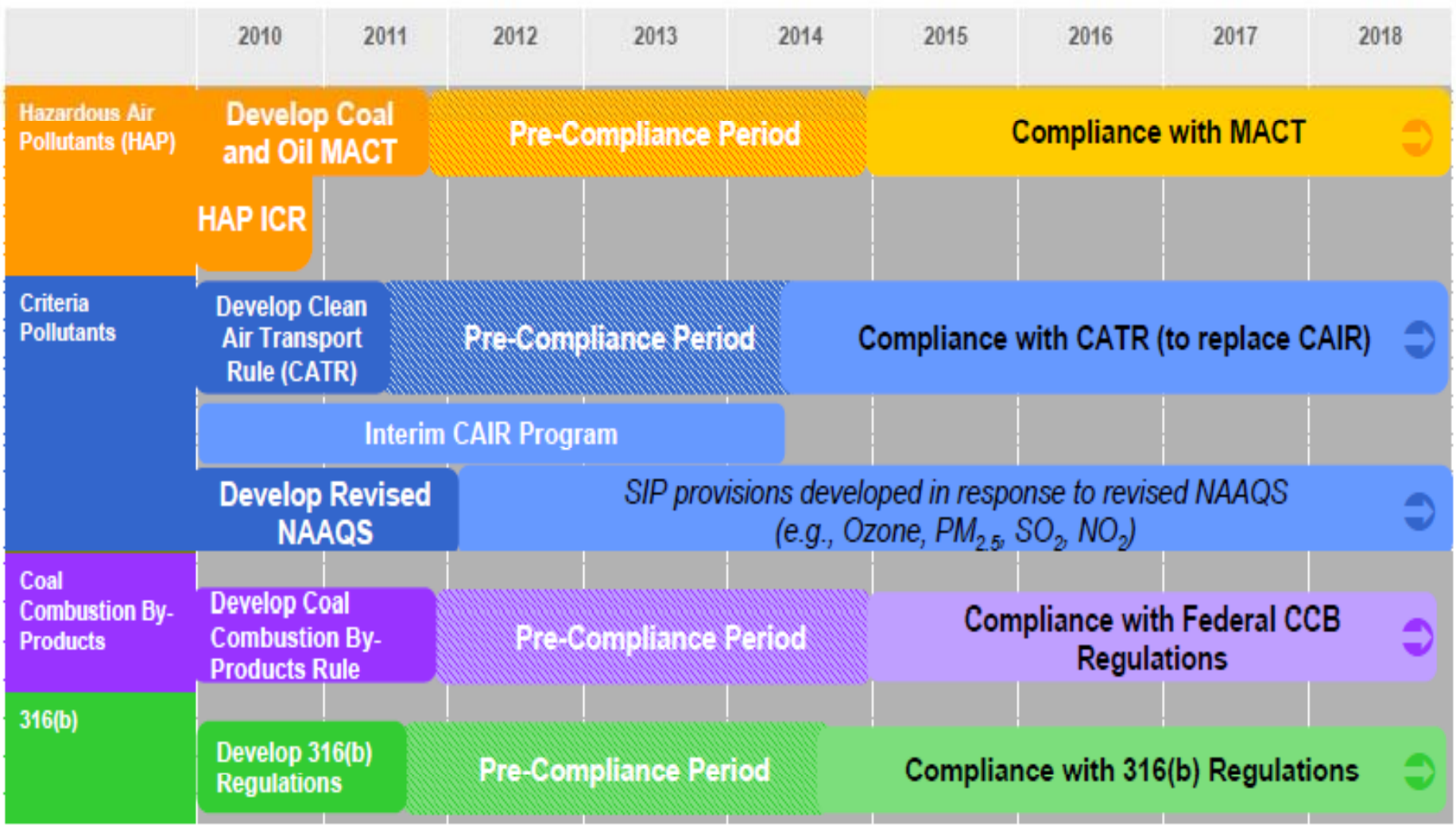
NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

- Potential accelerated unit retirements from regulations:
  - Clean Water Act – 316b, Cooling-Water Intake Structures
  - Coal Combustion Residuals (CCR) Surface Impoundments
  - ~~Clean Air Interstate Rule (CAIR)~~ Clean Air Transport Rules (CATR)
  - Maximum Achievable Control Technology (MACT)

2010 Scenario Reliability Assessment

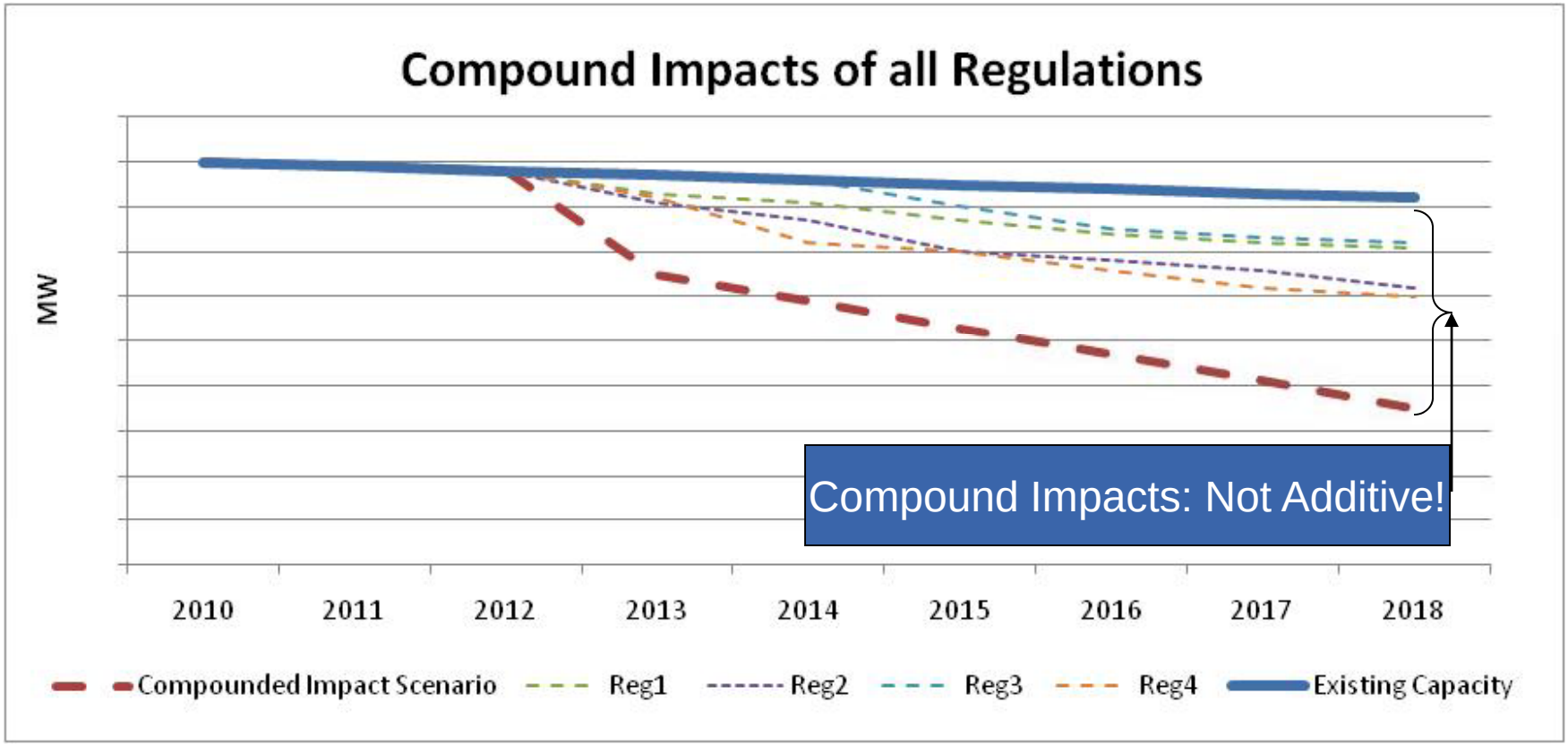
Timing is Key

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION



2010 Scenario Reliability Assessment

- Supply impacts due to compounding effect of all regulations being enforced



Data presented above is for illustration purposes only—it does not reflect actual supply, demand, or reserve margin values or trends.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Questions and Answers

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Smart Grid Task Force Update

Mark Lauby, Director of Reliability Assessments and Performance Analysis

August 4, 2010

to ensure the reliability of the bulk power system

Smart Grid Task Force Scope

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

- Assess Smart Grid reliability characteristics
- Identify and discuss any reliability implications from integrating Smart Grid into the bulk power system
- Determine the cyber security and critical infrastructure protection implications
- Identify the impact on planning, design, and operational processes as well as the tools needed
- Determine which NERC Reliability Standards may apply
- Provide input into NERC's Standards Process

The Smart Grid and Reliability

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Smart Grid:

The integration and application of real-time monitoring, advanced sensing, communications, analytics, and control, enabling the dynamic flow of both energy and information to accommodate existing and new forms of supply, delivery, and use in a ***secure, reliable****, and efficient electric power system, from generation source to end-user.*

High Level Conclusions

- Smart Grid is developing at many levels
- Smart Grid integration changes planning, design, and operational processes. New tools needed to:
  - Model Smart Grid interactions with control systems
  - Increase the visibility of resources and demand
- Integration of Smart Grid must encompass:
  - Cyber considerations: IT and control system interface
  - Dynamic and static system behavior

High Level Conclusions

- NERC's Reliability Standards generally are applicable; some enhancements identified
- Research and development necessary to reliably and securely integrate the Smart Grid:
  - Cyber security, information systems and communications
  - Instrumentation, control and protection systems
  - Power systems
- NERC should monitor Smart Grid developments and remain engaged with industry efforts

Status and Next Steps

- Draft report presented to the Operating and Planning Committees in June for comment
- Comments provided at the end of June 2010
- Report will be enhanced to address comments
- Report will be sent to Operating and Planning Committees in September for approval
- Board review will be sought after Operating and Planning Committee approval
- Launch report some time in Fall 2010

Questions and Answers

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Integrated Bulk Power System Risk Assessment Concepts: *Whitepaper*

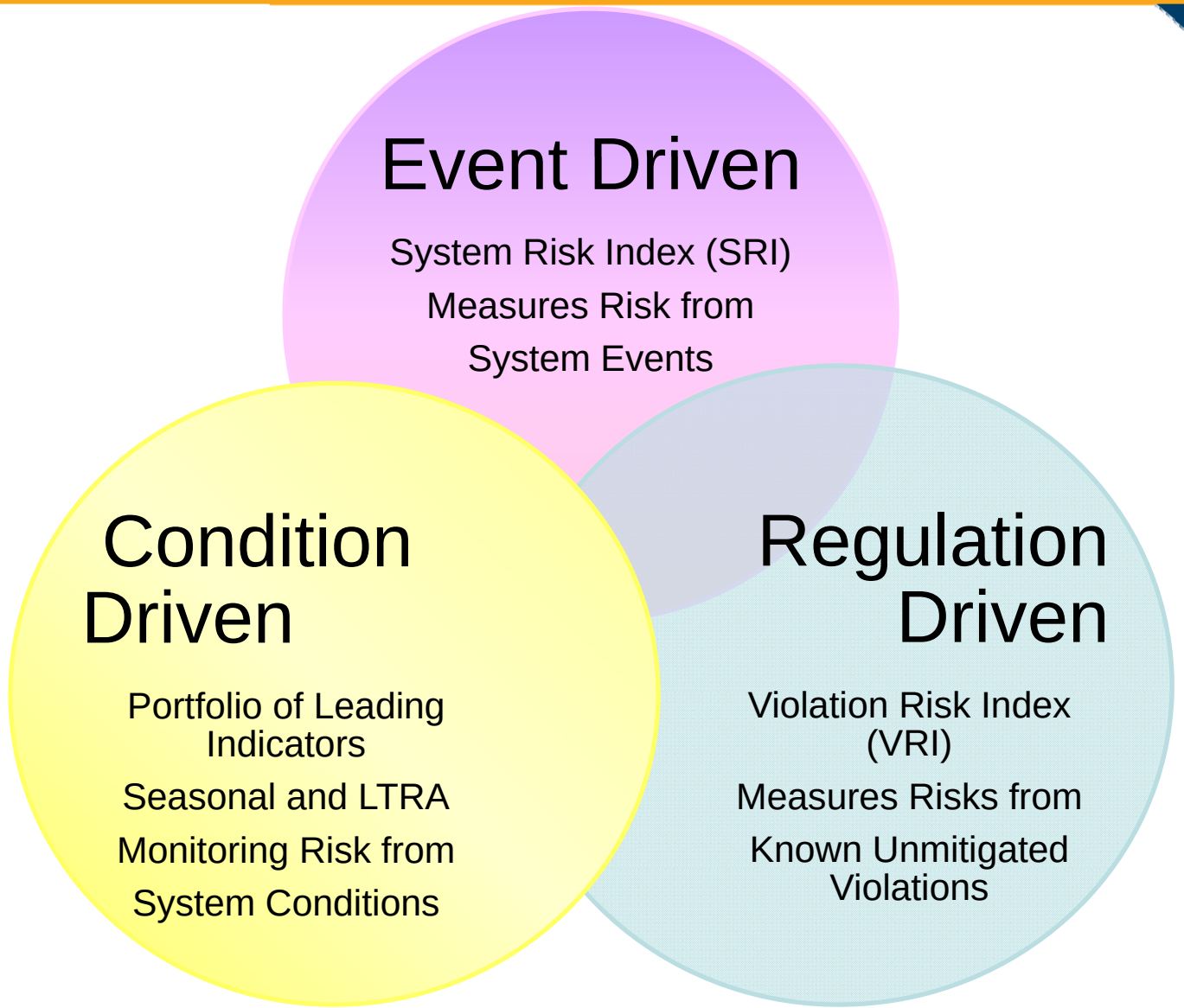
Mark Lauby, Director of Reliability Assessments and Performance Analysis

August 4, 2010

to ensure the reliability of the bulk power system

Preliminary Results – NOT FOR CITATION

Integrated Risk Assessment Tools



Reliability Risk Assessment Tools

Status

- In February 2010, RMWG formed a dedicated team to focus on reliability risk assessment tools
- RMWG scope was modified by the Operating and Planning Committees in March 2010 to include the development of a risk-based method:
  - Propose framework for a risk-based approach
  - Recommend reliability measurements and risk assessments.
- Drafted a white paper on risk assessment tools
- Operating and Planning Committees provided feedback

Reliability Risk Assessment Tools

Whitepaper Objectives

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

- Develop an industry accepted/organized process to measure event risks
- Address event risk management/mitigation
- Foundation for ongoing parallel efforts, such as the HILF event risks
- Identify mitigation processes
- Provide a new way to think about risk

Reliability Risk Assessment Tools

White Paper Recommendations

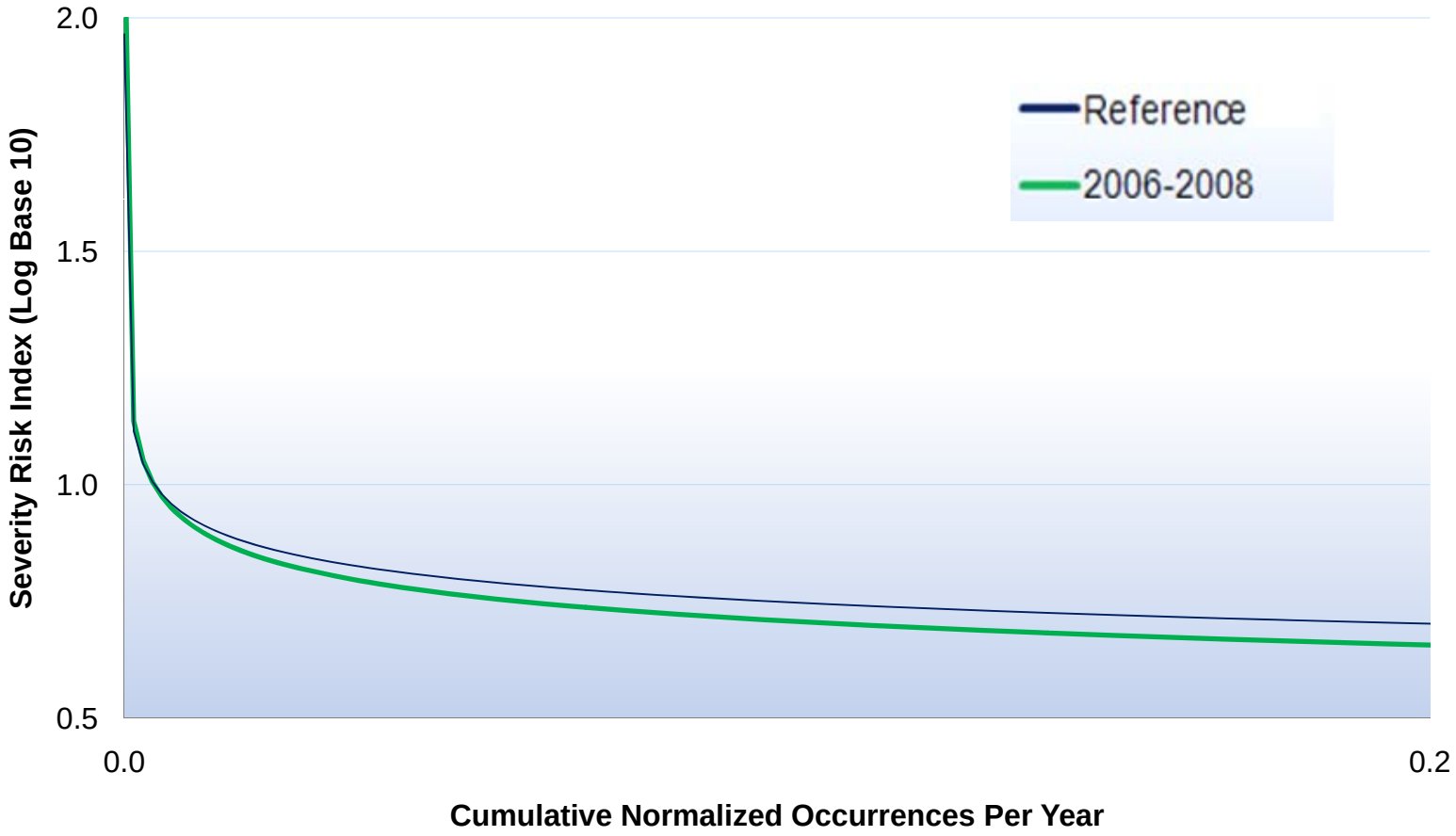
- Use reliability risk assessment tools to identify trends and lessons learned
- Annually results in both a technical reference document and reliability assessments
- Support industry analysis of root causes
- Prioritize Standard and Compliance activities
- Communicate the effectiveness of reliability improvement programs

Next Steps

- Incorporate Operating and Planning Committee comments into the whitepaper
- Seek Operating and Planning Committee approval of whitepaper in September
- Develop a family of risk/severity curves as reference case for future year assessment
- Incorporate results into the 2010 *Long-Term Reliability Assessment*

Risk Severity Reference Curves
Interconnections

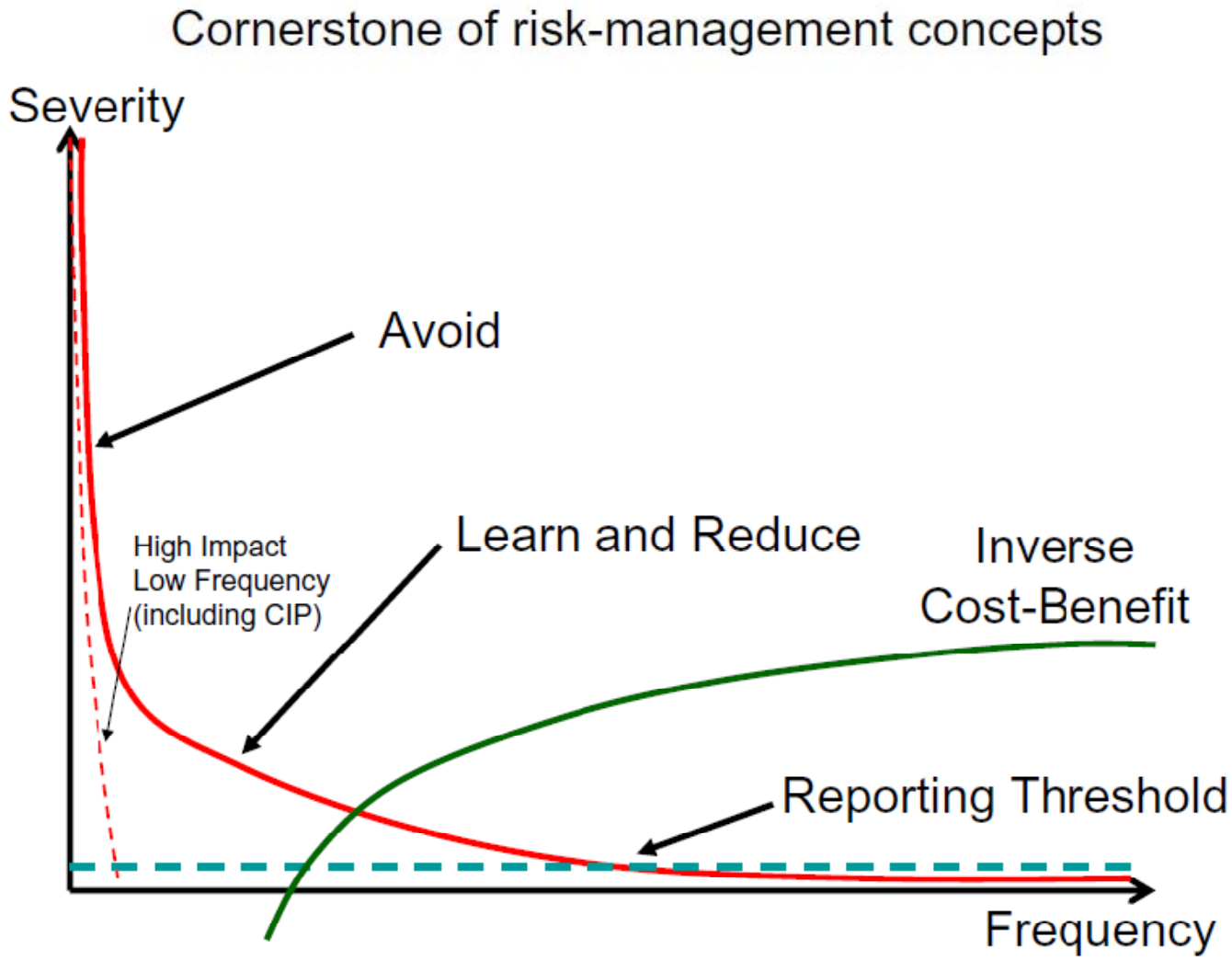
Risk/Severity Curves: Reference and 2006-2008 Cases
Eastern Interconnection



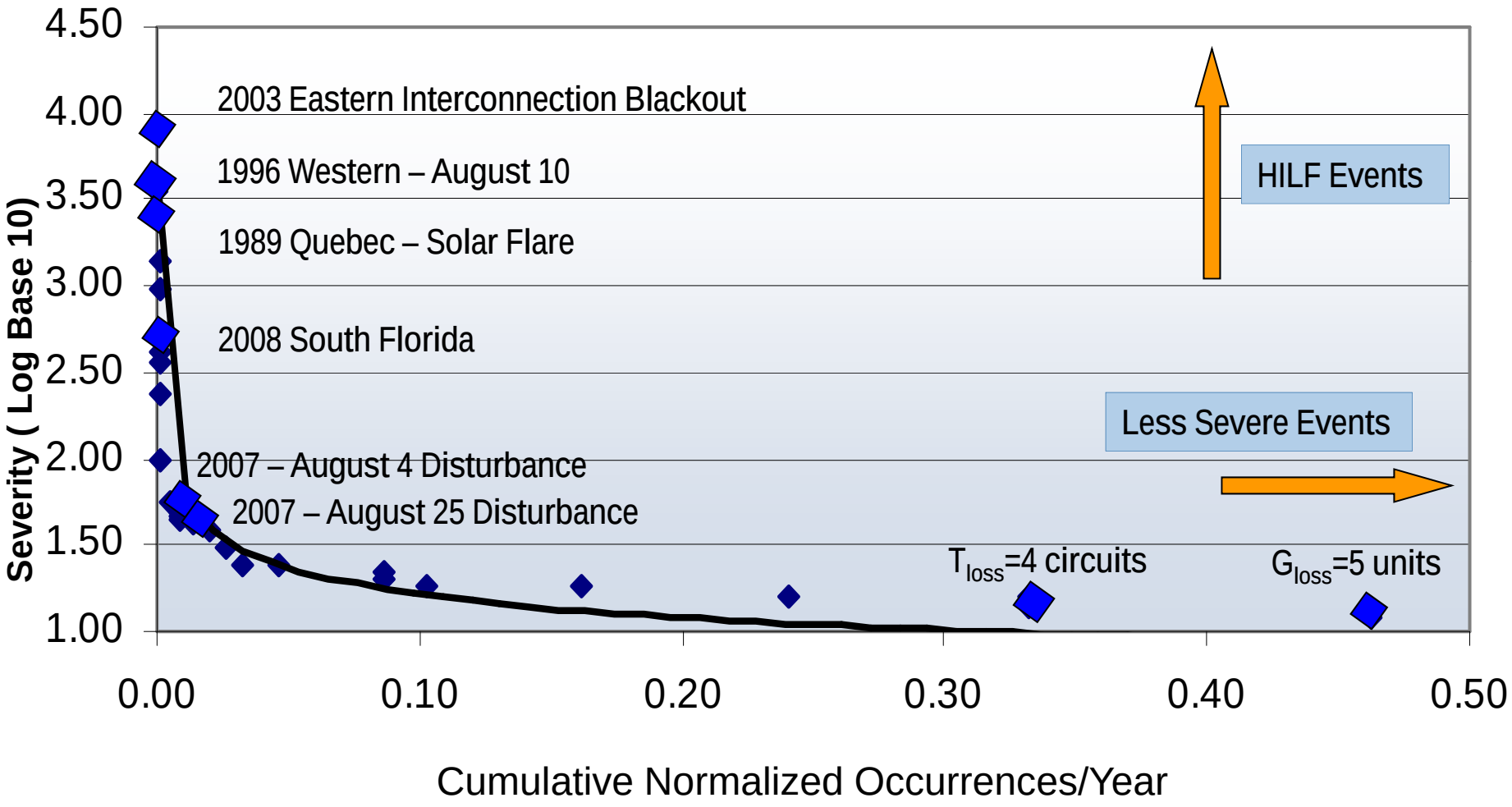
Questions and Answers

Background Slides

Risk-Management Concepts

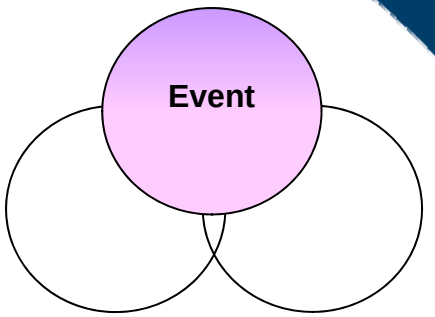


Risk Curve with Actual Events



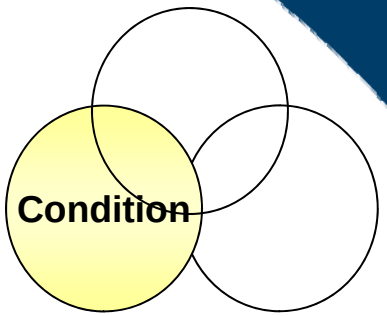
Event Driven Metrics: Benefits/Actionable Recommendations

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION



- Identify trends to lower system risk
- Measure bulk power system performance
- Industry feedback and “Lessons Learned”
- Communicate performance/risk trends, pilot in
- NERC’s 2010 *Long-Term Reliability Assessment*

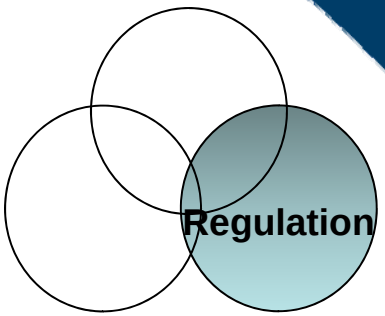
Condition Driven: Benefits/Actionable Recommendations



- Identify indication of potential reliability concerns
- Eliminate unreliable actions/at-risk conditions
- Communicate leading reliability indications

Regulation Driven Metrics: Benefits/Actionable Recommendations

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION



- Improve risk-based approaches for auditing, spot checks and enforcement processes
- Provide prioritized feedback to the standard development process
- Communicate the effectiveness of compliance program to industry

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

High-Impact, Low-Frequency (HILF) Event Risk to the North American Bulk Power System

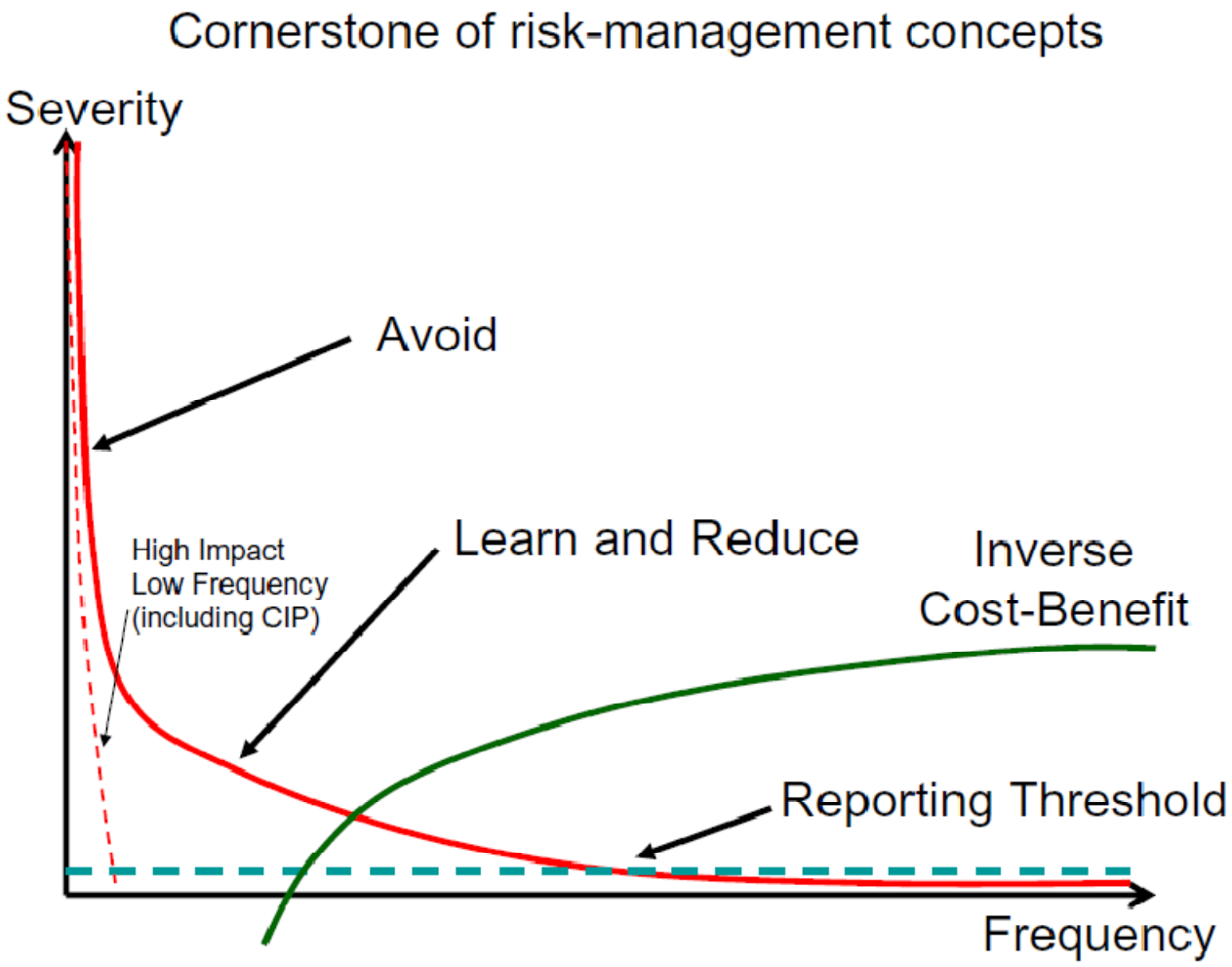
Mark Lauby, Director of Reliability Assessments and Performance Analysis

August 4, 2010

to ensure the reliability of the bulk power system

Preliminary Results – NOT FOR CITATION

Managing Risk



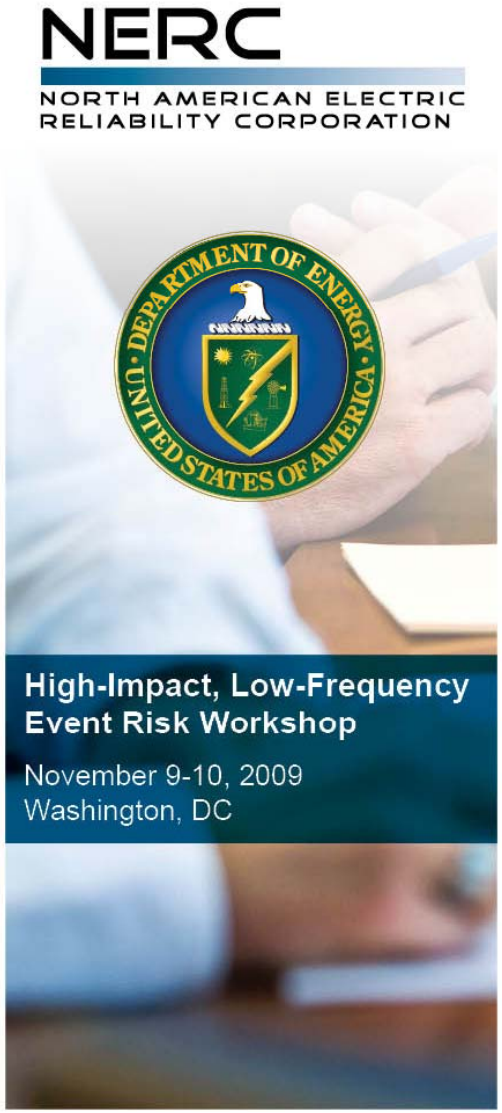
High-Impact, Low-Frequency (HILF) Risks

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

- Occur very infrequently or, in some cases, never occurred
- Little operational experience
- Have the potential to impact many assets at once
- Catastrophic impacts on the bulk power system and society-at-large

NERC/DOE Joint HILF Effort

- Partnered in July 2009
- Formed Steering Committee
- Conducted Workshop in November 2009
  - 110 Subject Matter Experts, including DOD, DHS, FERC, Congressional staff, intelligence community, EMP Commission, all sectors of the electric industry

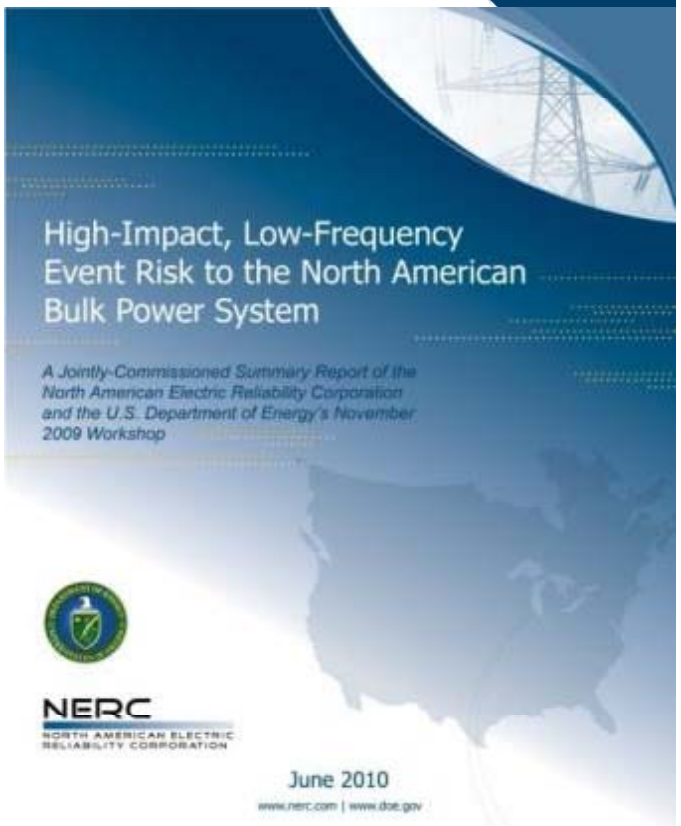


Three Principal HILF Risks

- Coordinated cyber, physical, and blended attacks
- Pandemics
- Magnetic events:
  - Geomagnetic Disturbances (GMD)
  - High Altitude Electromagnetic Pulse (HEMP)
  - Intentional Electromagnetic Interference (IEMI)

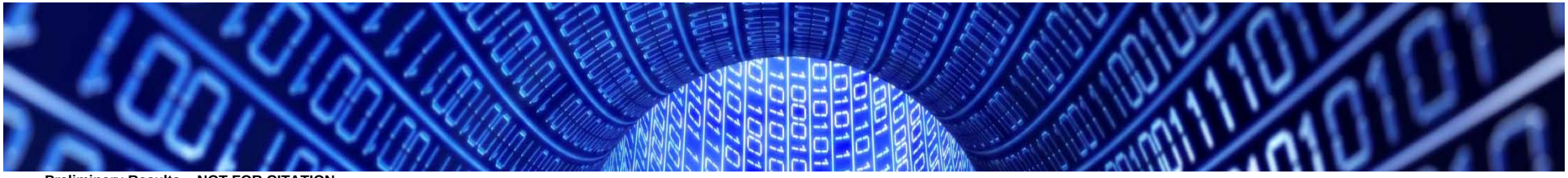
HILF Report

- Summary of workshop
- Creates a common understanding of three HILF risks
  - Segmented analysis of threat, vulnerability, and consequence
- Lays the groundwork for the development of an action plan
  - 19 *Proposals for Action* suggested by workshop participants



Status of HILF Activities

- BOT approved HILF report in May 2010
- Technical committees (OC/PC/CIPC) requested to develop action plan for 19 proposed actions
- Electricity Sub-sector Coordinating Council (ESCC) met to develop high-level strategic plan
- Technical committee leadership and NERC staff met to categorize, group, and prioritize



Technical Committee Leadership

Preliminary Conclusions

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

- Important effort that positions NERC in front of these issues, requires BOT/MRC, ESCC, and Technical Committee leadership
- Messaging in how these risks are being pursued almost as important as the work efforts
- Overall coordination point among BOT, NERC, ESCC, and Technical Committees should be made stronger — it will be the key to success

Technical Committee Leadership

Risk Perspectives

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

- Industry already has a great deal of experience with recovery
- The *proposals for action* expand industry efforts to address for these remote conditions/incidents
- Study how to better recover, prepare, and mitigate the potential impacts — scenario planning

Technical Committee Leadership

Proposed Action Review

- Identify the alignment of the proposed action items with the technical committee scopes
- Prioritize proposed action items according to importance *(high, medium, and low)*
- Delineate basic timeline to start activities *(near, mid, and long-term)*
- Determine Standing Committee involvement *(lead, joint, support, or no involvement)*
- Identify coordination points with the ESCC

Next Steps

- Draft scenario description and action plan
- Initial work will be used to develop:
  - Methodology for considering HILF elements
  - Communication plan describing ongoing HILF efforts
- Finalize for technical committee review and approval
- Present to the ESCC and BOT
- Launch activities
- Update BOT/MRC on status and prepare results

Questions & Answers

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

CIP Version 4 Standards

Herb Schrayshuen
Vice President and Director of Standards

August 4, 2010

to ensure the reliability of the bulk power system

Status Report

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

- Industry concerns with moving directly to the recently posted CIP-010 and CIP-011 standards
- Developing replacement of current entity self-determination of critical assets and critical cyber assets in CIP-002 with bright line criteria
- Removes subjectivity and adds clarity for registered entities and auditors

Status Report (continued)

- Survey to determine where to draw the line
  - Classifies current Critical Assets defined by risk-based methodology, quantifies new assets included/excluded at various levels
- Survey results used to develop CIP-002-4
- Target posting in September, BOT approval in December
- Work on CIP-010 and 011 will continue into 2011

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Oversight of Standards Development Program and Standing Committees

Gerry Cauley
President and CEO

August 4, 2010

to ensure the reliability of the bulk power system

Background

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
Gerry Cauley
President and CEO

- March 18, 2010 orders on standards
  - Order to modify standards development process
  - July 6, 2010 FERC technical conference on reliability standards development
- Three-year ERO self-assessment
- CGHR mandate to review standards process
- General opportunity to review standing committee oversight

NERC Standing Committees

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
Gerry Cauley
President and CEO

- Standards Committee
- Compliance and Certification Committee
- Operating Committee
- Planning Committee
- Critical Infrastructure Protection Committee
- Personnel Certification Governance Committee

Current State of Oversight

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
Gerry Cauley
President and CEO

- Focused at point of delivery
- Each committee develops annual work plan
- Work is largely self-directed and generally aligned with NERC priorities
- Roles of committees shifted in transition from voluntary NERC to ERO
- Committees still represent primary source of technical subject matter expertise

Challenges of 'Self-Directed' Approach

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
Gerry Cauley
President and CEO

- Regulatory mandates and directives
- Addressing newly identified risks to bulk power system reliability
- Addressing emerging technologies and policy questions
- Timely results
- Efficient use of resources

Options for Consideration

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
Gerry Cauley
President and CEO

- Improved interactions with committees, stressing strategic objectives and priorities, accountability for timing and use of resources
- Reorganize board committees
  - Technology Committee activities shift to Finance and Audit Committee for ongoing projects
  - Reform Technology Committee to become Standards Committee, to include emerging technologies

Scope of Board Committee on Standards

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
Gerry Cauley
President and CEO

- Identify strategic priorities for reliability standards development and provide feedback on annual work plan
- Monitor results, including quality and timeliness of standards development work, and identify needed improvements
- Assess emerging reliability risks affecting standards
- Monitor compliance with standards-related regulatory mandates
- Assess standards process improvement opportunities
- Foster interfaces with compliance, event analysis, and technical committees
- Assess resource allocation
- Act as Level 2 Appeals Panel
- Periodically review NERC's status with ANSI

Committee Details

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
Gerry Cauley
President and CEO

- 3 – 7 members appointed by board
- Quarterly meetings or conference calls
  - Monthly conference calls added as needed

Discussion Questions

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
Gerry Cauley
President and CEO

- More board oversight for standards process?
- Board-level committee on standards?
- Board activities to improve oversight?
- Improvements to oversight of OC, PC, CIPC, CCC, PCGC?
- Effective role for CCC relative to BOTCC and staff?

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Executive Forum on Reliability

Gerry Cauley
President and CEO

August 4, 2010

to ensure the reliability of the bulk power system

Background

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
Gerry Cauley
President and CEO

- March 18, 2010 orders on standards raised concerns
- July 6, 2010 FERC technical conference pointed to need for executive-level communication and improved working relations in setting of priorities and expectations
- General opportunity to review value of senior executive involvement in ERO

Suggested Models

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
Gerry Cauley
President and CEO

- Executive summit styled after FERC technical conference model (one per year)
  - Coordinate agenda to address priority reliability issues
- "Large" executive forum
  - Approximately 20 executives, government and industry
  - See agenda package for sample representation model
  - Meet one or two times per year in public setting
- "Small, informal" executive sessions
  - Small, informal meetings, including one-on-ones

Discussion Questions

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION
Gerry Cauley
President and CEO

- Executive forum needed?
- Are there other alternatives than three listed?
- Advantages and disadvantages of each?
- How should balance be ensured?
- How should transparency be ensured?
- Tie to NERC meetings or separate?
- CEO-level advisory group to support NERC BOT?

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Response to March 18, 2010 Orders on Specific NERC Reliability Standards

Herb Schrayshuen
Vice President and Director of Standards

August 4, 2010

to ensure the reliability of the bulk power system

TPL-002 – Acceptable Load Loss

- **June 11, 2010** — requests for rehearing, stay and Technical Conference denied by FERC; did give extension of time to comply with directives
- Stakeholder Conference and Standard Drafting Team meetings August 10-12
- **March 31, 2011** — NERC must submit modifications to Table 1 and footnote b of TPL-002-0

BAL-003 – Frequency Response and Bias

- Commission granted rehearing of the Order and plans to schedule a technical conference
- Commission's frequency response analysis is still pending
- NERC must submit a plan within 30 days after technical conference, and proposed schedule/ deadlines for completing studies and analyses needed to develop frequency response requirements
- Standard expected to be completed early 2011

BAL-004 – Time Error Correction

- Plan to withdraw current filing
- Developing new proposal to be filed before September 30

PRC-023-1 – Stable Power Swings

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

- **July 16, 2010** — NERC submitted a report and plan with four phases to address power swing issue identified in Order 733
- **March 18, 2011** — NERC must submit proposed modifications to PRC-023-1

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Plan for Addressing Remaining Order 693 Directives

Herb Schrayshuen
Vice President and Director of Standards

August 4, 2010

to ensure the reliability of the bulk power system

Plan for Addressing Directives

- Overarching Goal
  - Address all unaddressed Order 693 directives by end of 2011, and address all future directives within one year of issuance
- Standards Committee Directives Task Force formed
- Grouping and prioritization:
  - Identifying Reliability Risk Index for each directive
  - Determine options for addressing
  - Triage - Focus on Reliability Gaps First
  - Review schedules periodically to ensure tracking to goals

Relationship to Order 693 Directives Project

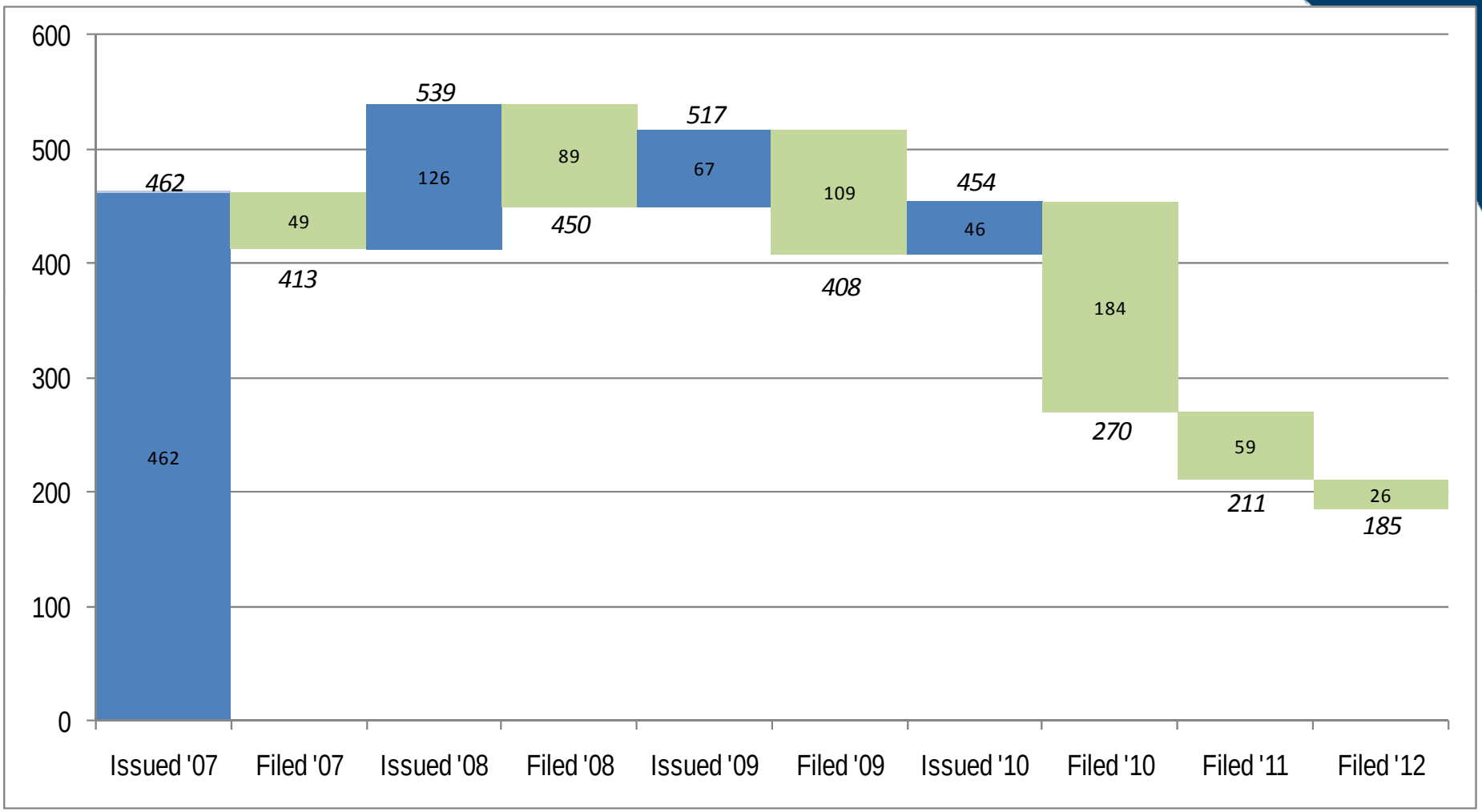
NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

- 270 standards-related directives remain to be addressed by end of 2010; 198 from Order 693 and 72 from other orders
- Standards committee subcommittee assigned to this effort is reviewing all FERC Orders and verifying its list of identified directives with Commission staff
- Modifications to six standards to address 11 directives were balloted

Standards for Action by NERC Board

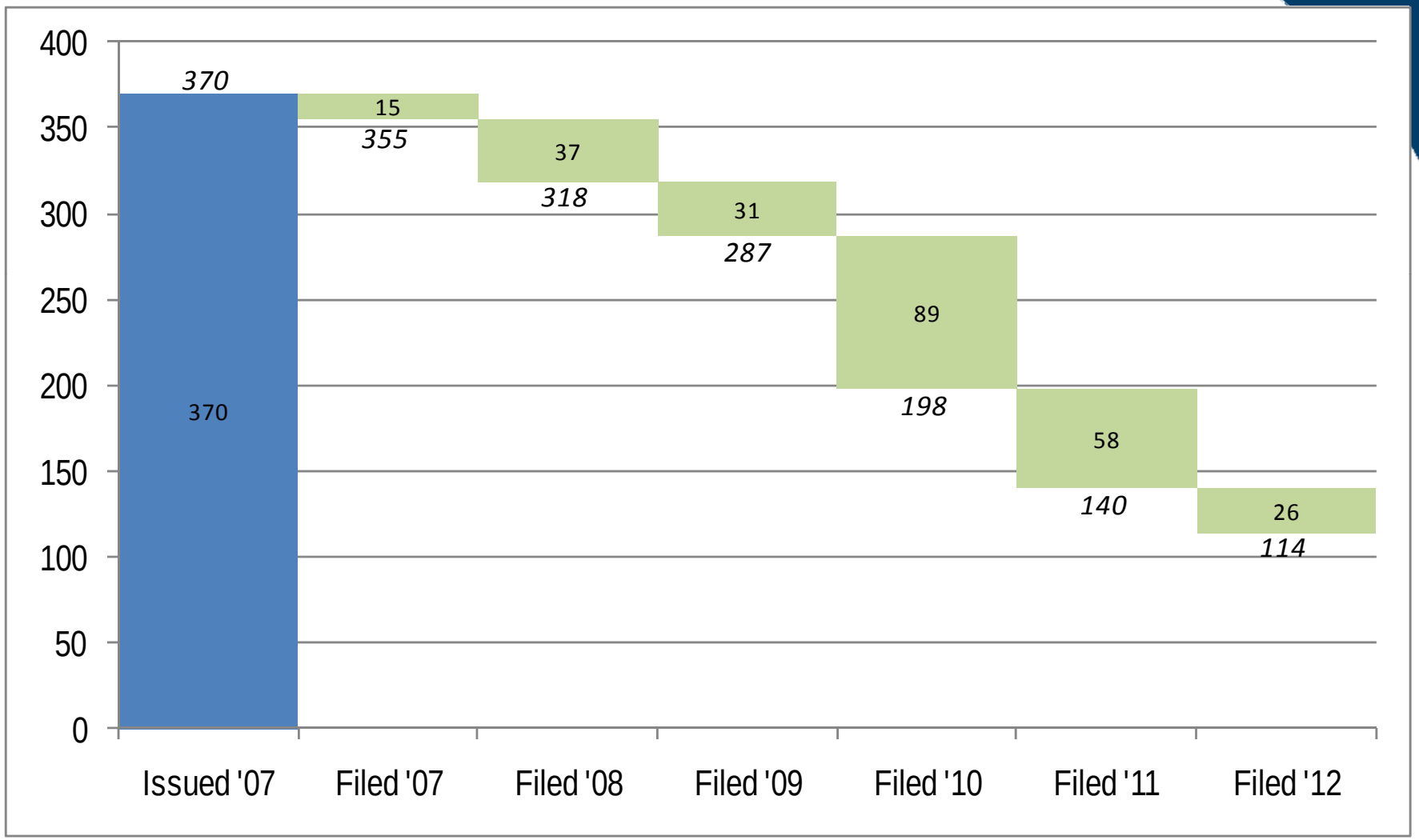
- **BAL-002-1** Disturbance Control Performance
- **EOP-002-3** Capacity and Energy Emergencies
- **FAC-002-1** Coordination of Plans for New Generation, Transmission, and End-User Facilities
- **MOD-021-2** Documentation of the Accounting Methodology for the Effects of Demand-Side Management in Demand and Energy Forecasts
- **PRC-004-2** Analysis and Mitigation of Transmission and Generation Protection System Misoperations
- **VAR-001-2** Voltage and Reactive Control

Status of Standards Related Directives



Based on current estimates. These numbers do not reflect re-planning and reprioritization efforts currently underway.

Status of Order 693 Related Directives



Based on current estimates. These numbers do not reflect re-planning and reprioritization efforts currently underway.

Next steps

- Develop and maintain a single database of standards-related directives (form all source orders) so this activity can be managed
- Establish processes to categorize all directives for priority and disposition
- By year end 2010, develop plan that addresses handling of all remaining 198 Order 693 directives
- Report in fourth quarter 2010 on progress

NERC

NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

2011 ERO Business Plan and Budget- Update

August, 2010

to ensure the reliability of the bulk power system

Presentation Overview

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

- 2011 Overall ERO Budget
- 2011 NERC Budget
- 2011 Regional Entity Budgets
- NERC's Preliminary 2012-3013 Budget Projections

Overall ERO Budget

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Consolidated ERO
Statement of Activities and Capital Expenditures
2010 Budget & Projection and 2011 Budget

	2010 Budget	2011 Budget	Variance 2011 Budget v 2010 Budget Over(Under)
Funding			
ERO Funding			
ERO Assessments	$ 140,215,050	$ 146,700,826	$ 6,485,776
Penalty Sanctions	833,000	13,541,550	12,708,550
Total ERO Funding	**$ 141,048,050**	**$ 160,242,376**	**$ 19,194,326**
Federal Grants	$ 19,926,124	$ 28,066,621	8,140,497
Membership Dues	1,644,808	27,500	(1,617,308)
Testing Fees	1,118,750	1,940,000	821,250
Services & Software	273,520	274,200	680
Workshops	1,968,907	1,791,580	(177,327)
Interest	72,000	412,600	340,600
Miscellaneous	465,781	194,000	(271,781)
Total Funding	**$ 166,517,940**	**$ 192,948,877**	**$ 26,430,937**
Expenses			
Personnel Expenses			
Salaries	$ 66,405,374	$ 78,047,887	$ 11,642,514
Payroll Taxes	4,819,651	5,932,550	1,112,899
Benefits	9,324,811	11,292,117	1,967,306
Retirement Costs	7,701,320	8,934,574	1,233,254
Total Personnel Expenses	**$ 88,251,156**	**$ 104,207,128**	**$ 15,955,972**
Meeting Expenses			
Meetings	$ 4,079,000	$ 3,609,325	$ (469,675)
Travel	7,727,934	8,122,228	394,294
Conference Calls	525,037	619,166	94,129
Total Meeting Expenses	**$ 12,331,971**	**$ 12,350,719**	**$ 18,748**
Operating Expenses			
Consultants & Contracts	$ 33,405,315	$ 35,425,510	$ 2,020,195
Office Rent	4,743,532	5,583,248	839,717
Office Costs	7,328,085	9,885,928	2,557,844
Professional Services	6,862,502	6,397,323	(465,179)
Miscellaneous	124,663	68,750	(55,913)
Depreciation	2,008,762	4,860,978	2,852,216
Efficiency Savings	(750,000)		750,000
Total Operating Expenses	**$ 53,722,858**	**$ 62,221,738**	**$ 8,498,880**
Total Direct Expenses	**$ 154,305,986**	**$ 178,779,584**	**$ 24,473,599**
Indirect Expenses	**$ 2,553,585**	**$ 3,375,911**	**$ 822,326**
Other Non-Operating Expenses	**$ 2,979,912**	**$ 750,000**	**$ (2,229,912)**
Total Expenses	**$ 159,839,483**	**$ 182,905,495**	**$ 23,066,013**
Change in Assets	**$ 6,678,458**	**$ 10,043,382**	**$ 3,364,925**
Fixed Assets			
Depreciation	(2,008,762)	(4,860,978)	(2,852,216)
Computer & Software CapEx	5,066,280	10,588,748	5,522,468
Furniture & Fixtures CapEx	492,688	29,773	(462,915)
Equipment CapEx	655,985	272,628	(383,357)
Leasehold Improvements	1,645,940	590,630	(1,055,310)
(Inc)Dec in Fixed Assets	**$ (5,852,131)**	**$ (6,620,801)**	**$ (768,670)**
TOTAL CHANGE IN NET ASSETS	**$ 826,327**	**$ 3,422,581**	**$ 2,596,254**

Total ERO FTEs

Total FTEs

2010 Budget and Projection and 2011 Budget

Entity	2010 Budget	2011 Budget	Variance 2011 Budget v 2010 Budget Over(Under)
NERC	126.00	150.75	24.75
FRCC	22.59	26.45	3.86
MRO	29.00	34.50	5.50
NPCC	27.41	31.42	4.01
RFC	58.00	68.00	10.00
SERC	45.50	53.50	8.00
SPP	24.30	29.67	5.37
TRE	39.50	49.00	9.50
WECC	182.00	207.90	25.90
	554.30	**651.19**	**96.89**

Final Proposed NERC 2011 Budget

- Briefly Review Changes in Final Draft
- Changes in Personnel, Contracts and Consultants
- Addition of Misc. Non-Operating Expense Line Item
- Working Capital Update

Total Projected 2011 Budget Increase

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

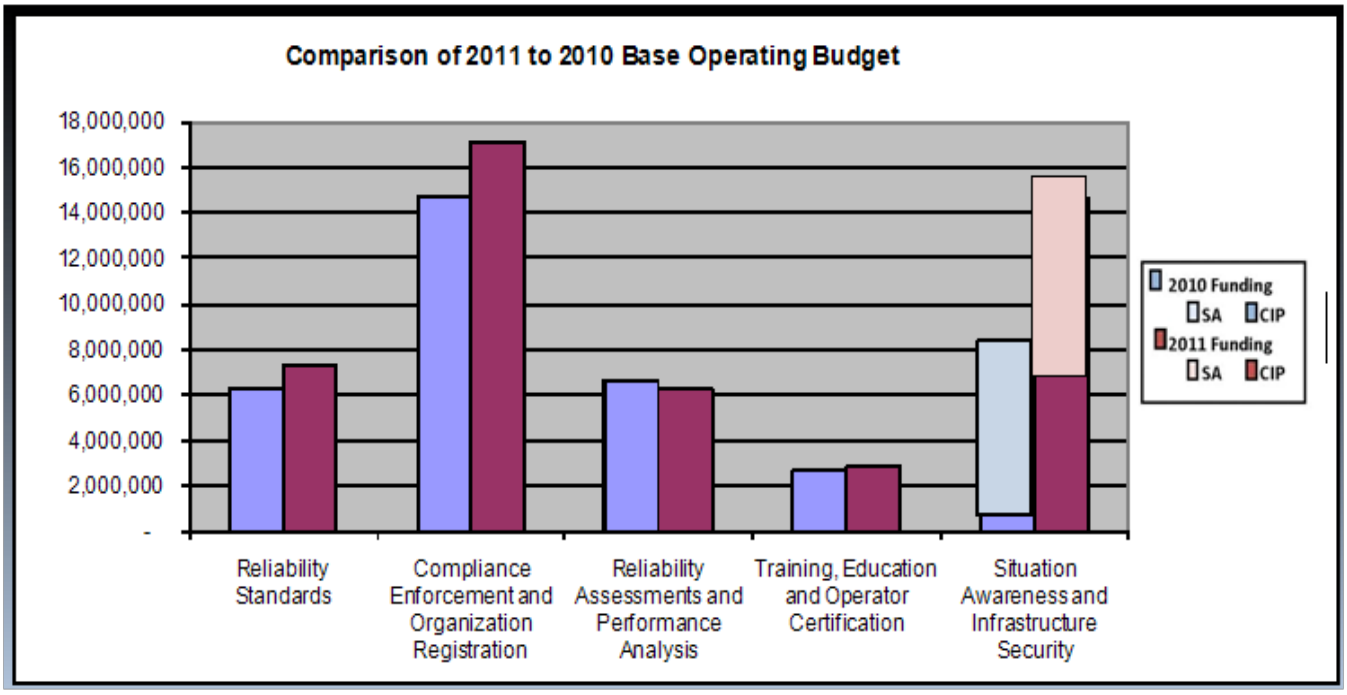
2010 Base Operating Budget		Total Projected 2011 Increase over 2010 Budgeted Expenses		
$ 16,347,156	Salaries	$ 4,748,783		
1,035,890	Payroll Taxes	249,409		
2,267,910	Benefits	995,782		
2,262,845	Retirement	714,956		
$ 21,913,801	**Total Personnel Expense**	**$ 6,708,930**	**17.4%**	
$ 1,086,200	Meetings	$ (224,700)		
2,230,803	Travel	404,734		
190,000	Conference Calls	37,800		
$ 3,507,003	**Total Meeting Expense**	**$ 217,834**	**0.6%**	
$ 5,122,400	Consultants	$ 355,100		
1,752,012	Contracts	(92,470)		
398,320	NERCnet Contract	(98,226)		
1,646,625	IDC Contract	254,955		
$ 8,919,357	**Contracts and Consultants**	**$ 419,359**	**1.1%**	
$ 967,134	Office Rent	$ 53,018		
1,511,475	Office Costs	908,701		
1,465,000	Professional Services	494,854		
4,000	Miscellaneous	-		
(300,000)	Overhead Allocation to TOOF	300,000		
(750,000)	Efficiency Savings	750,000		
$ 2,897,609	**Operating Expenses**	**$ 2,506,573**	**6.5%**	
	Other Non-Operating Expenses	**$ 750,000**	**2.0%**	
$ 1,122,785	Computer & Software CapEx	$ (277,585)		
	Network Equipment	40,800		
100,000	Furniture & Fixtures	(100,000)		
$ 1,222,785	**Capital Expenditures**	**$ (336,785)**	**-0.9%**	
$ 38,460,555	**Total Base Operating Budget**	**$ 10,265,912**	**26.7%**	
$ 1,627,808	Unallocated costs*	$ -		
-	Other Sources of Funding	(578,469)		
469,043	Working Capital Reserve Funding	4,530,957		
	Penalty Sanctions	(10,175,000)		
$ 40,557,406	**TOTAL FUNDING REQUIREMENT**	**$ 4,043,400**	**10.9%**	

*Expenses of the Transmission Owners and Operators Forum funded through membership dues and G&A expenses offset by interest income.

Total Projected 2011 Budget Increase by Program

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Base Operating Budget	Budget 2010	Projection 2010	Budget 2011	Variance 2011 Budget v 2010 Budget	Variance %
Reliability Standards	**6,248,620**	**6,603,828**	**7,682,752**	**1,434,132**	**23.0%**
Compliance Enforcement and Organization Registration	**14,717,513**	**14,039,353**	**17,457,901**	**2,740,389**	**18.6%**
Reliability Assessments and Performance Analysis	**6,631,859**	**5,315,569**	**6,292,329**	**(339,529)**	**-5.1%**
Training, Education and Operator Certification	**2,713,631**	**2,372,116**	**2,923,011**	**209,380**	**7.7%**
Situation Awareness (SA)	7,231,384	6,164,789	8,269,095	1,037,711	14.4%
Critical Infrastructure Protection (CIP)	917,551	4,405,340	6,351,709	5,434,158	592.2%
Total Situation Awareness and Infrastructure Security	**8,148,935**	**10,284,856**	**14,370,473**	**6,221,538**	**76.3%**
	38,460,557	**38,615,723**	**48,726,465**	**10,265,909**	**26.7%**



Total Projected 2011 Staffing by Program

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Total FTE's by Program Area	Budget 2010	Projection 2010	Direct FTEs 2011 Budget	Shared FTEs[1] 2011 Budget	Total FTEs 2011 Budget	Change from 2010 Budget
STATUTORY						
Operational Programs						
Reliability Standards	17.50	16.00	20.08		20.08	2.58
Compliance and Organization Registration and Certification	45.75	37.93	47.08		47.08	1.33
Training and Education	6.75	5.00	6.25		6.25	(0.50)
Reliability Assessment and Performance Analysis	16.00	11.75	13.75		13.75	(2.25)
Situation Awareness and Infrastructure Security	9.75	17.92	25.83		25.83	16.08
Total FTEs Operational Programs	**95.75**	**88.60**	**113.00**	**-**	**113.00**	**17.25**
Administrative Programs						
Technical Committees and Member Forums	5.00	-	-		-	(5.00)
General & Administrative	4.00	6.17	7.00		7.00	3.00
Legal and Regulatory	7.00	7.00	8.00		8.00	1.00
Information Technology	7.75	7.25	10.75		10.75	3.00
Human Resources	3.50	3.92	5.50		5.50	2.00
Finance and Accounting	8.50	6.50	6.50		6.50	(2.00)
Total FTEs Administrative Programs	**35.75**	**30.83**	**37.75**	**-**	**37.75**	**2.00**
Total FTEs	**131.50**	**119.43**	**150.75**	**-**	**150.75**	**19.25**

[1]A shared FTE is defined as an employee who performs both Statutory and Non-Statutory functions.

Note, this chart reflects:

1. A five FTE reduction in 2010 Projected FTEs under Technical Committees and Member Forums resulting from the spin out of Transmission Owners and Operators Forum;
2. The phasing in of budgeted new hires projected in 2010;
3. A reallocation of staffing resources and new hires in 2010; and
4. The phasing in of proposed 2011 FTE additions by Program Area.

Comparative NERC Statement of Activities 2010–2011

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Statement of Activities and Capital Expenditures
2010 Budget & Projection, and 2011 Budget
STATUTORY

	2010 Budget	2010 Projection	Variance 2010 Projection v 2010 Budget Over(Under)	2011 Budget	Variance 2011 Budget v 2010 Budget Over(Under)
Funding					
ERO Funding					
NERC Assessments	$ 37,063,569	$ 37,063,570	$ 1	41,106,965	$ 4,043,396
Penalty Sanctions	-	-	-	10,175,000	10,175,000
Total NERC Funding	**$ 37,063,569**	**$ 37,063,570**	**$ 1**	**$ 51,281,965**	**$ 14,218,396**
Membership Dues	1,617,808	-	(1,617,808)	-	(1,617,808)
Testing Fees	1,118,750	1,820,000	701,250	1,940,000	821,250
Services & Software	250,000	250,000	-	250,000	-
Workshops	92,500	92,500	-	92,500	-
Interest	10,000	10,000	-	12,000	2,000
Miscellaneous	404,781	25,000	(379,781)	150,000	(254,781)
Total Funding	**$ 40,557,408**	**$ 39,261,070**	**$ (1,296,338)**	**$ 53,726,465**	**$ 13,169,057**
Expenses					
Personnel Expenses					
Salaries	$ 17,187,146	$ 16,963,970	$ (223,174)	$ 21,095,939	$ 3,908,795
Payroll Taxes	1,082,240	1,045,503	(36,737)	1,285,299	203,059
Benefits	2,345,684	2,258,266	(87,418)	3,263,692	918,008
Retirement Costs	2,381,540	2,314,254	(67,286)	2,977,801	596,261
Total Personnel Expenses	**$ 22,996,610**	**$ 22,581,994**	**$ (414,615)**	**$ 28,622,731**	**$ 5,626,122**
Meeting Expenses					
Meetings	$ 1,116,200	$ 879,000	$ (237,200)	$ 861,500	$ (254,700)
Travel	2,308,803	2,228,900	(79,903)	2,635,537	326,734
Conference Calls	190,000	278,600	88,600	227,800	37,800
Total Meeting Expenses	**$ 3,615,003**	**$ 3,386,500**	**$ (228,503)**	**$ 3,724,837**	**$ 109,834**
Operating Expenses					
Consultants & Contracts	$ 8,919,357	$ 8,439,417	$ (479,940)	$ 9,338,716	$ 419,359
Office Rent	967,134	1,018,033	50,900	1,020,151	53,018
Office Costs	1,580,475	1,642,068	61,593	2,420,176	839,701
Professional Services	1,533,000	1,646,543	113,543	1,959,854	426,854
Miscellaneous	4,000	10,000	6,000	4,000	-
Depreciation	752,988	656,615	(96,373)	752,988	-
Efficiency Savings	(750,000)	-	750,000	-	750,000
Total Operating Expenses	**$ 13,006,954**	**$ 13,412,676**	**$ 405,722**	**$ 15,495,886**	**$ 2,488,932**
Total Direct Expenses	**$ 39,618,567**	**$ 39,381,169**	**$ (237,396)**	**$ 47,843,453**	**$ 8,224,888**
Indirect Expenses	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Other Non-Operating Expenses	**$ -**	**$ -**	**$ -**	**$ 750,000**	**$ 750,000**
Total Expenses	**$ 39,618,567**	**$ 39,381,169**	**$ (237,396)**	**$ 48,593,453**	**$ 8,974,888**
Change in Assets	**$ 938,841**	**$ (120,099)**	**$ (1,058,942)**	**$ 5,133,012**	**$ 4,194,170**
Fixed Assets					
Depreciation	$ (752,988)	$ (656,615)	$ 96,373	$ (752,988)	$ -
Computer & Software CapEx	1,122,785	1,261,210	138,425	845,200	(277,585)
Furniture & Fixtures CapEx	100,000	100,000	-	-	(100,000)
Equipment CapEx	-	-	-	40,800	40,800
Leasehold Improvements	-	-	-	-	-
(Incr)Dec in Fixed Assets	**$ (469,797)**	**$ (704,595)**	**$ (234,798)**	**$ (133,012)**	**$ 336,785**
Allocation of Fixed Assets	$ -	$ 0	$ -	$ -	$ (0)
Change in Fixed Assets	**(469,797)**	**(704,595)**	**(234,798)**	**(133,012)**	**336,785**
TOTAL CHANGE IN NET ASSETS	**$ 469,043**	**$ (824,694)**	**$ (1,293,740)**	**$ 5,000,000**	**$ 4,530,954**

NERC Working Capital Analysis

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Working Capital Reserve Analysis 2010-2011

STATUTORY

Beginning Working Capital Reserve (Deficit), December 31, 2009	(2,023,415)
Plus: 2010 Funding (from LSEs or designees)	37,063,570
Plus: 2010 Other funding sources	2,197,500
Less: 2010 Projected expenses & capital expenditures	(40,085,764)
Projected Working Capital Reserve (Deficit), December 31, 2010	**(2,848,109)**
Working Capital Reserve, December 31, 2011 [2]	2,151,891
Less: Projected Working Capital Reserve, December 31, 2010	2,848,109
Increase(decrease) in funding requirement to achieve Working Capital Reserve	5,000,000
2011 Expenses and Capital Expenditures	48,726,465
Less: Penalty Sanctions [1]	(10,175,000)
Less: Other Funding Sources	(2,444,500)
Adjustment to achieve desired Working Capital Reserve	5,000,000
2011 NERC Assessment	41,106,965

[1] Represents collections on or prior to June 30, 2010.

[2] On xxxxxxx, 20xx, the Finance and Audit Committee approved a desired working capital reserve of $x,xxx,xxx. The reserve consists of the following components:

Regional Entity Budgets

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comparison - 2011 to 2010 Budget
Spending by Program

2011 Budget - Total Expenses and Capital Expenditures

	Total	Standards	Compliance	RAPA	Training	SAIS	Unallocated Overhead	Total	Standards	Compliance	RAPA	Training	SAIS	Unallocated Overhead
NERC	48,840,173	7,578,307	17,403,735	6,425,405	2,862,991	14,569,736		100.0%	15.5%	35.6%	13.2%	5.9%	29.8%	
FRCC	5,588,610	291,714	3,947,216	995,972	285,436	68,272		100.0%	5.2%	70.6%	17.8%	5.1%	1.2%	
MRO	8,130,824	576,306	5,118,968	2,023,080	126,737	285,733		100.0%	7.1%	63.0%	24.9%	1.6%	3.5%	
NPCC	12,716,809	1,065,714	7,378,977	2,604,231	198,551	1,469,336		100.0%	8.4%	58.0%	20.5%	1.6%	11.6%	
RFC	15,179,650	321,352	11,376,594	2,349,950	820,513	311,241		100.0%	2.1%	74.9%	15.5%	5.4%	2.1%	
SERC	11,911,008	555,240	8,168,579	1,260,643	743,024	1,183,522		100.0%	4.7%	68.6%	10.6%	6.2%	9.9%	
SPP	9,797,236	483,549	7,108,226	1,826,995	276,760	101,706		100.0%	4.9%	72.6%	18.6%	2.8%	1.0%	
TRE	9,363,964	497,938	7,142,058	729,533	561,336	433,099		100.0%	5.3%	76.3%	7.8%	6.0%	4.6%	
WECC[1]	68,205,449	1,111,558	13,942,033	8,990,273	1,020,974	42,664,211	476,400	100.0%	1.6%	20.4%	13.2%	1.5%	62.6%	0.7%
	189,733,723	12,481,678	81,586,386	27,206,082	6,896,322	61,086,856	476,400	100.0%	6.6%	43.0%	14.3%	3.6%	32.2%	0.3%

[1] WECC's RAPA budget includes $3,831,541 associated with federal grant activity
and the SAIS budget (which historically has been solely for their RC function) includes $24,112,680 for federal grant activitiy.

2010 Budget - Total Expenses and Capital Expenditures

	Total	Standards	Compliance	RAPA	Training	SAIS	Unallocated Overhead	Total	Standards	Compliance	RAPA	Training	SAIS	Unallocated Overhead
NERC	38,460,558	6,248,620	14,717,513	6,631,859	2,713,631	8,148,935		100.0%	16.2%	38.3%	17.2%	7.1%	21.2%	
FRCC	5,352,732	291,714	3,570,933	1,190,260	246,740	53,085		100.0%	5.4%	66.7%	22.2%	4.6%	1.0%	
MRO	7,366,118	439,349	4,690,810	1,804,844	-	431,115		100.0%	6.0%	63.7%	24.5%	0.0%	5.9%	
NPCC	11,354,084	1,101,945	6,198,595	2,833,957	109,440	1,110,147		100.0%	9.7%	54.6%	25.0%	1.0%	9.8%	
RFC	14,184,714	517,456	10,324,698	2,500,690	70,671	429,175	342,024	100.0%	3.6%	72.8%	17.6%	0.5%	3.0%	2.4%
SERC	10,681,683	498,597	6,695,079	1,353,404	781,888	1,352,715		100.0%	4.7%	62.7%	12.7%	7.3%	12.7%	
SPP	8,138,782	462,874	6,195,777	1,212,602	30,180	237,349		100.0%	5.7%	76.1%	14.9%	0.4%	2.9%	
TRE	9,216,393	561,400	6,746,229	630,416	464,526	813,822		100.0%	6.1%	73.2%	6.8%	5.0%	8.8%	
WECC[1]	59,086,884	738,927	13,385,975	8,814,011	1,165,657	34,982,314		100.0%	1.3%	22.7%	14.9%	2.0%	59.2%	
	163,841,948	10,860,882	72,525,609	26,972,043	5,582,733	47,558,657	342,024	100.0%	6.6%	44.3%	16.5%	3.4%	29.0%	0.2%

[1] WECC's RAPA budget includes $3,991,879 associated with federal grant activity
and the SAIS budget (which historically has been solely for their RC function) includes $15,811,845 for federal grant activitiy.

Variance - 2011 to 2010 Budget - Total Expenses and Capital Expenditures

	Total	Standards	Compliance	RAPA	Training	SAIS	Unallocated Overhead	Total	Standards	Compliance	RAPA	Training	SAIS	Unallocated Overhead
NERC	10,379,615	1,329,687	2,686,222	(206,454)	149,360	6,420,801		27.0%	21.3%	18.3%	-3.1%	5.5%	78.8%	
FRCC	235,878	-	376,283	(194,288)	38,696	15,187		4.4%	0.0%	10.5%	-16.3%	15.7%	28.6%	
MRO	764,706	136,957	428,158	218,236	126,737	(145,382)		10.4%	31.2%	9.1%	12.1%	0.0%	-33.7%	
NPCC	1,362,725	(36,231)	1,180,382	(229,726)	89,111	359,189		12.0%	-3.3%	19.0%	-8.1%	81.4%	32.4%	
RFC	994,936	(196,104)	1,051,896	(150,740)	749,842	(117,934)	(342,024)	7.0%	-37.9%	10.2%	-6.0%	1061.0%	-27.5%	
SERC	1,229,325	56,643	1,473,500	(92,761)	(38,864)	(169,193)		11.4%	11.4%	22.0%	-6.9%	-5.0%	-12.5%	
SPP	1,658,454	20,675	912,449	614,393	246,580	(135,643)		20.4%	4.5%	14.7%	50.7%	817.0%	-57.1%	
TRE	147,571	(63,462)	395,829	99,117	96,810	(380,723)		1.6%	-11.3%	5.9%	15.7%	20.8%	-46.8%	
WECC[1]	9,118,565	372,631	556,058	176,262	(144,683)	7,681,897	476,400	15.4%	50.4%	4.2%	2.0%	-12.4%	22.0%	0.0%
	25,891,775	1,620,796	9,060,777	234,039	1,313,589	13,528,199	134,376	15.8%	14.9%	12.5%	0.9%	23.5%	28.4%	39.3%

NERC Preliminary Projections for 2012-2013

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

North American Electric Reliability Corporation
Statement of Activities and Capital Expenditures
2011 Budget & Projected 2012 and 2013 Budgets

	2011 Budget	2012 Projection	$ Change 11 v 12	% Change 11 v 12	2013 Projection	$ Change 12 v 13	% Change 12 v 13
Funding							
ERO Funding							
ERO Assessments	$ 41,106,965	$ 55,817,388	$ 14,710,423	35.79%	$ 56,914,222	$ 1,096,834	1.9%
Penalty Sanctions	10,175,000	-	(10,175,000)	-100.00%	-	-	
Total ERO Funding	**$ 51,281,965**	**$ 55,817,388**	**$ 4,535,423**	**8.8%**	**$ 56,914,222**	**$ 1,096,834**	**1.9%**
Membership Dues	-		-			-	
Testing Fees	1,940,000	1,940,000	-	0.00%	1,940,000	-	0.0%
Services & Software	250,000	250,000	-	0.00%	250,000	-	0.0%
Workshops	92,500	92,500	-	0.00%	92,500	-	0.0%
Interest	12,000	12,000	-	0.00%	12,000	-	0.0%
Miscellaneous	150,000	50,000	(100,000)	-66.67%	50,000	-	0.0%
Total Funding	**$ 53,726,465**	**$ 58,161,888**	**$ 4,435,423**	**8.3%**	**$ 59,258,722**	**$ 1,096,834**	**1.9%**
Expenses							
Personnel Expenses							
Salaries	$ 21,095,939	$ 25,188,131	$ 4,092,192	19.4%	$ 26,723,202	$ 1,535,071	6.1%
Payroll Taxes	1,285,299	1,534,622	249,322	19.4%	1,580,726	46,105	3.0%
Benefits	3,263,692	3,753,246	489,554	15.0%	4,316,233	562,987	15.0%
Retirement Costs	2,977,801	3,555,435	577,634	19.4%	3,662,250	106,816	3.0%
Total Personnel Expenses	**$ 28,622,731**	**$ 34,031,433**	**$ 5,408,703**	**18.9%**	**$ 36,282,411**	**$ 2,250,978**	**6.6%**
Meeting Expenses							
Meetings	$ 861,500	$ 861,500	$ -	0.0%	$ 861,500	-	0.0%
Travel	2,635,537	2,905,125	269,588	10.2%	2,992,403	87,278	3.0%
Conference Calls	227,800	264,067	36,267	15.9%	272,000	7,933	3.0%
Total Meeting Expenses	**$ 3,724,837**	**$ 4,030,691**	**$ 305,855**	**8.2%**	**$ 4,125,903**	**$ 95,212**	**2.4%**
Operating Expenses							
Consultants & Contracts	$ 9,338,716	$ 9,338,716	$ -	0.0%	$ 9,338,716	-	0.0%
Office Rent	1,020,151	3,032,342	2,012,191	197.2%	2,623,488	(408,854)	-13.5%
Office Costs	2,420,176	3,767,850	1,347,674	55.7%	3,804,948	37,098	1.0%
Professional Services	1,959,854	1,959,854	-	0.0%	1,959,854	-	0.0%
Miscellaneous	4,000	15,000	11,000	275.0%	15,000	-	0.0%
Depreciation	752,988	752,988	-	0.0%	752,988	-	0.0%
Total Operating Expenses	**$ 15,495,886**	**$ 18,866,751**	**$ 3,370,865**	**21.8%**	**$ 18,494,996**	**$ (371,756)**	**-2.0%**
Total Direct Expenses	**$ 47,843,453**	**$ 56,928,876**	**$ 9,085,423**	**19.0%**	**$ 58,903,310**	**$ 1,974,434**	**3.5%**
Indirect Expenses	**$ -**	**$ -**			**$ -**	**$ -**	
Other Non-Operating Expenses	**$ 750,000**	**$ -**	**$ (750,000)**	**-100.0%**	**-**	**-**	
Total Expenses	**$ 48,593,453**	**$ 56,928,876**	**$ 8,335,423**	**17.2%**	**$ 58,903,310**	**1,974,434**	**3.5%**
Change in Assets	**$ 5,133,012**	**$ 1,233,012**	**$ (3,900,000)**	**-76.0%**	**$ 355,412**	**$ (877,600)**	**-71.2%**
Fixed Assets					-		
Depreciation	$ (752,988)	$ (752,988)	$ -	0.0%	$ (752,988)	$ -	0.0%
Computer & Software CapEx	845,200	945,200	100,000	11.8%	1,067,600	122,400	12.9%
Furniture & Fixtures CapEx	-	500,000	500,000		-	(500,000)	-100.0%
Equipment CapEx	40,800	40,800	-	0.0%	40,800	-	0.0%
Leasehold Improvements	-		-			-	
(Incr)Dec in Fixed Assets	**$ (133,012)**	**$ (733,012)**	**$ (600,000)**	**451.1%**	**$ (355,412)**	**$ 377,600**	**-51.5%**
TOTAL CHANGE IN NET ASSETS	**$ 5,000,000**	**$ 500,000**	**$ (4,500,000)**	**-90.0%**	**$ -**	**$ (500,000)**	**0.0%**
FTEs	150.75	174.75			180.00		

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

QUESTIONS AND ANSWERS