NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Meeting Agenda
Board of Trustees Compliance Committee

August 4, 2009 | 3:30 PM–5:30 PM

Delta Hotel
350 St. Mary Avenue
Winnipeg, Manitoba
Canada
(204) 942-0351

Welcome and Determination of Quorum

NERC Antitrust Guidelines

1. Overview of Meeting Objectives and Process
2. Consent Agenda: Action- Approve
   a. Minutes of May 5, 2009 Meeting **(Item 2.a)**
   b. Future Meetings **(Item 2.b)**
3. Results of PRC-005 and CIP-004 Analysis **(Item 3)**
4. Violation Index Concepts **(Item 4)**
5. Canada Update
6. Backlog Reduction Plan **(Item 6)**
7. Overall Status of FERC Enforceable Alleged Violations and Violation Mitigation Plans **(Item 7)**
8. Current Status of Post-June 18 Alleged Violations of Reliability Standards
   a. Violation Process States Flowcharts and Summary Tables —Enforceable Violations **(Item 8.a)**
   b. Summary Table of All Post-June 18 Alleged Violations **(Item 8.b)**
9. Current Status of Mitigation of Violations of Reliability Standards
   a. Mitigation Process States Flowchart **(Item 9.a)**
   b. Mitigation Process State Table —Enforceable Alleged Violations **(Item 9.b)**
   c. Pre-June 18 Violation Mitigation Progress Summary **(Item 9.c)**
10. Top FERC Enforceable Violated Standards (rolling 12-months) **(Item 10)**
11. Regional Outstanding Issues Report Summary **(Item 11)**
12. Other Matters

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Antitrust Compliance Guidelines

I. General

It is NERC's policy and practice to obey the antitrust laws and to avoid all conduct that unreasonably restrains competition. This policy requires the avoidance of any conduct that violates, or that might appear to violate, the antitrust laws. Among other things, the antitrust laws forbid any agreement between or among competitors regarding prices, availability of service, product design, terms of sale, division of markets, allocation of customers or any other activity that unreasonably restrains competition.

It is the responsibility of every NERC participant and employee who may in any way affect NERC's compliance with the antitrust laws to carry out this commitment.

Antitrust laws are complex and subject to court interpretation that can vary over time and from one court to another. The purpose of these guidelines is to alert NERC participants and employees to potential antitrust problems and to set forth policies to be followed with respect to activities that may involve antitrust considerations. In some instances, the NERC policy contained in these guidelines is stricter than the applicable antitrust laws. Any NERC participant or employee who is uncertain about the legal ramifications of a particular course of conduct or who has doubts or concerns about whether NERC's antitrust compliance policy is implicated in any situation should consult NERC's General Counsel immediately.

II. Prohibited Activities

Participants in NERC activities (including those of its committees and subgroups) should refrain from the following when acting in their capacity as participants in NERC activities (e.g., at NERC meetings, conference calls and in informal discussions):

- Discussions involving pricing information, especially margin (profit) and internal cost information and participants' expectations as to their future prices or internal costs.
- Discussions of a participant's marketing strategies.
- Discussions regarding how customers and geographical areas are to be divided among competitors.

- Discussions concerning the exclusion of competitors from markets.
- Discussions concerning boycotting or group refusals to deal with competitors, vendors or suppliers.
- Any other matters that do not clearly fall within these guidelines should be reviewed with NERC's General Counsel before being discussed.

III. Activities That Are Permitted

From time to time decisions or actions of NERC (including those of its committees and subgroups) may have a negative impact on particular entities and thus in that sense adversely impact competition. Decisions and actions by NERC (including its committees and subgroups) should only be undertaken for the purpose of promoting and maintaining the reliability and adequacy of the bulk power system. If you do not have a legitimate purpose consistent with this objective for discussing a matter, please refrain from discussing the matter during NERC meetings and in other NERC-related communications.

You should also ensure that NERC procedures, including those set forth in NERC's Certificate of Incorporation, Bylaws, and Rules of Procedure are followed in conducting NERC business.

In addition, all discussions in NERC meetings and other NERC-related communications should be within the scope of the mandate for or assignment to the particular NERC committee or subgroup, as well as within the scope of the published agenda for the meeting.

No decisions should be made nor any actions taken in NERC activities for the purpose of giving an industry participant or group of participants a competitive advantage over other participants. In particular, decisions with respect to setting, revising, or assessing compliance with NERC reliability standards should not be influenced by anti-competitive motivations.

Subject to the foregoing restrictions, participants in NERC activities may discuss:

- Reliability matters relating to the bulk power system, including operation and planning matters such as establishing or revising reliability standards, special operating procedures, operating transfer capabilities, and plans for new facilities.
- Matters relating to the impact of reliability standards for the bulk power system on electricity markets, and the impact of electricity market operations on the reliability of the bulk power system.
- Proposed filings or other communications with state or federal regulatory authorities or other governmental entities.
- Matters relating to the internal governance, management and operation of NERC, such as nominations for vacant committee positions, budgeting and assessments, and employment matters; and procedural matters such as planning and scheduling meetings.

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Meeting Minutes
Board of Trustees Compliance Committee

May 5, 2009 | 10:30 AM – 12:30 PM

The Westin Arlington Gateway
801 North Glebe Road
Arlington, Virginia
(703) 717-6200

Welcome and Determination of Quorum

The meeting was called to order at 10:04 and a quorum was declared. A list of attendees is affixed as **Exhibit A.**

NERC Antitrust Guidelines

The NERC Antitrust Guidelines were acknowledged.

Consent Agenda

The minutes of February 9, 2009 were unanimously approved. No changes were made to future meetings dates.

Overall Status of FERC Enforceable Alleged Violations and Violation Mitigation Plans

David Hilt presented Item 3.

Current Status of Post-June 18 Alleged Violations of Reliability Standards

David Hilt presented Items 4.a.i, 4.a.ii, 4.a.iii and 4.b. Steven Naumann acknowledged the progress made but also noted that while the BOT CC is taking a number of actions, based on what has been filed at FERC, the backlog of reliability standard violations not acted upon by FERC is continuing to build.

Current Status of Mitigation of Violations of Reliability Standards

David Hilt presented Items 5.a, 5.b and 5.c**.**

Top FERC Enforceable Violated Standards (Rolling 12 Months)

David Hilt presented Item 6**.**

PRC-005-1 Violations

David Hilt presented Items 7.a, 7.b and 7.c**.** Chairman Barber expressed his desire to further understand the basis for the high number of violations and directed NERC staff to have a final report at the August meeting.

Regional Outstanding Issues Report Summary

David Hilt presented Item 8. Chairman Barber requested a year-by-year scale-out of these violations.

Short Form Settlement Process

David Hilt presented Item 9**.** There was discussion among the committee in connection with the use of the short form settlement process. Rick Sergel noted NERC is trying to keep the process simple yet to produce a sufficient record based on variable penalties, the form became longer than originally hoped. Susan Court felt this was a good starting point. NERC will consider the comments received and post a final version for use.

May 2008 Mandate Items

David Nevius presented Item 10**.**

Other Items

No additional items were discussed.

Compliance Committee Meeting
May 5, 2009
Arlington, VA

NAME	ORGANIZATION
GERRY ADAMSKI	NERC
RAY PALMIERI	RELIABILITY FIRST
BOB DINTELMAN	Utility System Efficiencies, Inc
RHI PATEL	EEI
Karl Tammar	Northeast Utilities
Wayne VanOstrol	MRO
Larry Grimm	Texas Regional Entity
Lynn Costantino	NERC
DICK KAFKA	Pepco Holdings Inc
JEFF MUELLER	PSE&G
Bob Tallman	E ON US
Pete Ivey	SOUTHERN COMPANY
CLAY SMITH	GEORGIA SYSTEM OPERATIONS CORP
MARTY MENNIES	FPL
Karen Spolar	NERC
Tina McClellan	"
Mark Lauby	"
ED TYMOFICHUK	MANITOBA HYDRO
TOM BRADISH	RRI ENERGY
Hardev Jut	Bonneville Power Admin
Tom BOWE	PJM
Bill Phillips	Midwest ISO
Keith Yocum	E.ON U.S.
JANICE PRITSKY	NRC - SECTOR 4/IRO/FED. - BCTC.
Louise McCarren	WECC
MARK MAHER	WECC
Connie White	WECC
Dan Skaar	MRO
Courtney Camburn	NERC
Lori Kolbe-Chances	NERC
John Anderson	ERCOT
Larry Nordel	Montana Consumer Counsel

NAME	ORGANIZATION
Murray Margolis	MRC
Scott Helyer	Tenaska
Bill Gallagher	Vermont Public Power
Tony Montoya	MRC - Western Area Power Admin.
Mike Smith	MRC - Co-ops
John Prescott	MRC - Co-Ops
Ron Peterson	NERC BOT CC
Gayle Mayo	MRC - State/Muni (IMPA)
Timothy Arlt	MRC - State/Muni (NPPD)
NABIL Hitti	MRC - IOU (National Grid)
Maureen Borkowski	MRC - IOU sector (Ameren)
Bruce Scherr	NERC BOT
John Q Anderson	NERC BOT
Dave Nevius	NERC
Dave Hilt	NERC
Paul Barker	NERC BOT
Joel de Jesus	NERC
Rick Sergel	NERC CEO
Tom Berry	NERC BOT
Laura Manz	California ISO
PAUL MURPHY	IESO
Steven Naumann	Exelon - MRC Chair
JIM GALLAGHER	RELIABILITY FIRST
Terry Blackwell	SERC - Chairman
Stacy Dochoda	SPP RE General Manager
ED SCHWERDT	NPCC
JIM GOODRICH	NERC BOT
Dale Landgren	American Transmission Co: MRO representative
Tab Ganzopadhyay	National Energy Board, Canada
Sarah Rogers	FRCC
Susan Court	FERC
Robert IVANAUSKAS	FERC
JASON STANEK	FERC
Sharla Artz	SEL, Inc.
KRISTINE SCHMIDT	ESPY Energy Solutions
Jimmy Glotfelty	ICF

NAME	ORGANIZATION
JULIA SOUDER	@ NERC until May 15
Holly HAWKINS	NERC
Linda Campbell	FRCC
David Dworzak	Edison Electric Institute
Jennifer BuddMattiello	NPCC
Barry R. Lawson	NRECA
Allen Mosher	APPA
NATHAN MITCHELL	APPA
Jim Brenton	ERCOT
August M. Mcelvine	SERC
CARTER EDGE	SERC
DAVID BLACKFORD	MACQUARIE
PATTI METRO	NRECA
STANLEY E KOPMAN	NPCC
David Cenedella	Xcel Energy
Susan Gray	Macquarie
Michael Gildea	self
Thomas Burgess	FirstEnergy/NERC PC Vice-Chair
Charles White	South Carolina Electric + Gas Co.
Sam Holeman	DUKE Energy
Scott Henry	NERC Standards Comm / Duke Energy
GERRY CAULEY	SERC

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Board of Trustees Compliance Committee

2009 Meeting Dates

Open Meetings		Closed Meetings		Closed-Closed Meetings	
		January 9	10 a.m.–noon	January 9	1–3 p.m.
February 9	Scottsdale/Phoenix, AZ	February 17	10 a.m.–noon	February 8	3 p.m.
		March 10	10 a.m.–noon	March 11	10 a.m.-noon
		April 10	10 a.m.–noon	April 10	1–3 p.m.
May 5	Washington, D.C.	May 11	10 a.m.–noon	May 4	3–6 p.m.
		June 10	10 a.m.–noon	June 10	1–3 p.m.
		July 10	10 a.m.–noon	July 10	1–3 p.m.
August 4	Winnipeg, Manitoba	August 10	10 a.m.–noon	August 3	3-5 p.m.
		September 11	10 a.m.–noon	September 11	1–3 p.m.
		October 12	10 a.m.–noon	October 12	1–3 p.m.
November 4	Atlanta, GA	November 9	10 a.m.–noon	November 9	1–3 p.m.
		December 9	10 a.m.–noon	December 9	1–3 p.m.

116-390 Village Blvd.
Princeton, NJ 08540
609.452.8060 | www.nerc.com

March 31, 2009
All times are in Eastern Time

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NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Board of Trustees Compliance Committee

2010 Meeting Dates

Open Meetings		Closed Meetings		Closed-Closed Meetings	
		January 11	10 a.m.–noon	January 11	1–3 p.m.
February 15	Scottsdale/Phoenix, AZ	February 10	10 a.m.–noon	February 10	1–3 p.m.
		March 10	10 a.m.–noon	March 10	1–3 p.m.
		April 9	10 a.m.–noon	April 9	1–3 p.m.
TBD	TBD	May 10	10 a.m.–noon	May 10	1–3 p.m.
		June 10	10 a.m.–noon	June 10	1–3 p.m.
		July 12	10 a.m.–noon	July 12	1–3 p.m.
TBD	TBD	August 10	10 a.m.–noon	August 10	1–3 p.m.
		September 10	10 a.m.–noon	September 10	1–3 p.m.
		October 11	10 a.m.–noon	October 11	1–3 p.m.
TBD	TBD	November 10	10 a.m.–noon	November 10	1–3 p.m.
		December 10	10 a.m.–noon	December 10	1–3 p.m.

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March 24, 2009
All times are in Eastern Time

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Summary Report for Violations of Reliability Standard PRC-005-1 System Protection Maintenance and Testing

Board of Trustees Compliance Committee

August 4, 2009

to ensure the reliability of the bulk power system

PRC-005-1 Background

- PRC-005-1 focused on Transmission and Generation Protection Systems Maintenance and Testing
- Major Requirements of this standard
  1. Maintenance and Testing Program
  2. Program Implementation

PRC-005-1 Background (continued)

- Regional Compliance Implementation Group (RCIG) issued an assessment on monitoring and implementation of Standard PRC-005-1
- Provided five key reasons for non-compliance and suggested process enhancements
- NERC analysis provides additional statistical data to supplement the RCIG assessment

Metrics

- Number of Violations by Requirement
- Prevailing Method of Discovery
- Clustering effects of Violations by Violation Date
- Trending analysis of Violations by Submit Date
- Key Reasons of Non Compliance

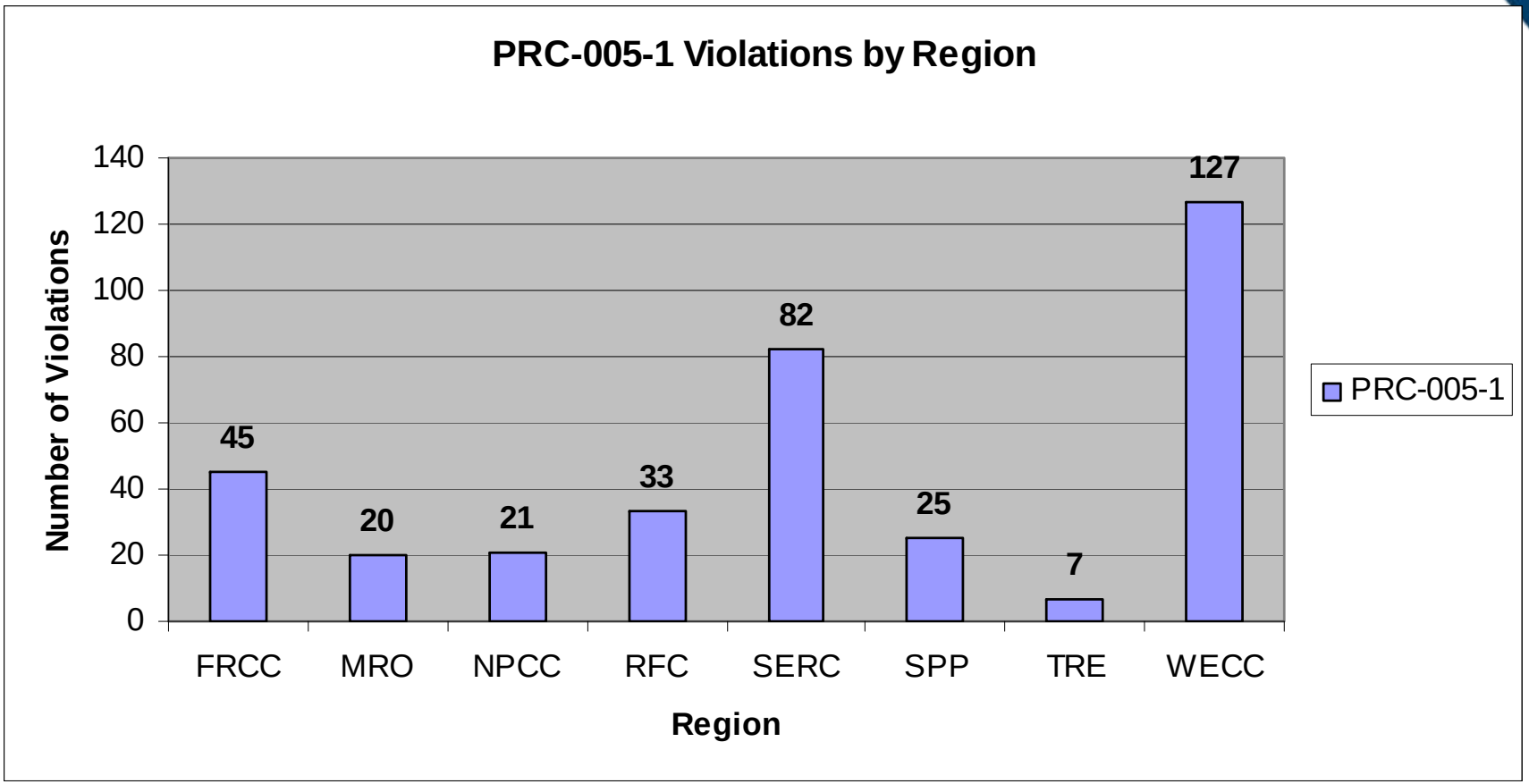
Violation Background

- 360 Total Active and Closed Violations (US and Canadian)
- Submitted to NERC after June 2007
- 32 Violations Classified as Pre-to-Post Violations
- Does not include 57 dismissed violations of PRC-005-1 Standards

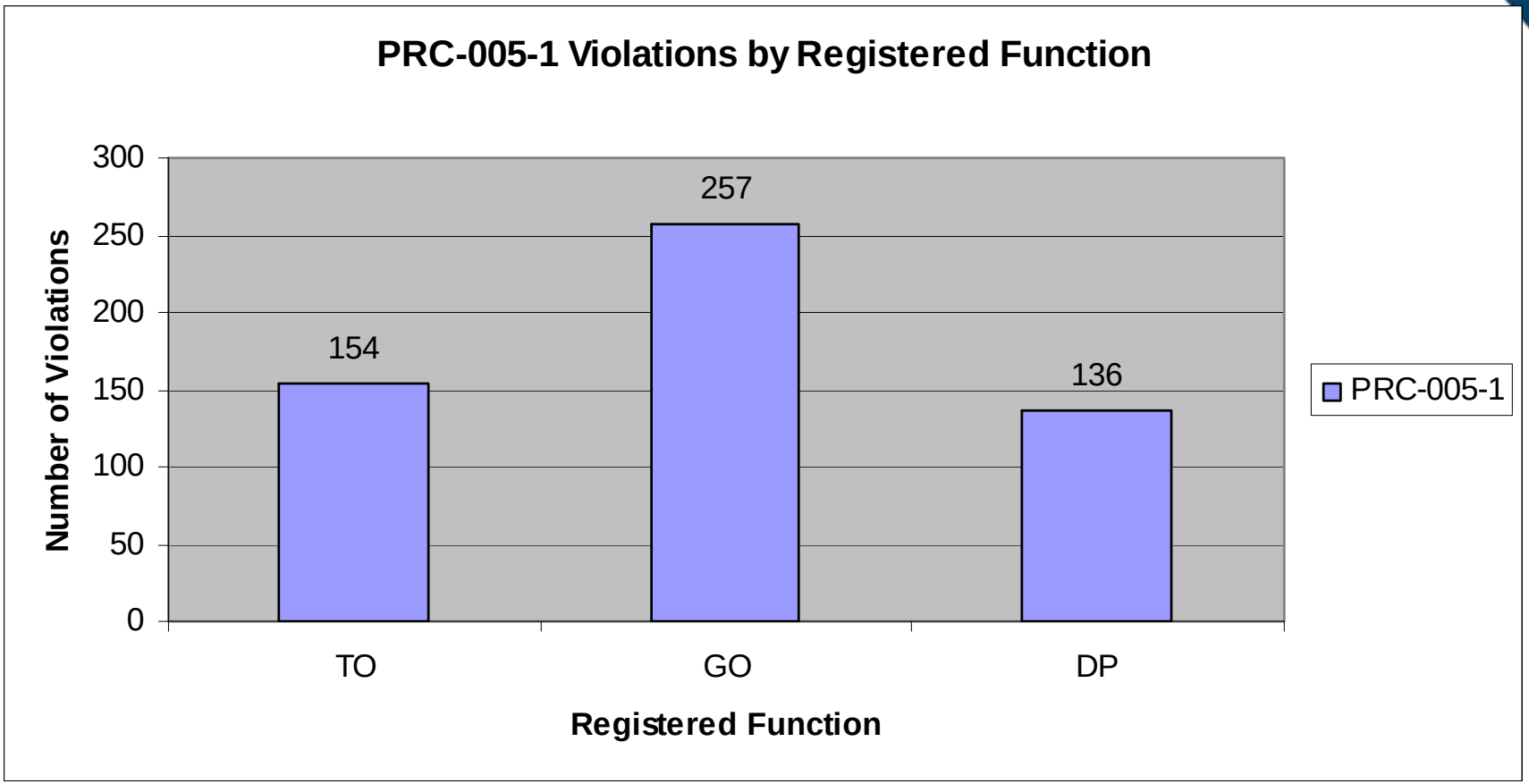
Current Violation Statistics

PRC-005-1 Analysis	Violations
R1 – Maintenance and Testing Program	156
R1.1 – Maintenance and Testing Intervals	3
R1.2 – Maintenance and Testing Procedures	2
R2 – Program Implementation	129
R2.1 – Evidence of Testing within Intervals	68
R2.2 – Date last tested / maintained	2
Grand Total	**360**

Violations by Region



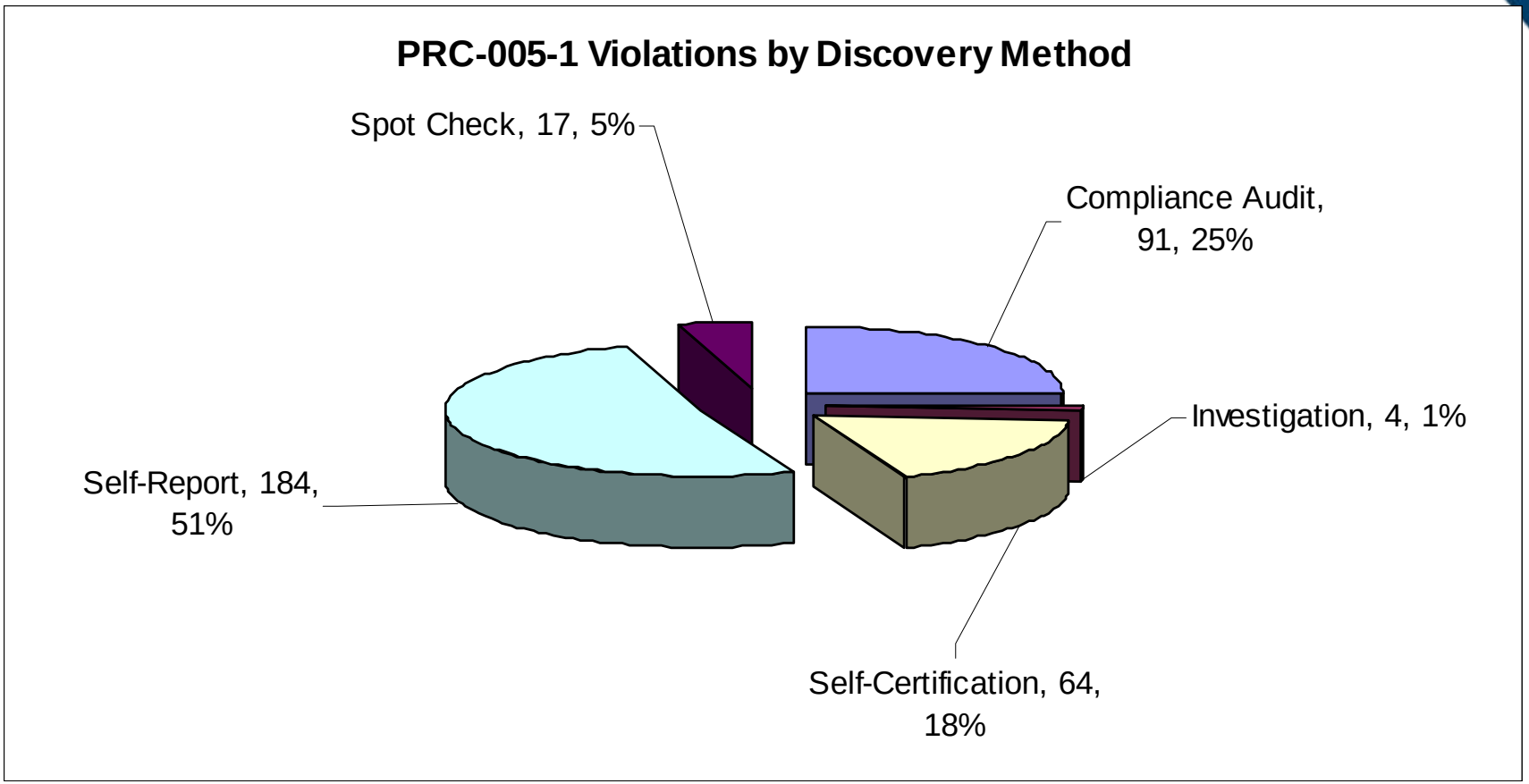
Violations by Registered Functions



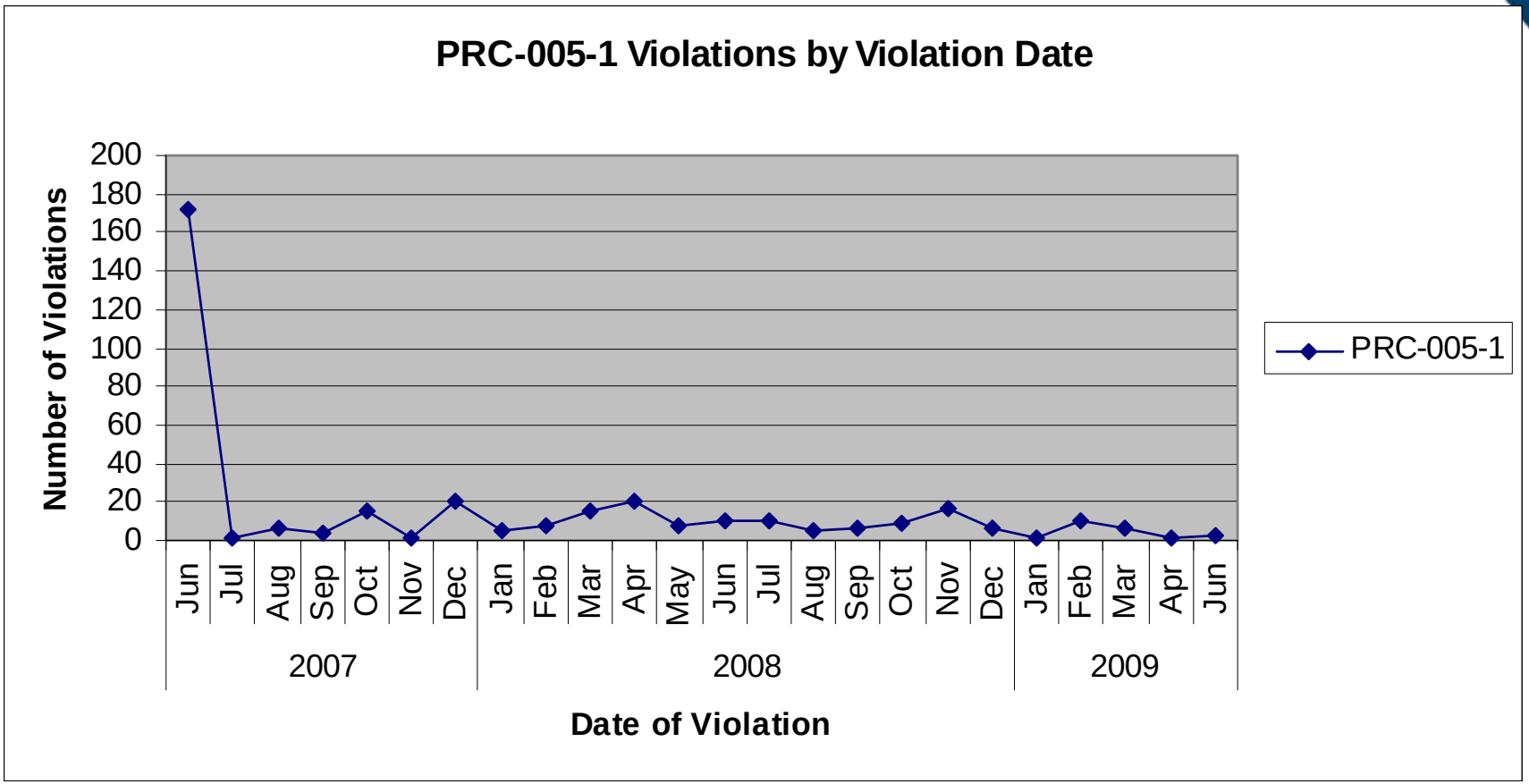
Violations by Registered Functions

- Entities are registered for Multiple Functions
  - Thus prior slide violations sum to a number greater than 360
- Inconsistencies in data across Regions
  - Assigning all registered functions for an entity to a violation instead of just violated functions

Violations by Discovery Method



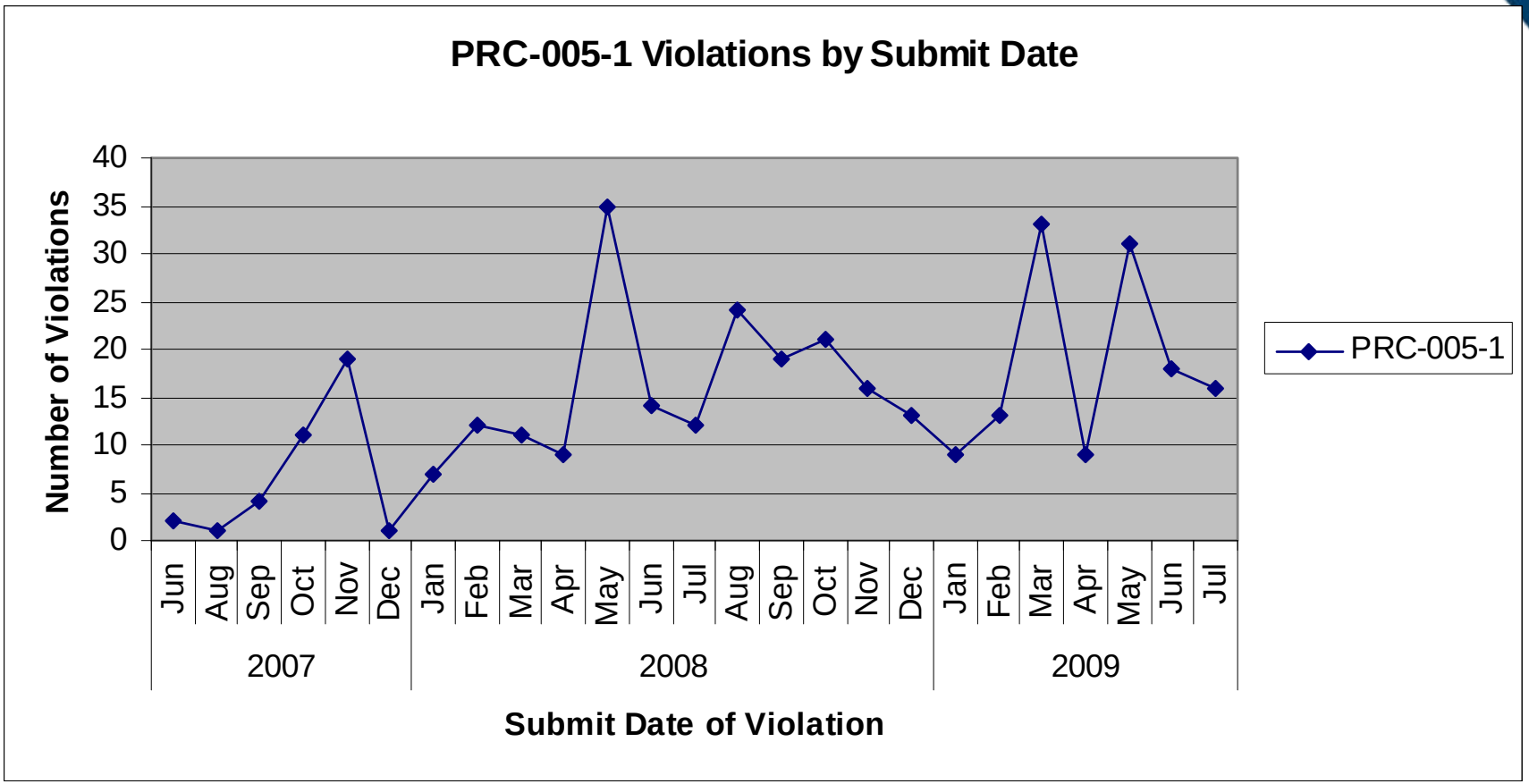
Violations by Violation Date



Violations by Violation Date

- Violations are clustered around a date of June 2007
- Represents 48% of all PRC-005 violations
- No month after that has seen more than 21 violations

Violations by Submit Date to NERC



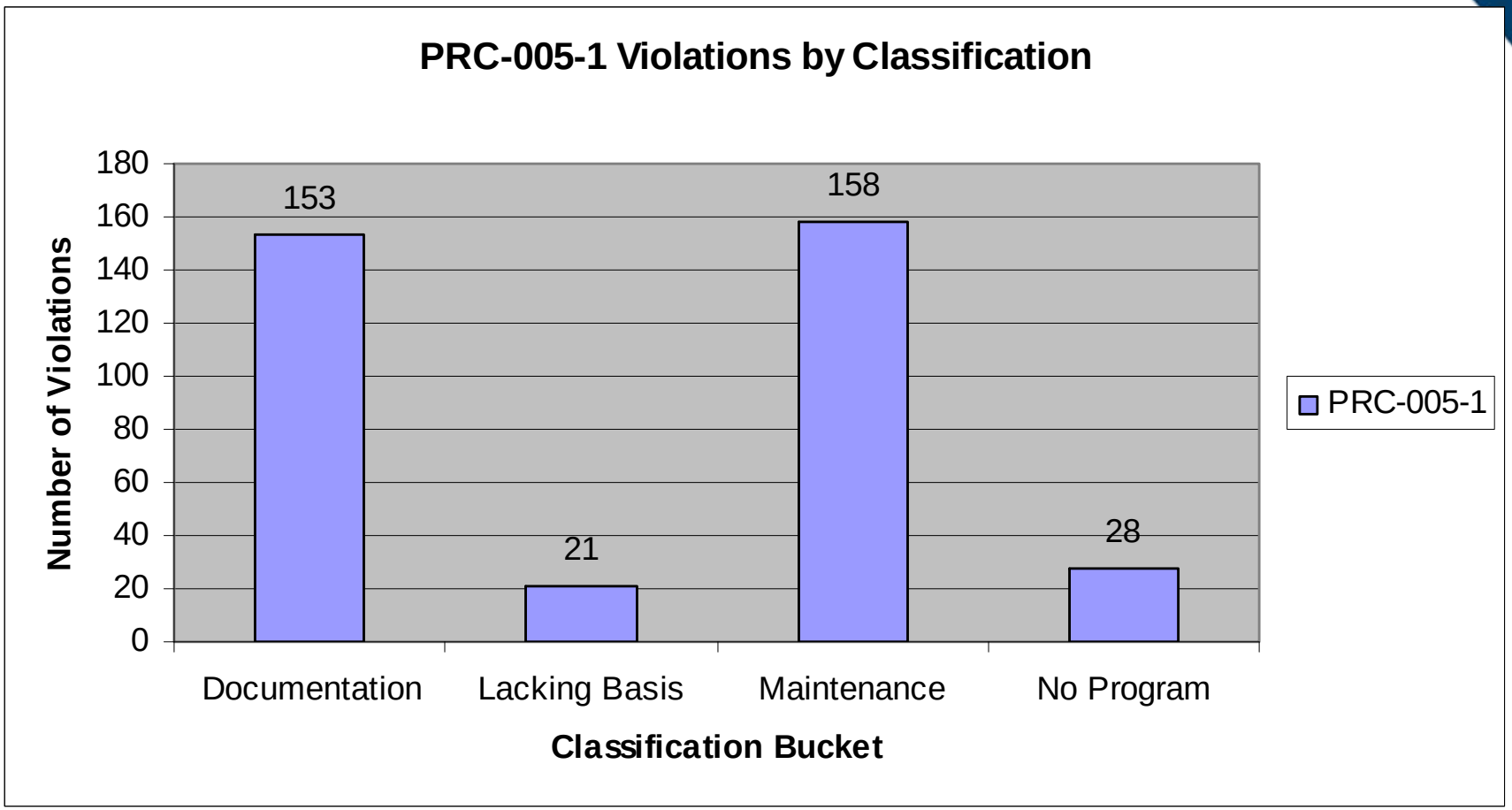
Violations by Submit Date

- Approximately 35% of all PRC-005 violations were reported in 2009
- No discernable submit pattern has emerged
- Further analysis at a future date would pinpoint the reason for data spikes

Key Reasons for Non Compliance

- Classified Violations into Four Buckets
  - Documentation
    - A lack of Records
  - Maintenance
    - Failure to perform maintenance and testing in prescribed intervals
  - Lacking basis
    - No basis to determine appropriate testing intervals
  - No Program
    - No maintenance or testing program exists

Violation Buckets



Key Findings

- Documentation issues account for 43% of violations
- ‘No Program’ classification is significant
  - 28 violations
  - Registered function violations are DP (19), GO(11), and TO (10)
  - Most frequently cited reason was “No documented maintenance or testing program for required elements”
  - Found in smaller registered entities

Other Key Findings

- Maintenance Issues
  - 158 violations (44% of all PRC-005 violations)
  - Registered functions: GO (124), TO (75), and DP (61)
  - Most commonly cited reason is “Maintenance and Testing not performed according to pre-defined intervals”
  - Other-
    - Overlooking critical elements for testing- batteries, relays
    - Behind on testing schedule
  - Size of entities ranged from small to large, with no discernable pattern

Conclusion

- Still most frequently violated standard by Registered entities
- Reliability threat still exists to the Bulk Electric System
- Until there is a precipitous decline of violations of this standard, Regional Entities and NERC must stay vigilant

Item 3
PRC-005 Supplement

Revised

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NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

DRAFT

Summary Report for Violations of Reliability Standard PRC-005 – System Protection Maintenance and Testing

Board of Trustees Compliance Committee
August 4, 2009

to ensure the reliability of the bulk power system

August 2009

116-390 Village Blvd., Princeton, NJ 08540
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www.nerc.com

Table of Contents

Analysis of PRC-005-1 Violations

1. Background

Since the beginning of the mandatory and enforceable standards on June 18, 2007, PRC-005-1 has been one of the standards reported to be most frequently violated by Registered Entities, and it has a critical impact on the bulk electric system. Many system events analyzed have some element of protection system problems involved in as causal or contributing to the event. Given the serious nature of these protection-based violations, NERC and the Regional Entities analyzed active and closed violations of this standard looking to define trends. As of July 22, 2009, there are 360 active and closed violations of PRC-005-1, with an additional 57 violations that were dismissed by the Regions. This report will focus on the 360 active and closed violations. A separate white paper developed by the Regional Entities at the request of the BOTCC was a key component of the analysis.

NERC focused on developing the following metrics:

- Identifying how many violations were reported by each region for the time period of June 18, 2007 to the present;
- The prevailing method of discovery by the Regional Entity for each violation;
- An analysis of violations by the date of violation to determine if violations were clustered around certain months or years;
- A trending analysis of how many violations were submitted by month to determine if violation submission levels have reached a steady state, are increasing, or are decreasing;
- Key reasons for non-compliance cited by Regional Entities, classified by a bucket structure that will be further described later in this paper; and
- An analysis of those buckets to determine if the violations contained within still pose a threat to the bulk electric system.

2. Analysis

The first way to view the 360 violations of PRC-005-1 is by requirement level violated by the Registered Entity. Table 1 below shows how the 360 violations have been submitted to NERC according to requirement.

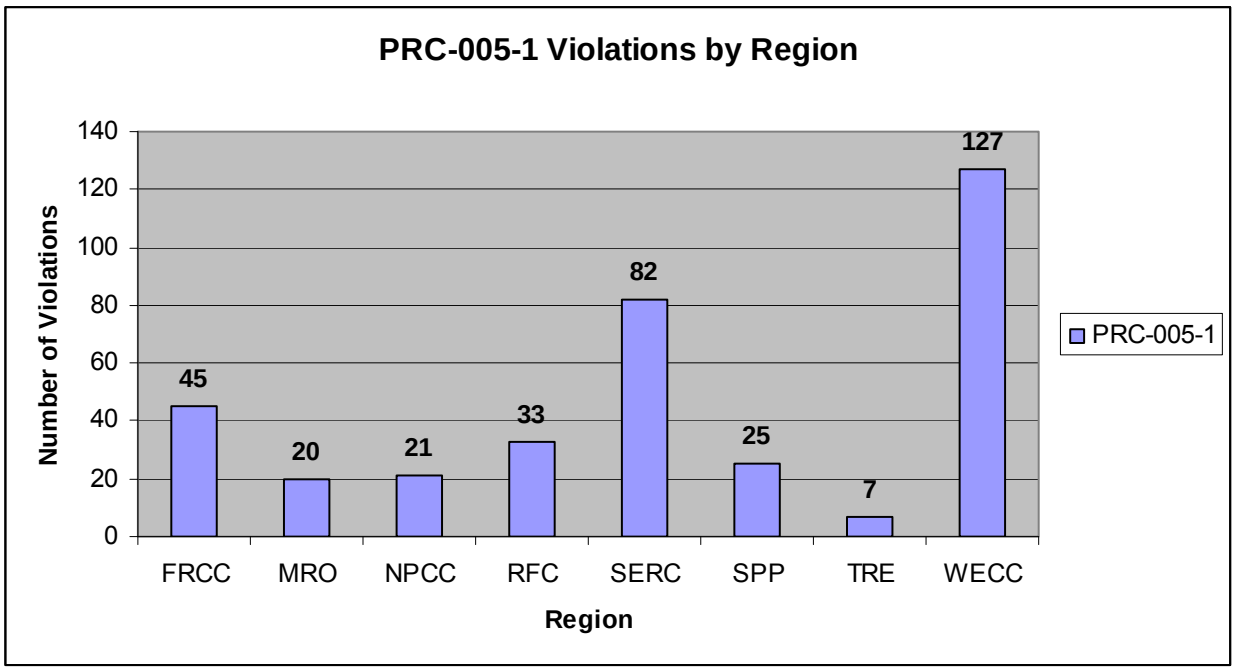
Table 1

PRC-005-1 Analysis	Violations	Percentage
R1 – Maintenance and Testing program	156	43 %
R1.1 – Maintenance and Testing Intervals	3	< 1 %
R1.2 – Maintenance and Testing Procedures	2	< 1 %
R2 – Documentation Provided on Request	129	36 %
R2.1 – Evidence of Testing within Intervals	68	19 %
R2.2 – Date of last test / maintenance op	2	< 1%
Grand Total	**360**	**100%**

This table shows that large percentages (nearly 80 percent) of violations have been reported by the Regional Entities to NERC at the requirement level, and that these violations were not singularly focused on one specific requirement of PRC-005-1.

The second task was identifying how PRC-005-1 violations were spread across the Regional Entities. Figure 1 below illustrates the result of this process:

Figure 1



With the WECC Region covering not only the largest geographical area, but also monitoring the largest number of Registered Entities (467 out of 1,834 total Registered Entities), finding the largest number of reported violations occurring in the WECC region is not surprising.

Another way to view the PRC-005-1 violations is by the registered functions of the entities that committed the violations. Standard PRC-005-1 applies to Transmission Owners, Generator Owners, and Distribution Providers that own a Transmission Protection System. The results of this analysis are shown below in Figure 2. Since most entities are registered by the Regional Entities and NERC under multiple functions, the following graph will sum to more than the 360 total violations that this report is covering.

The registered function data reported across the Regions was inconsistent, as different Regional Entities reported the data to NERC in different patterns. Some Regional Entities reported only the registered functions that an entity violated, while other Regional Entities reported every registered function of an entity when reporting a violation. This leads to a lack in overall confidence of the numbers presented by registered function in the figure below.

Figure 2

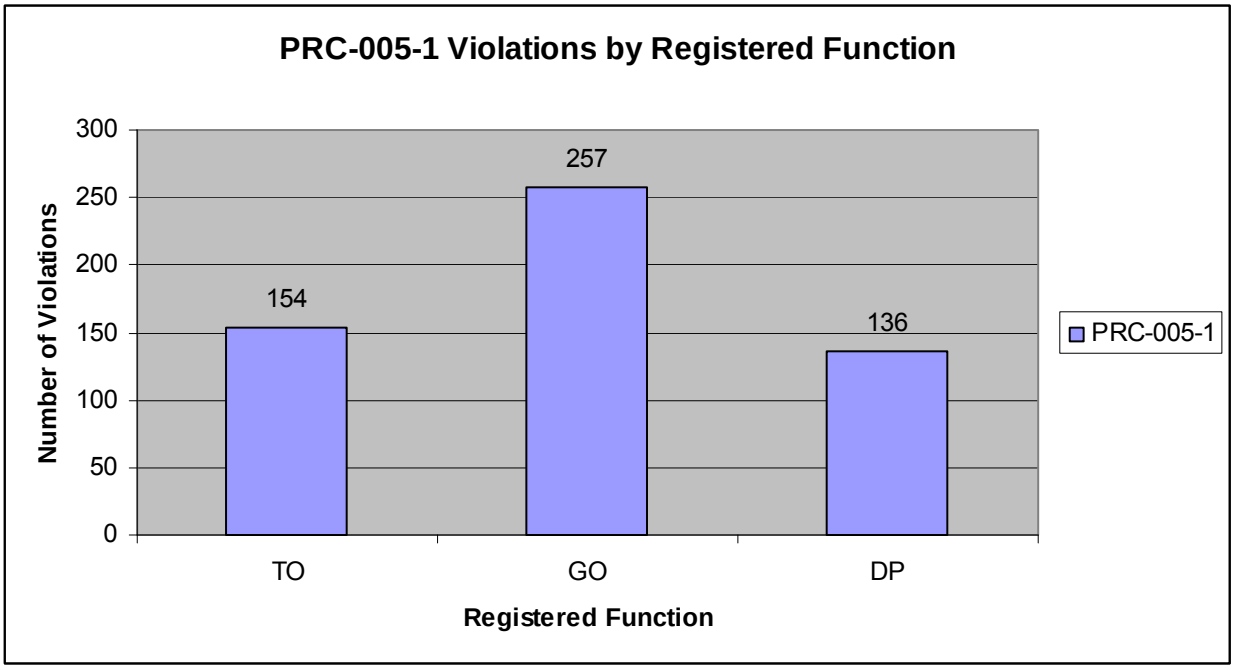
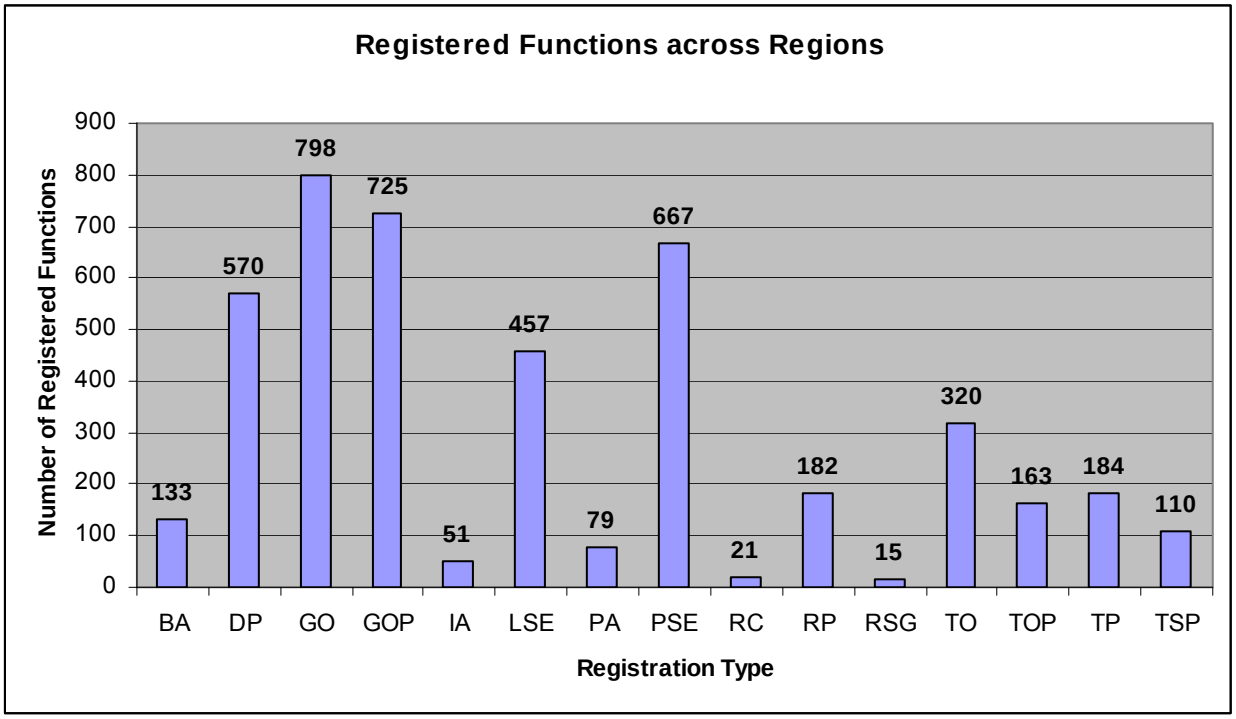


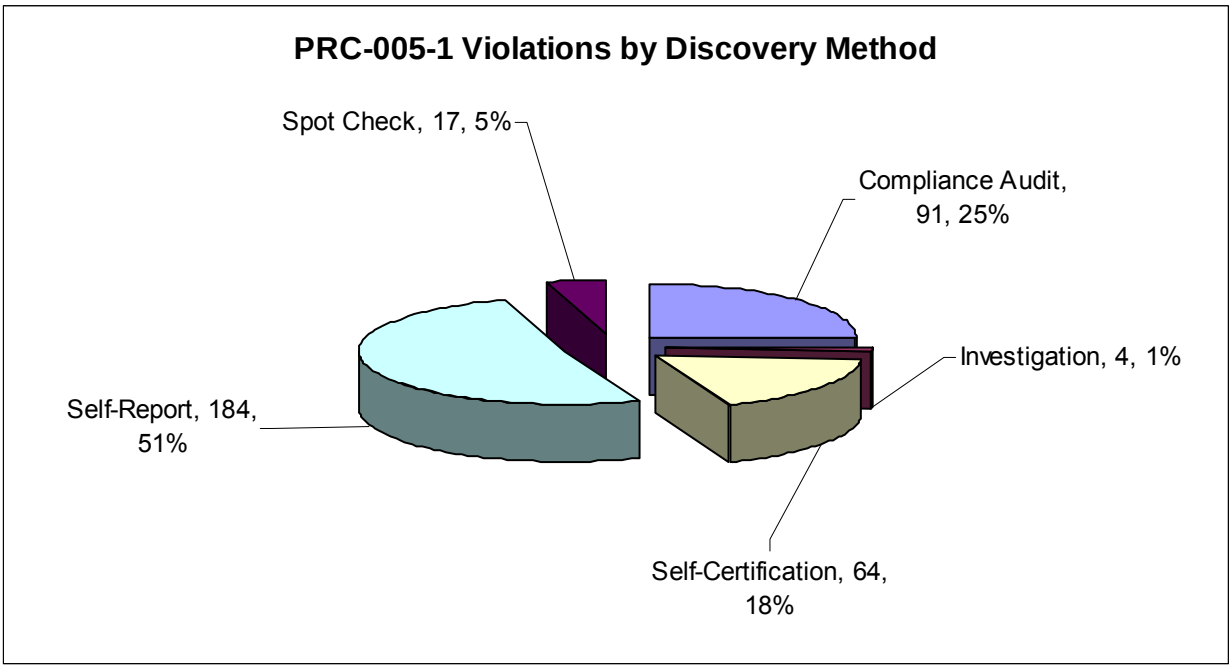
Figure 3 shows the total number of registered functions across the Regions that are currently listed as active in the NERC Registration database.

Figure 3



The most prevalent method of discovery for the 360 active and closed violations is through self-reports submitted to the Regional Entities. Figure 4 below graphically demonstrates the distribution of the methods of discovery for the 360 violations across the Regional Entities.

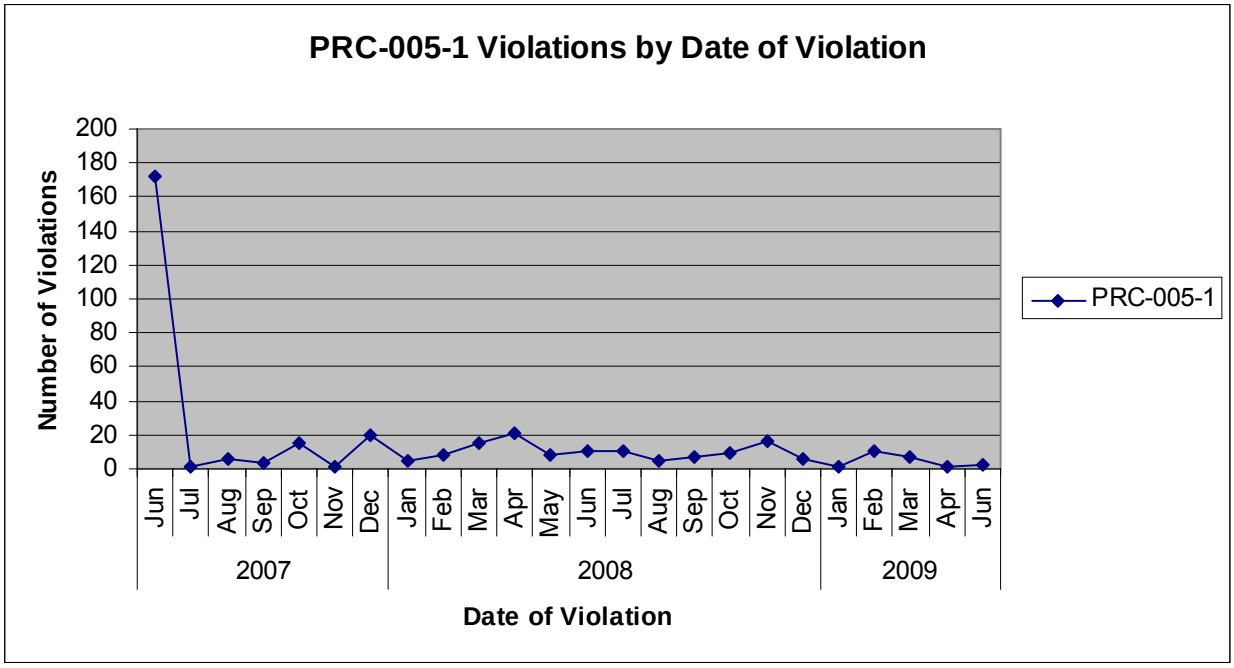
Figure 4



The results of the method of discovery are to be expected, as Registered Entities are encouraged to self-report their violations, even if those violations are dismissed at a later date by the Regional Entity.

Figure 5 shows how a significant number of violations have a violation date clustered around June 2007. This is not unexpected with the initial wave of self-reported violations and as audits, investigations, and self-certifications would identify potential violations that have not been self-reported and subsequently corrected or mitigated.

Figure 5



Violations for this standard drop off precipitously after June 2007. However, a more steady number of violations may be emerging. The chart reveals some ongoing level of violations with no month exceeding more than 21 violations of this standard.

While there is clustering of the violations by date of the violation, there is no discernable pattern when viewing the violations by their submission date to NERC, as the following chart demonstrates.

Figure 6

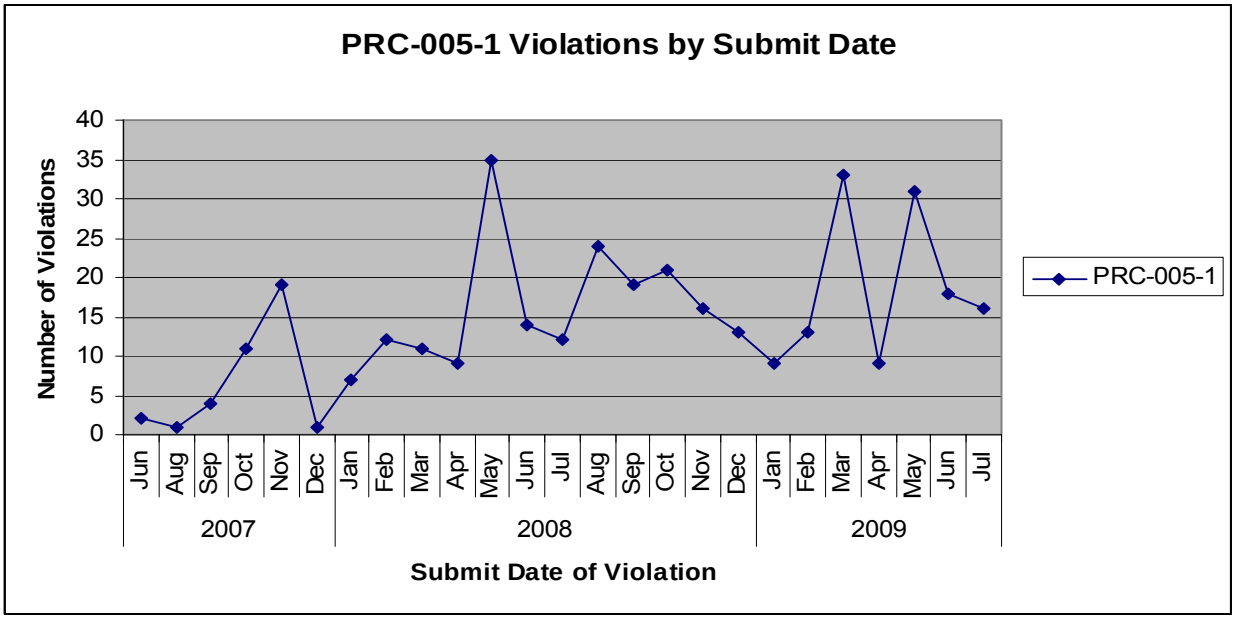


Figure 5 and Figure 6 vary from each other because Regional Entities are required to identify the actual occurrence of a violation and such date may not be the date the violation was discovered. While Regional Entities may have only recently found or discovered a violation, the violation could have existed in the bulk electric system for a significant period of time before discovery. This is the reason why Figure 5 and Figure 6 show different amounts of violations found and reported for each month.

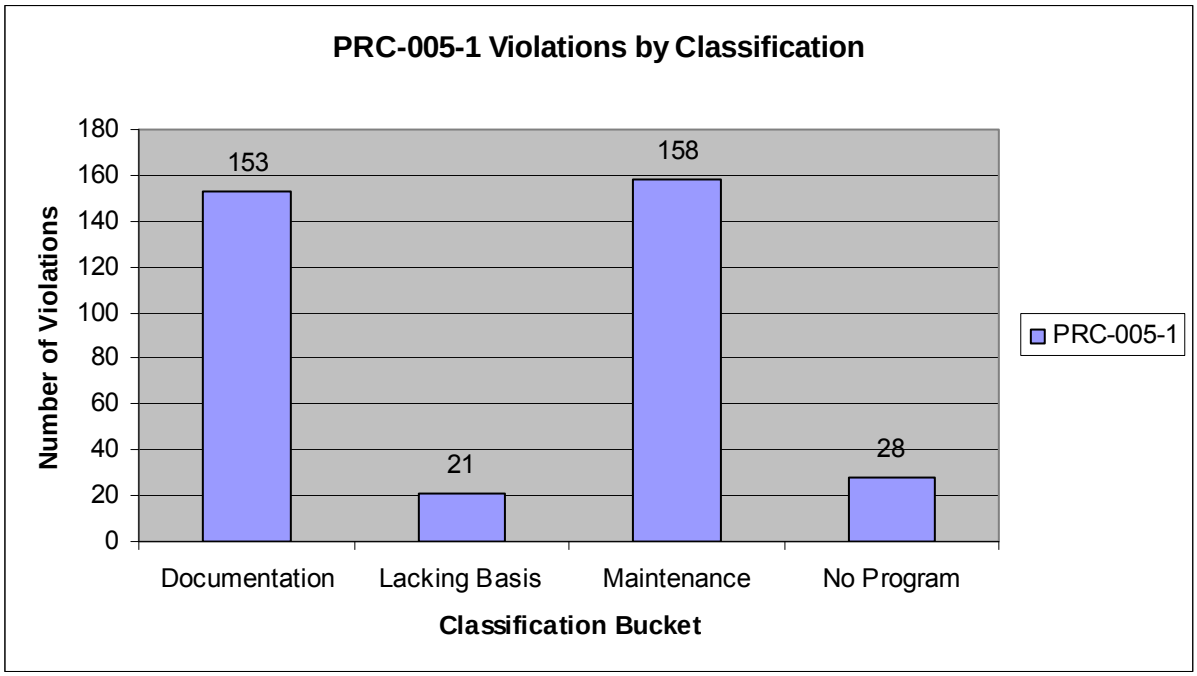
3. Non-Compliance Analysis

There are many forms of non-compliance by Registered Entities, from documentation issues to performance related-issues. NERC classified the 360 violations of PRC-005-1 by four different types of violations given the information provided in the Violation Description and Potential Impact fields of the Regional workbook submissions to NERC. The classifications are:

1. *Documentation* – a lack of records to demonstrate compliance with the standard where the Regional Entity could determine maintenance was being performed;
2. *Maintenance* – failure to perform maintenance and testing in prescribed intervals;
3. *Lacking Basis* – no basis to determine the appropriate testing intervals; and
4. *No Program* – no maintenance or testing program exists, no documentation, and no testing of elements in a prescribed manner.

The following figure represents the results of this basic classification structure.

Figure 7



The classification of violations with the greatest reliability impact are those where no system protection system maintenance program exists shown as "No Program" on the chart for the 28 PRC-005-1 violations. To gauge the risk to the reliability of the bulk electric system, NERC

analyzed the functions reporting "No Program". The most prevalent registered function of the "No Program" violations is related to Distribution Providers (19), but there are also violations of Generator Owners (11), and Transmission Owners (10). From the violation descriptions submitted by the Regional Entities to NERC, the commonly cited terminology is that the Registered Entity in question had no documented maintenance or testing program for the elements required by the standard. The entities in question with "No Program" classification appeared to be smaller entities mostly located in the WECC and FRCC regions, and most did not appear to pose a significant or substantial risk to the reliability of the bulk electric system given the Potential Impact statements prepared by the Regional Entities.

The other issue of critical importance is 158 violations that have been classified as having "Maintenance" issues. The most prevalent registered function of the "Maintenance" violations is Generation Owners (124), with the second most being attributed to Transmission Owners (75), and the least most prevalent being Distribution Providers (61). From the violation descriptions submitted by the Regional Entities, the most commonly cited reason is that Maintenance and Testing were not performed according to pre-defined intervals. Other most commonly cited reasons include overlooking critical elements for testing, such as relays and batteries, or being behind schedule on testing. The potential impact of these maintenance violations ranged from minimal to moderate, with a few specific violations registering as severe, and the types of entities cited in the "Maintenance" bucket ranged from small entities that have no impact on the bulk electric system, to medium and moderate-sized entities that could have an impact on the bulk electric system if their violations were not mitigated.

4. Regional Entity Analysis

The RCIG assessment (see Attachment A), presented to the BOTCC at their meeting on June 10, 2009, identifies five critical issues surrounding violations of PRC-005-1 to be the following:

1. Not all components of the protection systems were identified or tested;
2. Documentation of testing and maintenance results is missing or inadequate;
3. Failure to complete maintenance and testing activities on time;
4. Lack of complete and thorough monitoring of testing and maintenance programs; and
5. Inventory lists of applicable devices are incomplete and therefore, devices are not scheduled appropriately

While the NERC classification system differs slightly from the Regional Entities, the same common themes of non-compliance can be found in both analyses of PRC-005-1. Maintenance and documentation issues were the most relevant issues in the RCIG analysis, and they were highest ranking classification problems identified by the analysis at NERC. The conclusion of the RCIG group is similar to NERC's, in that, NERC Reliability Standard PRC-005-1 is critical to maintaining bulk electric system reliability.

5. Conclusion

The goal of PRC-005-1 is to ensure all transmission and generation protection systems affecting the reliability of the bulk electric system are maintained and tested according to schedule and

procedure. While Registered Entities have made strides in implementing this standard, this standard still shows up as the most frequently violated standard each month in the BOTCC reports, indicating that there is still a reliability threat to the bulk electric system. Until there is a precipitous decline in frequency and number of violations attributed to this standard and its multiple requirements, Regional Entities and NERC have to remain vigilant in enforcing to ensure that a large-scale blackout does not occur again.

RCIG Assessment
on
Monitoring and Implementation
of
Reliability Standard PRC-005-1
Transmission and Generation Protection System
Maintenance and Testing

Prepared by: Regional Compliance Implementation Group
May 27, 2009

RCIG - A - 001

Atachem

1. Introduction

During the monitoring and implementation of the Compliance Monitoring and Enforcement Program (CMEP) to date, the PRC-005-1 Reliability Standard has been identified as one of the most frequently violated Reliability Standards. Since this Reliability Standard is a high Violation Risk Factor (VRF) and thus could have significant impact on the reliability of the bulk electric system, NERC, the Members Representative Committee, and many other organizations have indicated a strong interest in examining the implementation of this standard, determining the reasons for the frequent violation of this standard, and identifying suggested process enhancements to improve compliance with this standard. Many of the entities affected are on a six year audit cycle and may not be subject to an audit in the near term, which could result in continuing high violation levels at a time when the program is expected to be maturing.

In response, the Regional Compliance Implementation Group (RCIG) took on the responsibility of reviewing this issue. The RCIG developed a Regional Report Template that was distributed to each Region. This template requested the following information:

- Identification of the frequency of standard implementation, including the number of times the standard was monitored by the Regions
- The number of times the entity monitored was compliant/non-compliant
- An identification of the method of discovery
- Identification of both primary and secondary issues related to the reason for the non-compliance
- Identification of suggested process enhancements

After review of the information received from the data returned via the template, the RCIG agreed to issue this whitepaper identifying key reasons for non-compliance and suggested process enhancements.

2. Key Reasons for Non-Compliance and Suggested Process Enhancements

After reviewing the results of the information gathered, the following key reasons were identified, by the RCIG, as the primary reasons that Registered Entities were found to be non-compliant:

1. **Not all components of the protection systems were identified or tested.**

   Data presented demonstrated that in many cases of non-compliance the entity did not test nor maintain all of the defined components of the protection system as defined by the NERC Glossary. These components include protective relays (i.e. electro-mechanical and microprocessor); associated communication systems; DC control circuitry; voltage and current sensing devices (PTs and CTs), and station batteries.

Suggested Process Enhancements

Clarify the definition of a protection system by defining all of the components of the protection system. In addition, reinforce this concept by including the definition in the RSAW for PRC-005, at the Regional Entities' (RE) compliance workshops, other methods of communication that NERC and the RE's have with the applicable Registered Entities, and provide a review of the definition and review the findings of this whitepaper. Present drafting team activities for this standard are expected to address the specific maintenance activities for components in the Protection System definition. Expectations on the use of the glossary may need to be promulgated to the industry, and the process of establishing and changing definitions.

2. Documentation of testing and maintenance results is missing or inadequate.

In many cases the Registered Entity had missing or incomplete documentation. Testing and maintenance may have been done as a long standing practice by the entity, but recordkeeping was insufficient leading to a non-compliance finding. Lack of experience with a true culture of compliance and interaction with a comprehensive compliance monitoring and enforcement program was also identified as a reason for the insufficient documentation. The industry continues to struggle with the level of documentation that is necessary to adequately institute the requirements of the standard. A "zero tolerance" approach of violations to this standard, for which there could be thousands of pieces of applicable equipment, has also contributed to the visibility of this issue.

Suggested Process Enhancements

Registered Entities have to be given further guidance and explicit direction that: a) there needs to be thorough and rigorous documentation of applicable testing and maintenance practices; b) that the documentation is kept current; c) data should be retained for 3 years or the last date maintenance and testing was performed if it is greater than 3 years; and d) the entity has the ability to produce data associated with the Standard requirements. Doing the above is critical to meeting the standard as it is currently written.

On a longer term basis, future consideration should be given to having the requirements of the standard focus not only on documentation, but also on the quality of the maintenance and testing program and the operability of the equipment. Emphasis in the standard should be on the performance of the maintenance and testing and the quality of that performance rather than on the maintenance of documentation. It will be a self-correcting process as the entity will only be able to adequately demonstrate effective testing and maintenance if they can produce evidence and documentation that they have met the parameters of the maintenance and testing program.

3. Failure to complete maintenance and testing activities on time.

Many Regions reported that while the Registered Entities may have conducted their maintenance and testing programs they did not complete them in the time intervals specified in their plan due to many reasons. Entities have had to divert resources to support events such as natural disasters, system emergencies or equipment failures, or may have difficulty in obtaining transmission line or generating plant outages. Their program must identify the management of these issues.

Suggested Process Enhancement

Emphasis on the urgency to meet the specified time intervals must be made explicitly clear. The Registered Entity needs to recognize that the program it establishes is not viewed as a target, but is a minimum that must be achieved, regardless of what situations the company may encounter that interfere with planned maintenance. The entities need to clearly define how they manage the intervals and their schedule. The intervals and the schedule need to be managed to allow an appropriate grace period that each entity can support and justify technically. If tested outside of a scheduled interval, and the operability is deemed to have not been effected, a lower violation should be effectuated. As mentioned above, this point needs to be reinforced with the Registered Entity via all communications methods available to the RE (compliance workshops, Reliability Standard Audit Worksheet (RSAW), Compliance Guidance Document (CGD), etc.). Entities must be made aware of the need to adequately budget and plan their maintenance and testing programs to assure that they are in the best position to meet the requirements of the program, all in the interest to enhance overall system reliability.

4. Lack of complete and thorough monitoring of testing and maintenance programs.

Regions reported that some Registered Entities did not have complete programs. Typically, this involved failure to include items in the definition other than protective relays themselves. This non-compliance issue could be due to unfamiliarity with a formal compliance program, inexperience, or less than diligent implementation.

In particular some smaller companies do not use an oversight approach to their programs. These companies go through all their devices on a cycle but they do not necessarily have them scheduled. Some have maps showing which stations have been completed and when, but there are no summary type worksheets tracking the work. The idea of summary type of worksheets is new to these companies. The reason the smaller companies have been doing it this way is because they contract a lot of this work out. They write contracts to cover their stations within their time cycle and they believe they are done, when in fact that is just part of the tracking that needs to take place.

Suggested Process Enhancements

Where possible, examples of acceptable maintenance and testing programs should be given to the Registered Entities that are deficient. This could occur at a Region's compliance workshop, or through a compliance guidance statement that is posted on the RCIG website, or other means.

5. Inventory lists of applicable devices are incomplete and therefore devices are not scheduled appropriately.

In some instances, Registered Entities did not ensure that all devices were properly transferred from legacy paper or spreadsheet systems to advanced database software management packages in common usage today. In addition, Registered Entities were not ensuring that recently installed devices were added to their active inventory list of devices and therefore not added to maintenance schedules. Inadequate configuration controls can contribute to this issue.

Suggested Process Enhancement

Registered Entities should perform periodic physical inventories, including walkthroughs where needed, to ensure that the active device inventory list is complete and accurate, and that all pertinent devices appear on maintenance and testing schedules.

3. Conclusion

Compliance to the PRC-005-1 Reliability Standard is critical to maintaining bulk electric system reliability. It is imperative that clear information is provided to assure that the Registered Entities have the best opportunity to understand how they can effectively meet the standard. The standard drafting team is presently addressing some of these issues. The RCIG should review and comment on the posted drafts of PRC-005 and provide observations from a compliance perspective. Registered Entities should be given this guidance and information via all methods available as discussed in this whitepaper.

Finally, as the CMEP matures and Registered Entities, particularly those who have had little experience with formal compliance programs, become more familiar with the program it is expected that compliance to the PRC-005-1 Reliability Standard will improve as long as the Registered Entities, NERC, and the Regional Entities are rigorous in their pursuit of an effective compliance program and culture.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Item 3
CIP-004-1

Summary Report for Violations of Reliability Standard CIP-004-1 Cyber Security- Personnel & Training

Board of Trustees Compliance Committee

August 4, 2009

to ensure the reliability of the bulk power system

CIP-004-1 Background

- CIP-004-1 focused on Cyber Security – Personnel and Training
- Major Requirements of this standard
  1. Awareness of Security Program
  2. Cyber Security Training
  3. Personnel Risk Assessment
  4. Personnel Access to Critical Cyber Assets

Metrics

- Number of Violations by Requirement
- Prevailing Method of Discovery
- Clustering effects of Violations by Violation Date
- Trending analysis of Violations by Submit Date
- Key Reasons of Non Compliance

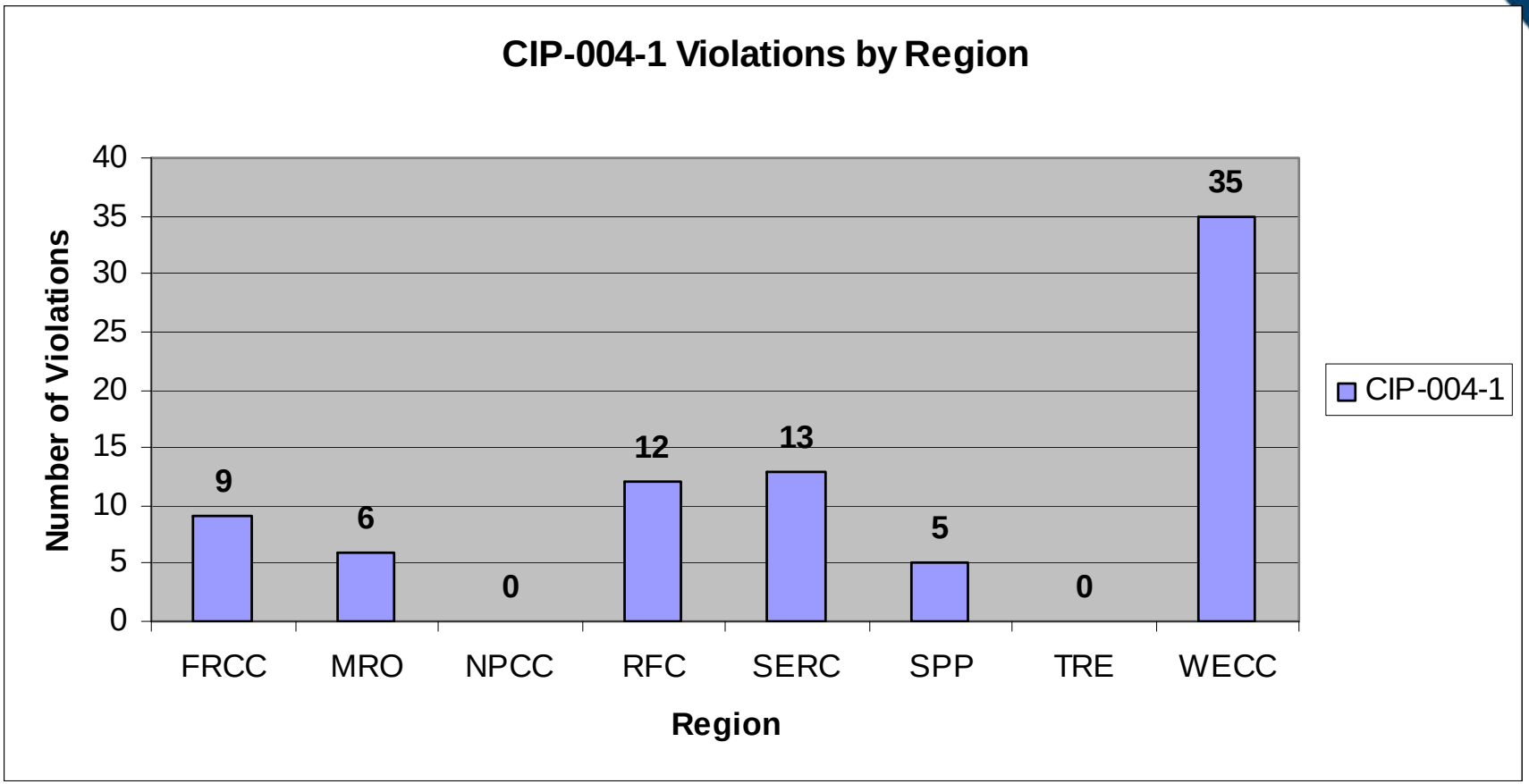
Violation Background

- 80 Total Active and Closed Violations (US and Canadian)
- Submitted to NERC after May 2008
- Does not include 13 dismissed violations of CIP-004-1 Standards

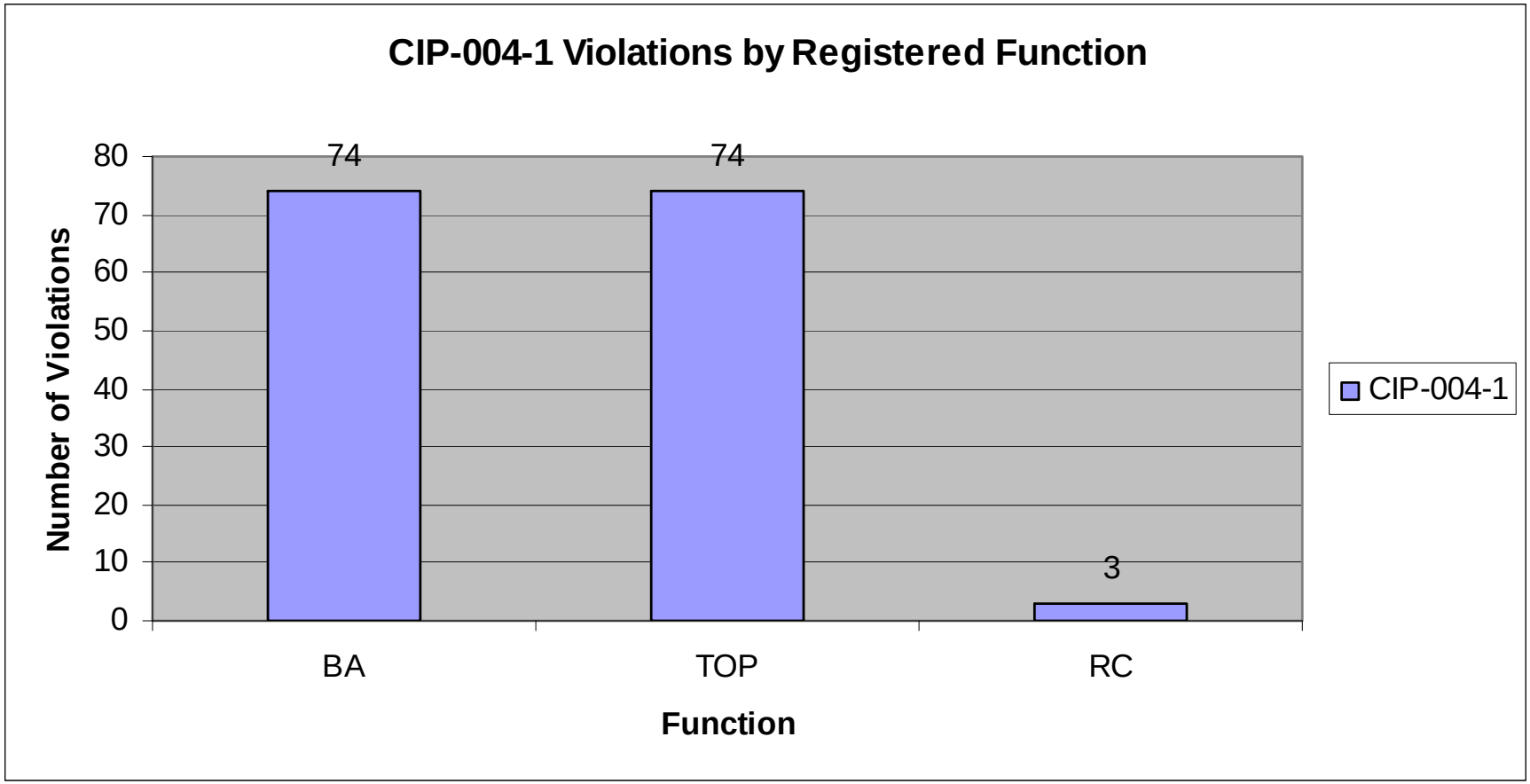
Current Violation Statistics

CIP-004-1 by Requirement	Number of Violations
Requirement 1 – Awareness	0
Requirement 2 – Training	23
Requirement 3 – Risk Assessment	29
Requirement 4 – Access	28
Total	**80**

Violations by Region



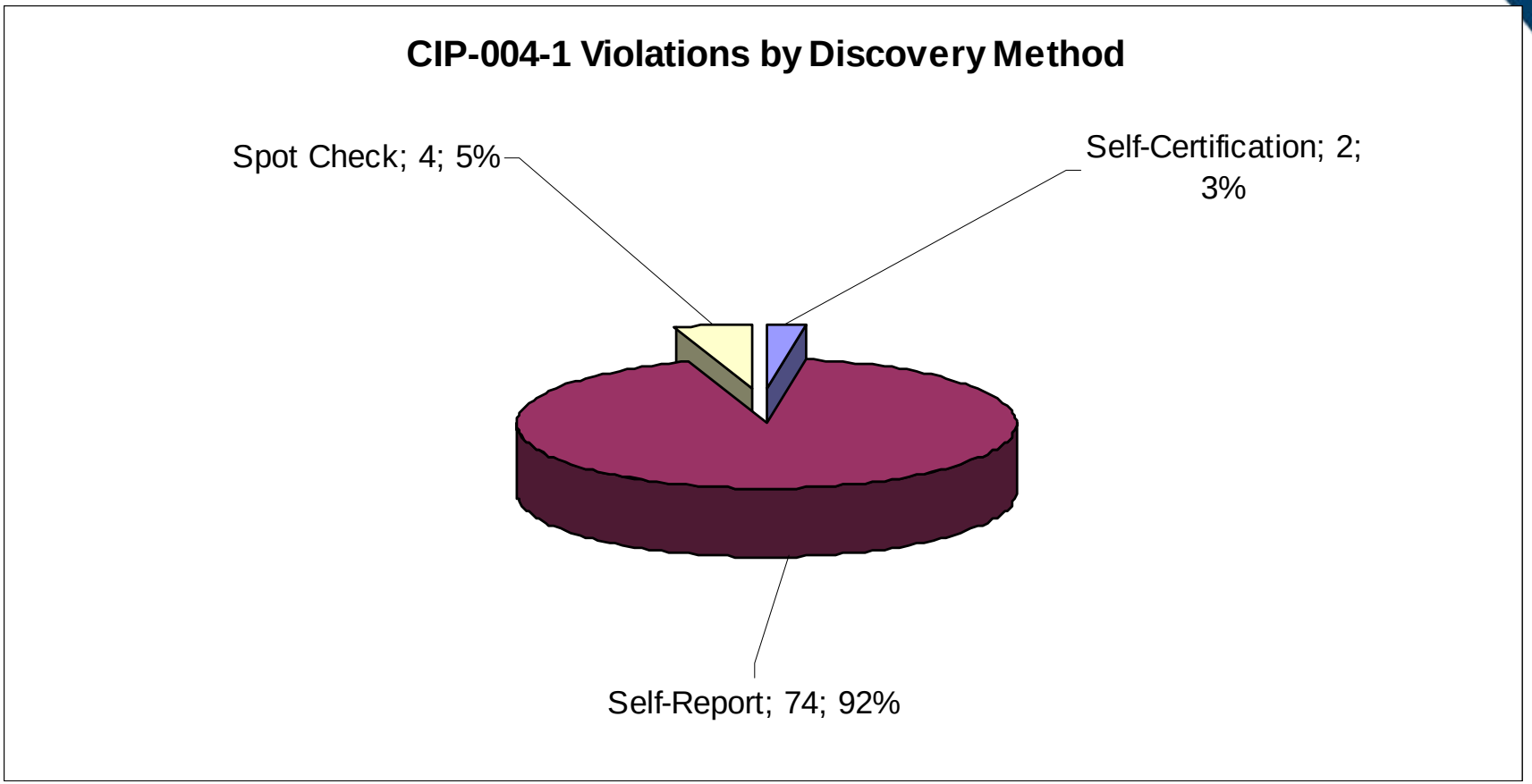
Violations by Registered Functions



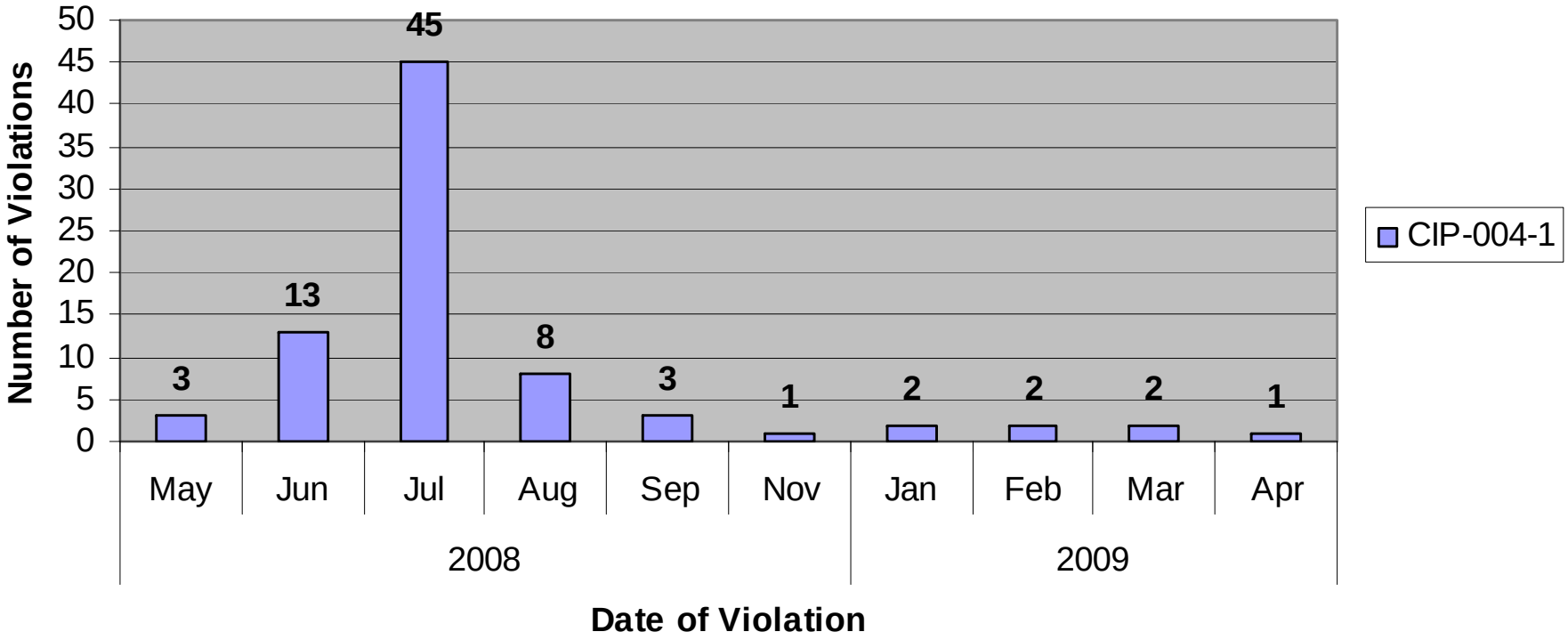
Violations by Registered Functions

- Entities are registered for Multiple Functions
  - Thus prior slide violations sum to a number greater than 80
- CIP-004-1 still in process of being phased in
  - NERC Implementation Plan for Cyber Security Standards
  - Registered Functions required to be “Compliant” or “Auditably Compliant”
- Inconsistencies in data across regions
  - Assigning all registered functions for an entity to a violation instead of just violated functions

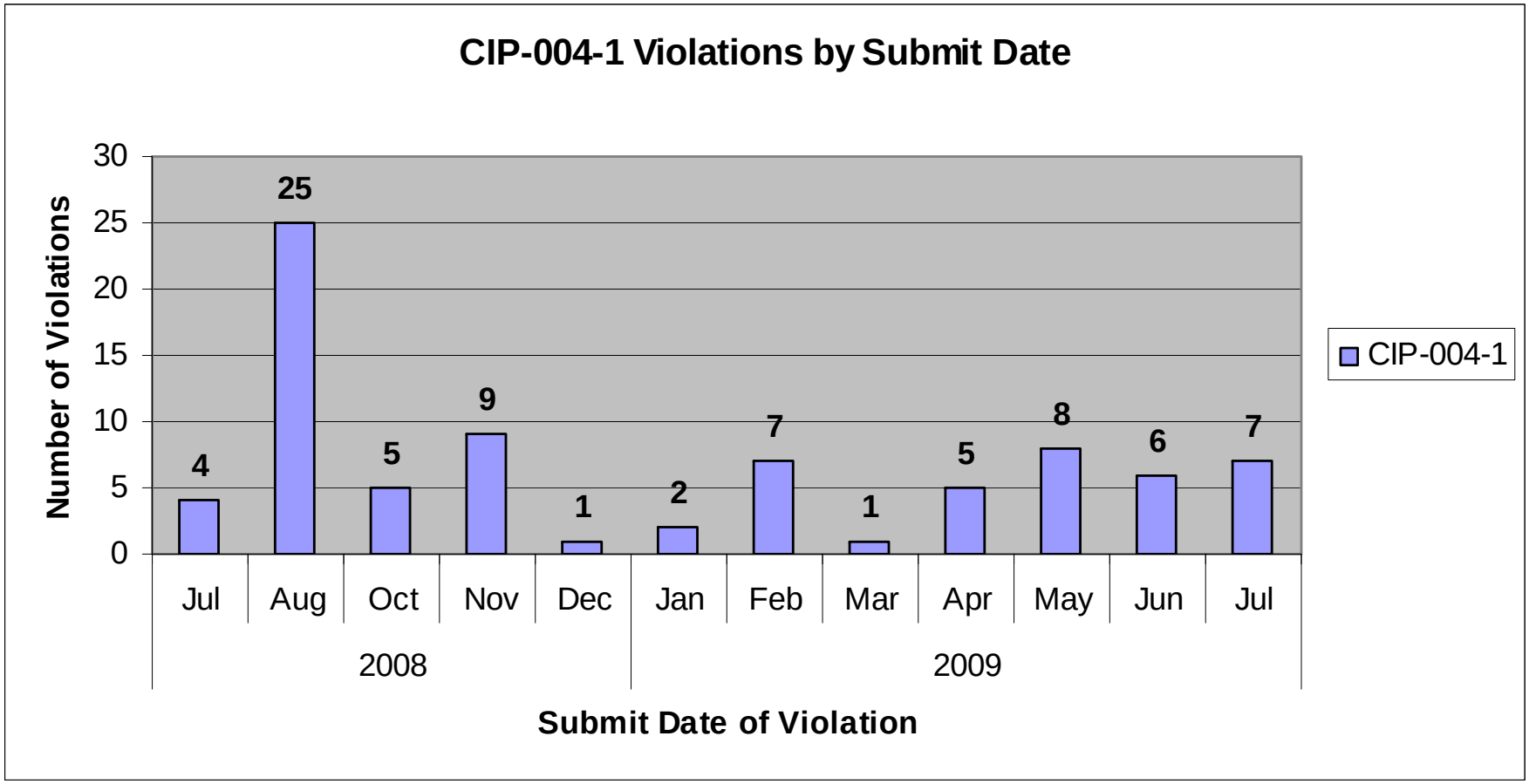
Violations by Discovery Method



Violations by Violation Date



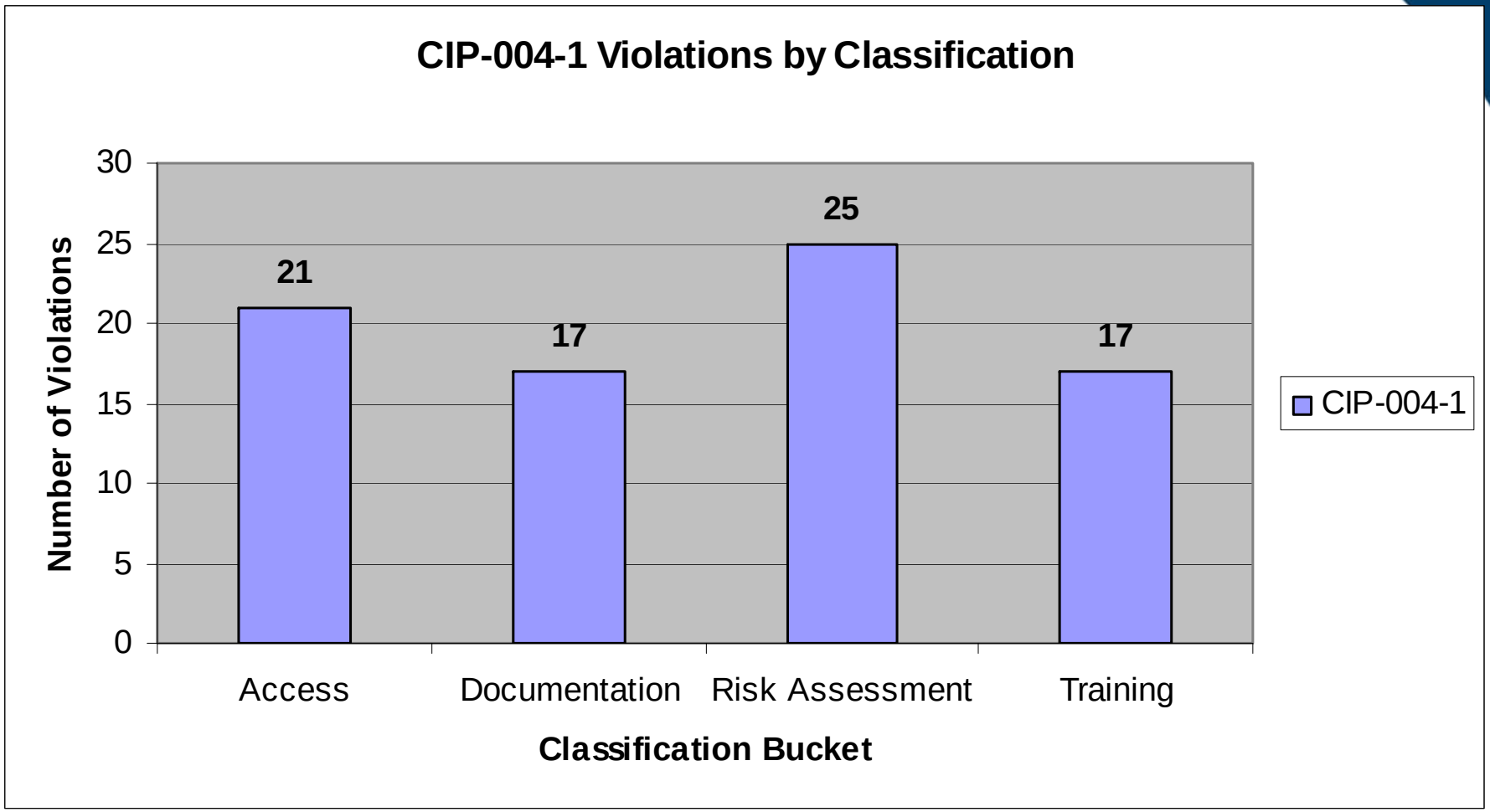
Violations by Submit Date to NERC



Key Reasons for Non Compliance

- Classified Violations into Four Buckets
  - Documentation – a lack of Records
  - Training – training not offered / completed on time
  - Risk Assessment – background checks not complete
  - Access – granted improper access to critical cyber assets

Violation Buckets



Key Findings

- Documentation issues account for 21% of violations
- Risk Assessment is largest outstanding issue
  - Most common reason is due to Incomplete Risk Assessments for employees with access to critical cyber assets
  - Other- Risk Assessment not completed in a given time frame
  - Risk to BES is Minimal to Moderate based on Regions Potential Impact analysis
  - Entities violating this Requirement ranged from Small to Large, with no clear pattern emerging
- Training and Access violations close behind
- No violations reported for Awareness requirement

Item 3
CIP-004 Supplement

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

DRAFT

Summary Report for Violations of Reliability Standard CIP-004 – Cyber Security – Personnel and Training

Board of Trustees Compliance Committee
August 4, 2009

to ensure the reliability of the bulk power system

August 2009

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Table of Contents

Analysis of CIP-004-1 Violations

1. Background

CIP-004-1 is a key cyber security standard and one that has more recently become an enforceable standard. CIP-004-1 became effective on July 1, 2008 for Registered Entities under Urgent Action Directive 1200 and on July 1, 2009 for other entities and has become one of the reliability standards reported to be most frequently violated. Given the risk and seriousness of cyber security based violations, NERC analyzed active and closed violations of CIP-004-1 looking to define trends across Regional Entities. As of July 21, 2009, there are 80 active and closed violations of CIP-004-1, with an additional 13 violations that were dismissed by the Regions. This report will focus on the 80 active and closed violations that were submitted to NERC beginning in May 2008.

NERC focused on developing the following metrics:

- Identifying how many violations were reported by each Region for the time period of June 18, 2007 to the present;
- The prevailing method of discovery by the Regional Entity for each violation;
- An analysis of violations by the date of violation to determine if violations were clustered around certain months / years;
- A trending analysis of how many violations were submitted by month to determine if violation submission levels have reached steady state;
- Key reasons for non-compliance cited by Regional Entities, classified by a bucket structure that will be further described later in this paper; and
- An analysis of those buckets to determine if the violations contained within still posed a threat to the bulk electric system

2. Analysis

The first step was to analyze the 80 violations of CIP-004-1 and identify the specific requirement violated by the Registered Entities. Table 1 below shows how the 80 violations are classified according to requirement.

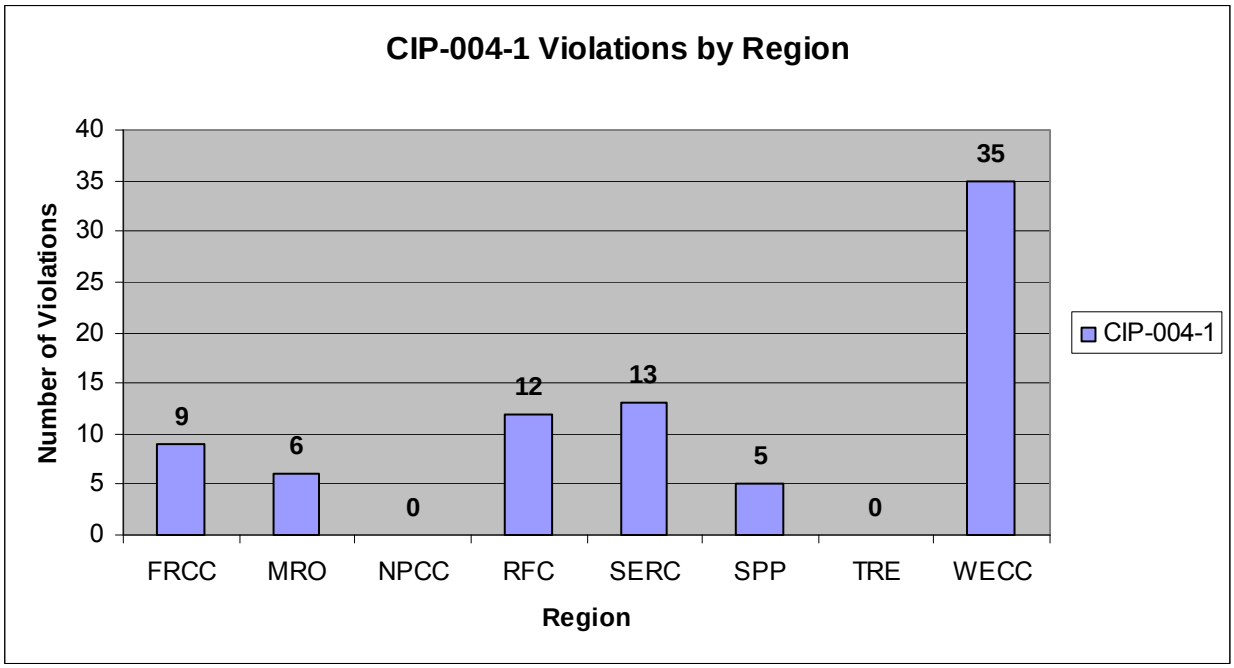
Table 1

CIP-004-1 by Requirement	Number of Violations
Requirement 1 – Awareness (All Sub levels)	0
Requirement 2 – Training (All Sub levels)	23
Requirement 3 – Risk Assessment (All Sub levels)	29
Requirement 4 – Access (All Sub levels)	28
Grand Total	**80**

This analysis reveals that the most violated requirement is completing a personnel risk assessment (background check) on all personnel with access to critical cyber assets followed closely by ensuring that access lists to the critical cyber assets are accurate or properly maintained. Establishing, documenting, implementing, and maintaining an annual cyber security training program for personnel having authorized cyber or authorized unescorted physical access to Critical Cyber Assets is also commonly reported as being violated.

NERC also analyzed how CIP-004-1 violations were spread across the Regional Entities. Figure 1 below illustrates the result of this identification process.

Figure 1

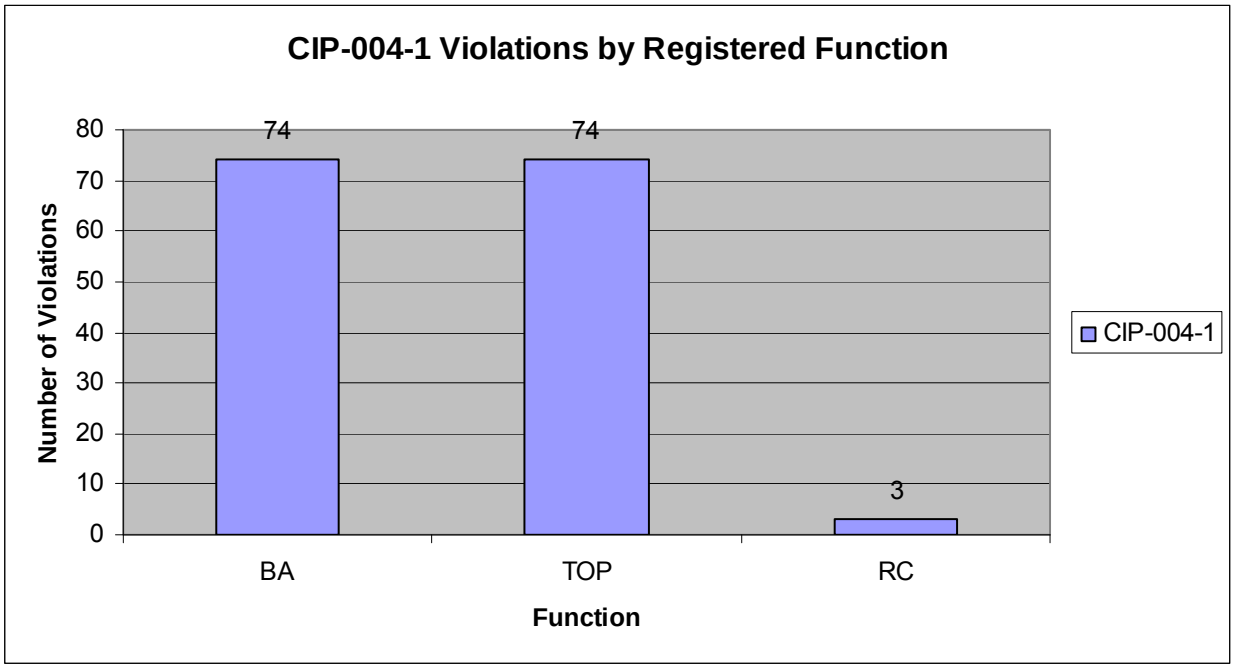


With the WECC Region covering not only the largest geographical region, but also the largest number of Registered Entities (467 out of 1,834 total Registered Entities), it is not unreasonable that they have the largest number of CIP-004-1 violations reported.

NERC also analyzed the CIP-004-1 violations by the Registered Functions of the entities that committed the violations. This analysis is shown in Figure 2 below. Since most entities are registered for multiple functions, the numbers on the following graph will sum to a number greater than the 80 total violations listed above. There is a caveat with CIP-004-1 standard, as it is still in the process of being phased in and implemented by Registered Entities in accordance with the (Revised) Implementation Plan for Cyber Security Standards CIP-002-1 through CIP-009-1, which can be found at http://www.nerc.com/fileUploads/File/Standards/Revised_Implementation_Plan_CIP-002-009.pdf. The registered functions below are the only functions currently to which the reliability standard are currently applicable in accordance with the NERC implementation plan for Cyber Security Standards (functions that are considered Compliant or Auditably Compliant).

The registered function data reported across the Regions was inconsistent, as different Regional Entities reported the data to NERC in different patterns. Some Regional Entities reported only the registered functions that an entity violated, while other Regional Entities reported every registered function of an entity when reporting a violation. This leads to a lack in overall confidence of the numbers presented by registered function in Figure 2 below.

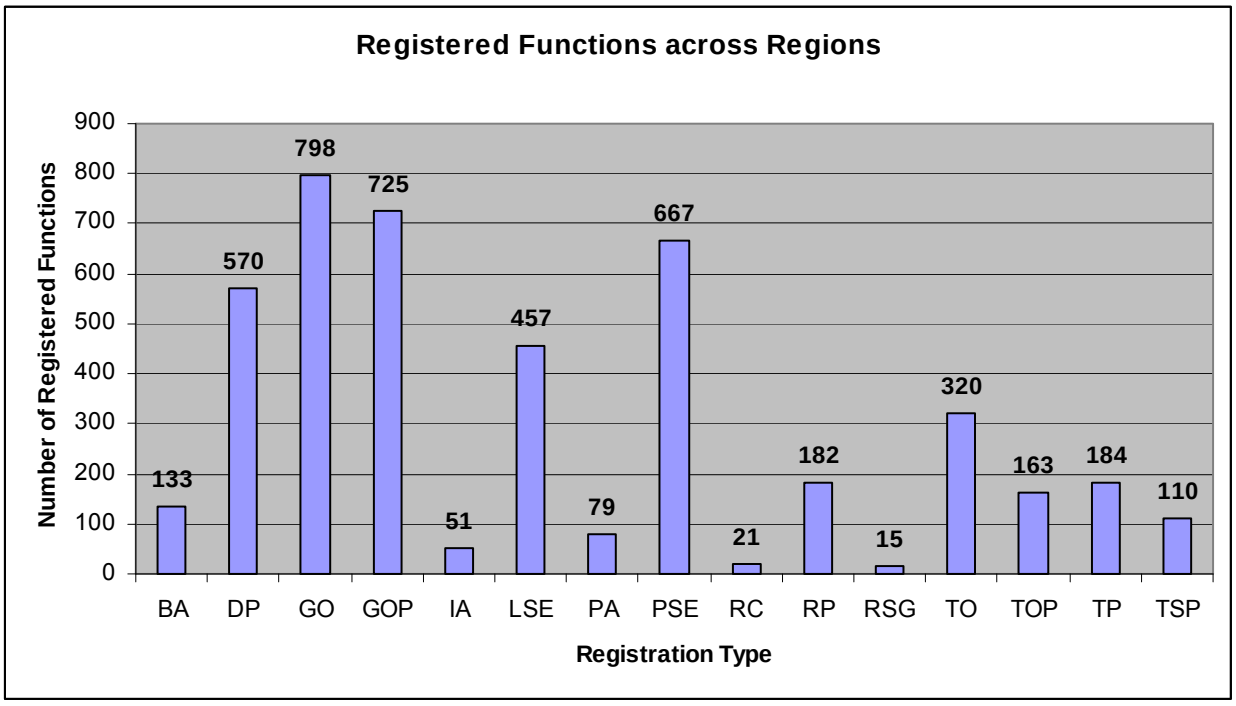
Figure 2



Through the end of the second quarter of 2008, all Reliability Coordinators (RC), and those Balancing Authorities (BA) and Transmission Operators (TOP) that were required to self-certify compliance to Urgent Action Directive 1200, were required to be compliant with Requirements 2, 3, and 4 of standard CIP-004-1. This is the reason why only violations of such functions were reported to NERC as indicated in Figure 2.

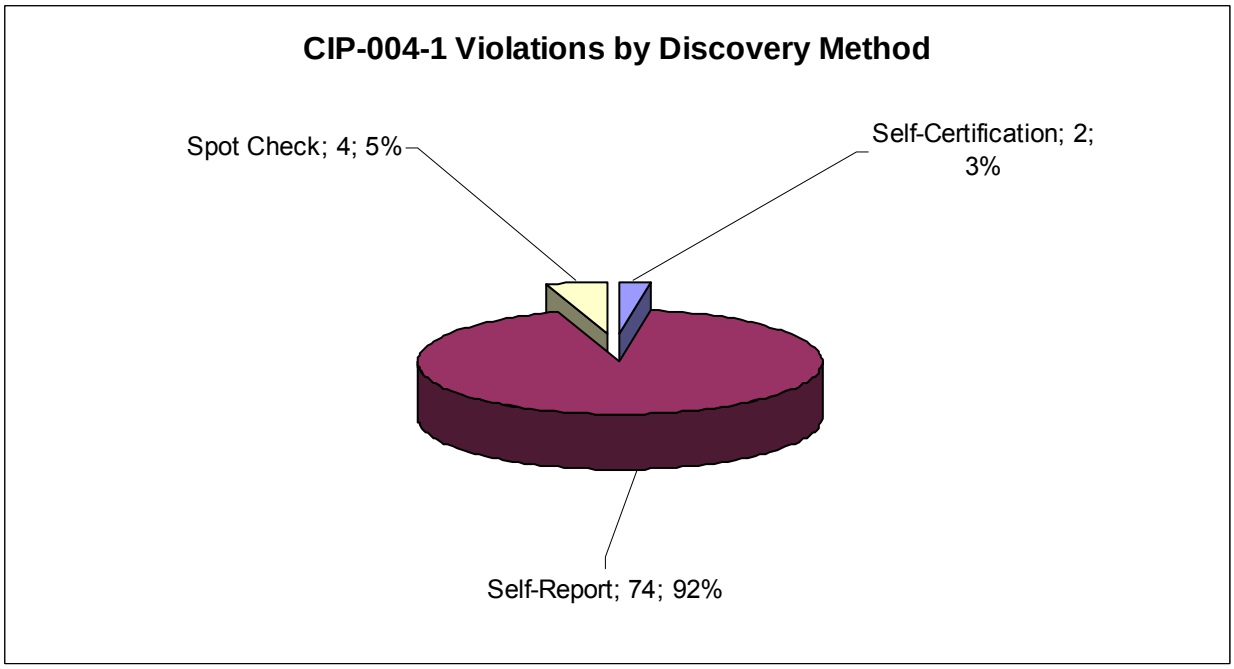
Figure 3 shows the total number of registered functions across the Regions that are currently listed as active in the NERC Registration database and provides a means of comparison against the violations attributed by registered function.

Figure 3



The most prevalent method of discovery for these 80 violations of CIP-004-1 is through self-reports submitted to the Regional Entities. Figure 4 below graphically shows the reported method of discovery:

Figure 4

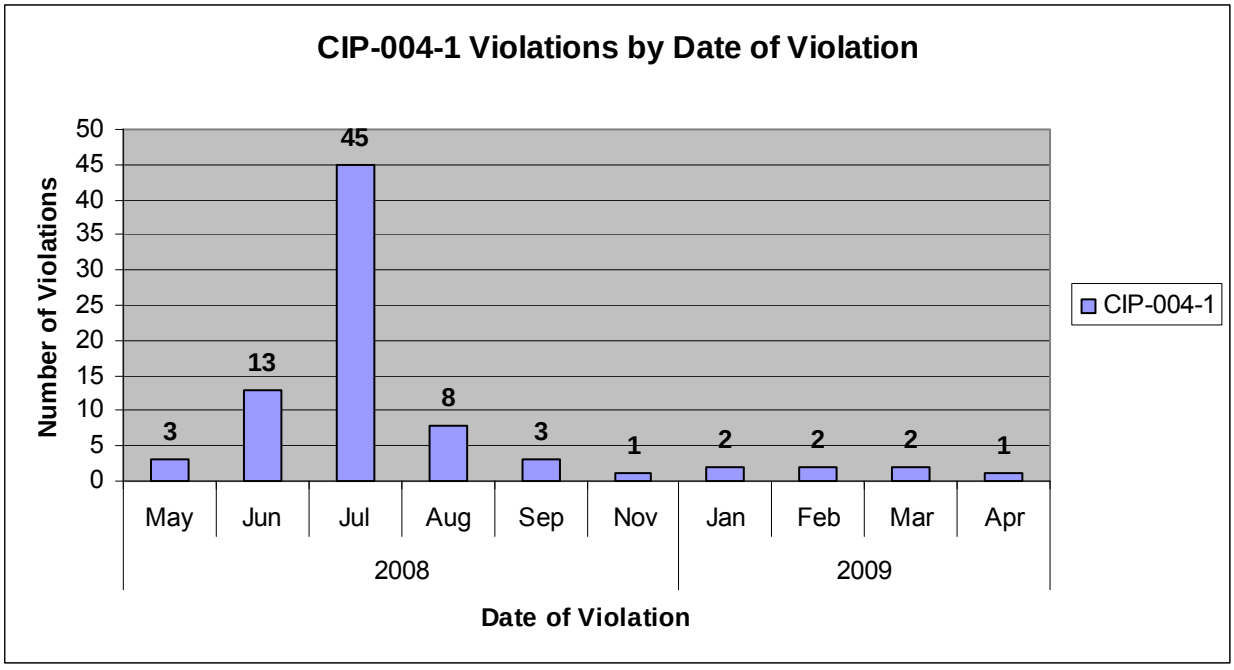


Since this standard is still in the process of being phased into Registered Entities, it is not unexpected to see a significant number of self-report violations of this standard, since NERC and

FERC have encouraged entities to self-report suspected violations, even if they are later dismissed by the Regional Entity.

NERC also analyzed the reported violations based on the date the violation occurred. The results are shown in Figure 5, which show that the violations are clustered around a specific time period of July 2008. This is due to the requirement of the three aforementioned functions becoming compliant at the end of the second quarter of 2008 for their System Control Centers.

Figure 5



The number of violations with violation dates after July 2008 fall significantly with no month reaching more than eight violations of this standard for all requirements.

While there is a clustering of violations occurring around July 2008, there is no discernible pattern when viewing the violations by their submission date to NERC, as Figure 6 below demonstrates.

Figure 6

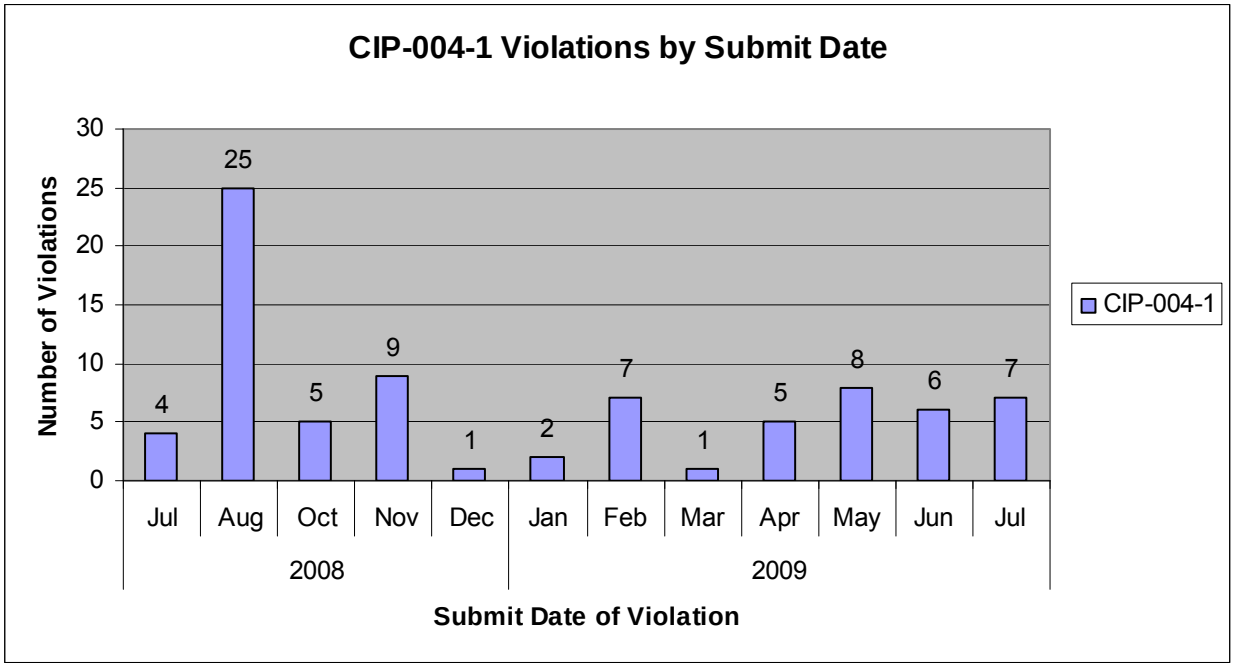


Figure 6 clearly demonstrates that violations of CIP-004-1 have not reached a steady state of violation discovery.

Figure 5 and Figure 6 vary from each other because Regional Entities are required to identify the actual occurrence of a violation and such date may not be the date the violation was discovered. While Regional Entities may have only recently found or discovered a violation, the violation could have existed on the bulk electric system for a significant period of time before discovery. This is the reason why Figure 5 and Figure 6 show different amounts of violations found and reported for each month.

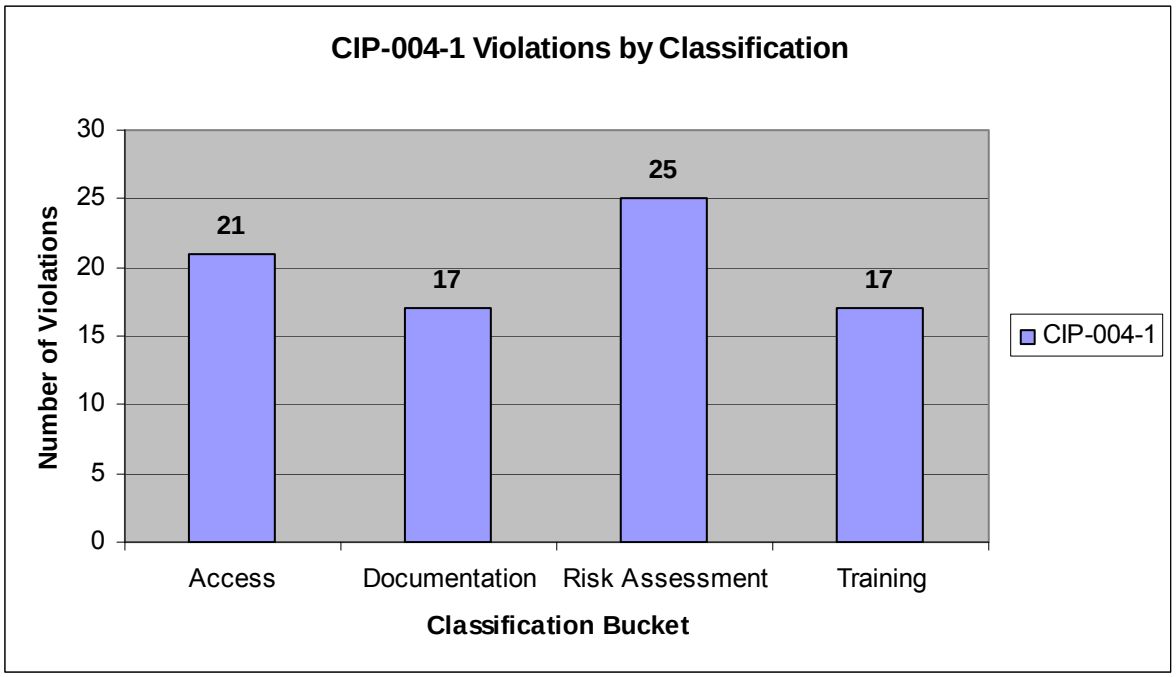
3. Non-Compliance Analysis

There are many reasons identified for non-compliance by Registered Entities, from documentation to performance-related issues. NERC classified the 80 violations of CIP-004-1 by four different types of violations given the information provided in the Violation Description and the Potential Impact fields of the Regional workbook submissions to NERC. The classification buckets are:

1. *Documentation* - a lack of records to demonstrate compliance with the standard;
2. *Access* - employees or contractors granted access to critical cyber assets without proper clearance or escorted access;
3. *Training* - training was not offered or completed on time by employees or contractors ; and
4. *Risk Assessment* - employees or contractors with access to critical cyber assets did not complete or had an incomplete background check

Each violation was classified according to these criteria and the results of this analysis are shown below in Figure 7.

Figure 7



The twenty five CIP-004-1 violations that have been classified as having Risk Assessment issues are also significant. The most common registered functions of the entities with these violations are Transmission Operators (23) and Balancing Authorities (22). The most common reason reported for violating this requirement is given as incomplete risk assessments for employees with access to critical cyber assets. Other frequent violation descriptions include risk assessments not being completed in a given time frame or the need to revise the current risk assessment program to meet the standards of requirement 3. The risk to the bulk electric system for these violations is Minimal to Moderate based on the Potential Impact analysis performed by the Regional Entities. The entities in question for these "Risk Assessment" violations ranged from small to large, with no clear pattern emerging based on the size of the entity.

The twenty one CIP-004-1 violations concerning access are another area of importance for NERC to evaluate. The most common registered functions of the entities with these violations are Balancing Authorities (20), with the most common reasons reported for violating this requirement focused on unescorted access of contractors and current employees of the company. The risk to the bulk electric system for these violations, based on the potential impact analysis performed by the Regional Entities is between Minimal to Moderate. The entities in question for "Access" violations ranged from small to large, with no clear, discernable pattern emerging based on the size of the entity.

4. Conclusion

When CIP-004-1 is applied in conjunction with the other cyber security standards of CIP-002-1 through CIP-009-1, it provides an effective defense to critical cyber assets. As this standard is

still in the process of being phased in, a complete picture of cyber security gaps in Registered Entities can not be determined without more data. While CIP-004-1 has multiple sub-requirements for each top level requirement, it appears to NERC that Regions are reporting violations without enough granularities to more clearly understand the nature of the violation at the sub requirement level, skewing any effective data analysis in the short term. As CIP-004-1 becomes compliant for all registered functions over the next year and half, more violations will be detected and discovered and a more accurate picture of cyber security will develop. But until that time, NERC is only left to conduct its analysis based on the data available, and right now it is an incomplete picture.

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Measuring Reliability with NERC Standard Violations

Jessica Bian - Reliability Assessment and Performance Analysis

Board of Trustees Compliance Committee Meeting

August 4, 2009

to ensure the reliability of the bulk power system

Topics

- Reliability Performance Metric – Violation Risk Index
- Updated Violation Risk Index Trends
- Other Reliability Indicators
- Key Findings and Recommendations

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Reliability Performance Metric

Violation Risk Index (VRI)

- Assess and report on reliability improvements achieved as a result of Compliance program
- Compliance with Standards as a measure of reliability
- If VRI decreases during trending period -
  - Compliance improved
  - Reduced risk to Bulk Power System (BPS) reliability

VRI Elements

- VRI equals the sum of weighted* average penalty ratios derived from the VSL & VRF for each unmitigated violated Standard requirement
- Considers relative risk
  - Violation Risk Factor (VRF) - “Lower,” “Medium” or “High” assigned to each Standard requirement
  - Measures relative potential impact of a Standard requirement violation
- Considers violation severity
  - Violation Severity Levels (VSL) – “Lower,” “Medium” or “High” assigned to each Standard requirement
  - Measures severity of the violated Standard requirement

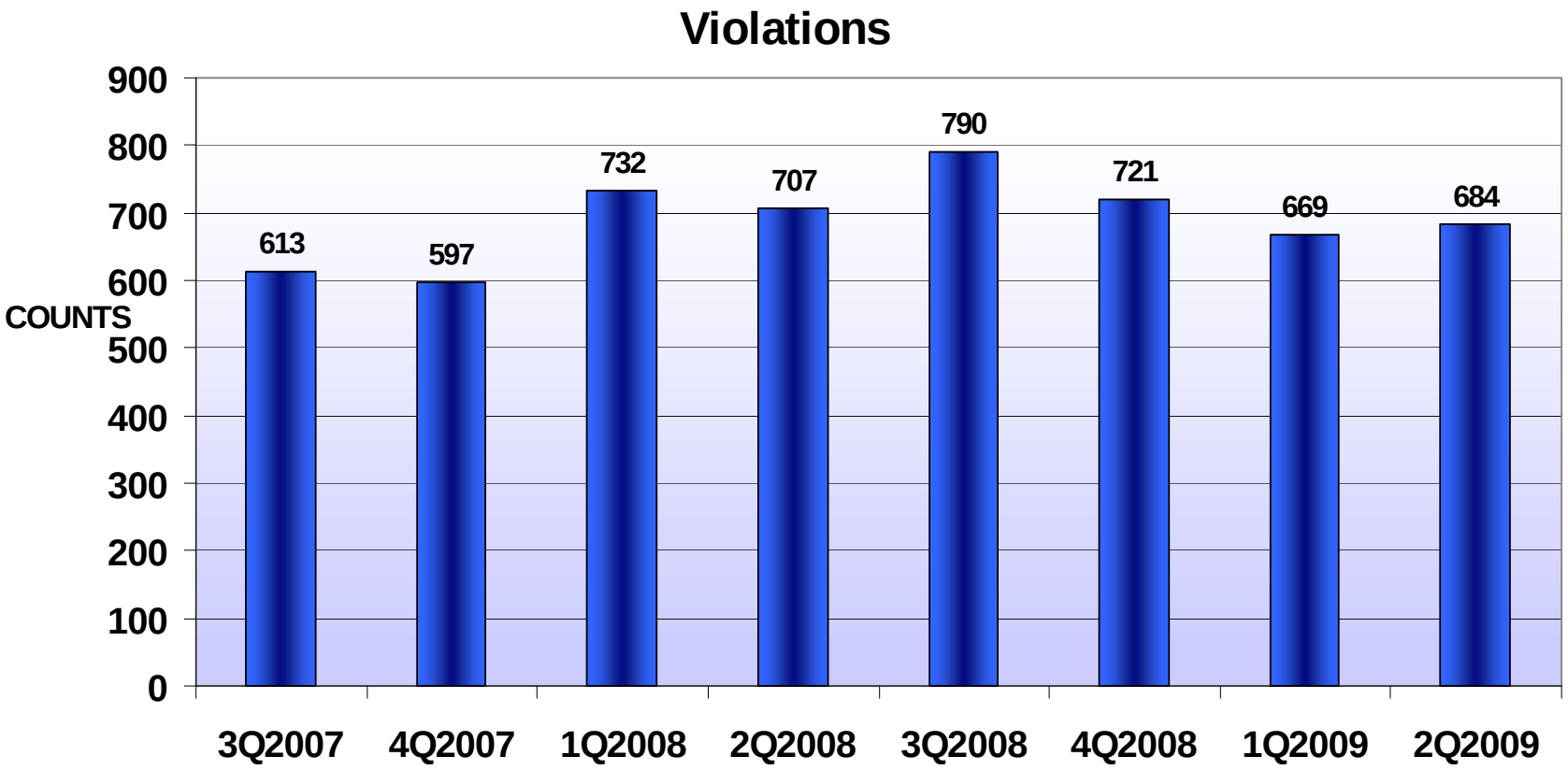
* Weighting factors are listed in Appendix A. Other characteristics of a violation are not considered in the weighting factors (e.g., time horizon, entity size).

Violation Risk Assessment

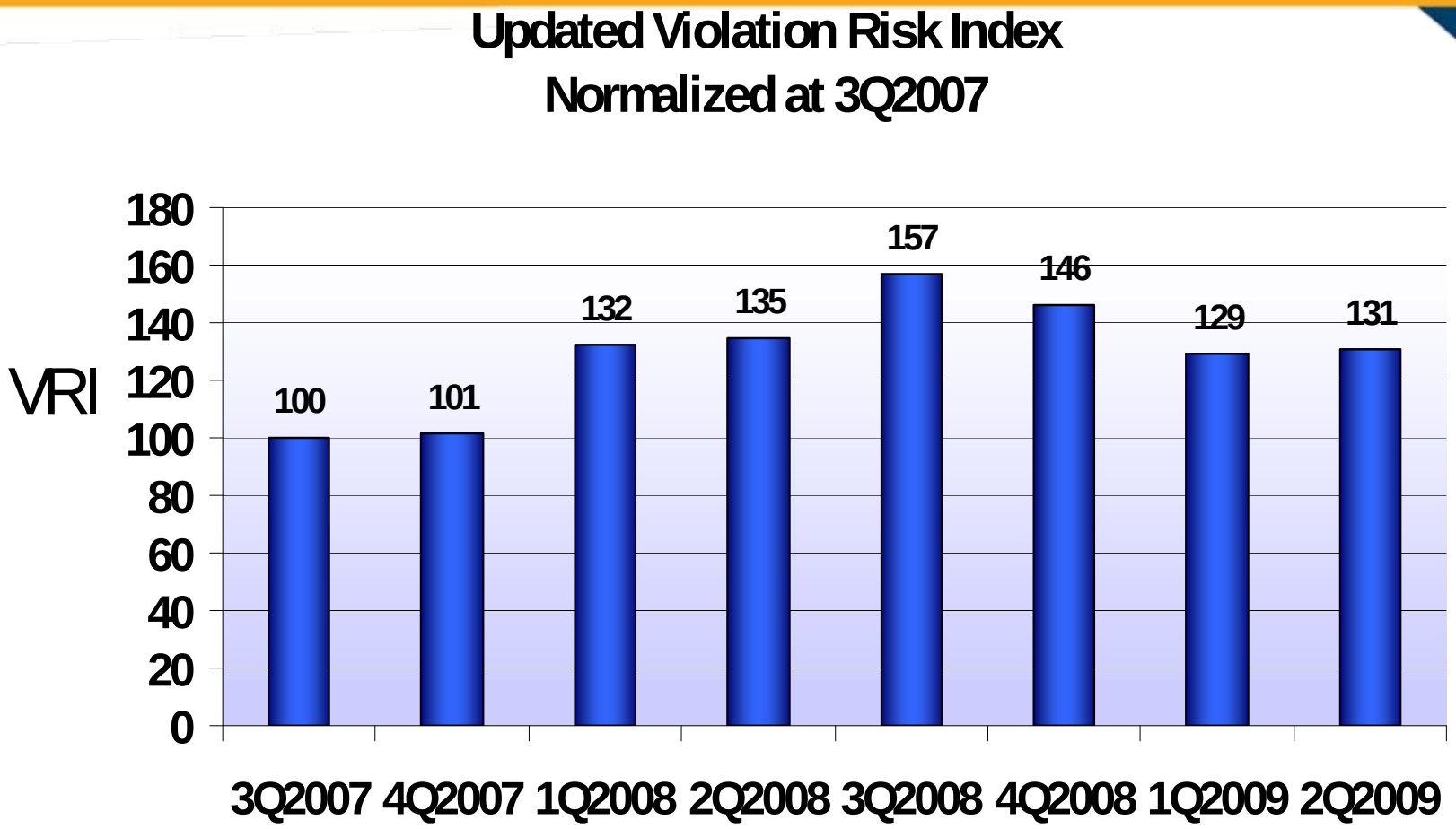
- Level of BPS reliability as a function of Standard Requirement violations
  - Unmitigated violations of Requirements with high risk factors increase the VRI more than low risk factors
  - Potential consequences of a specific unmitigated violation can be assessed compared to the overall VRI

Updated VRI Trends

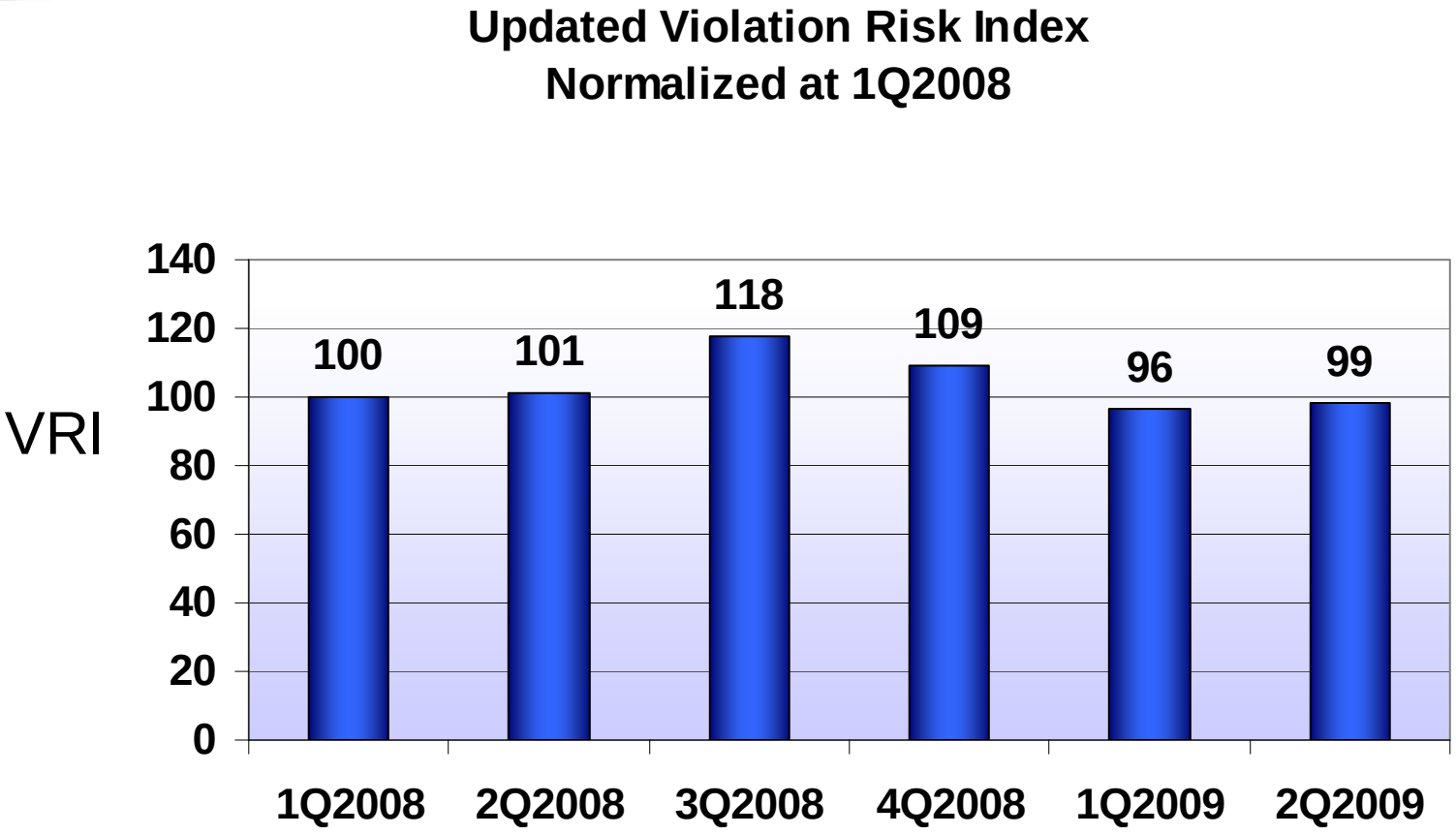
NERC Unmitigated Violations
(6/18/07 to 06/30/09)



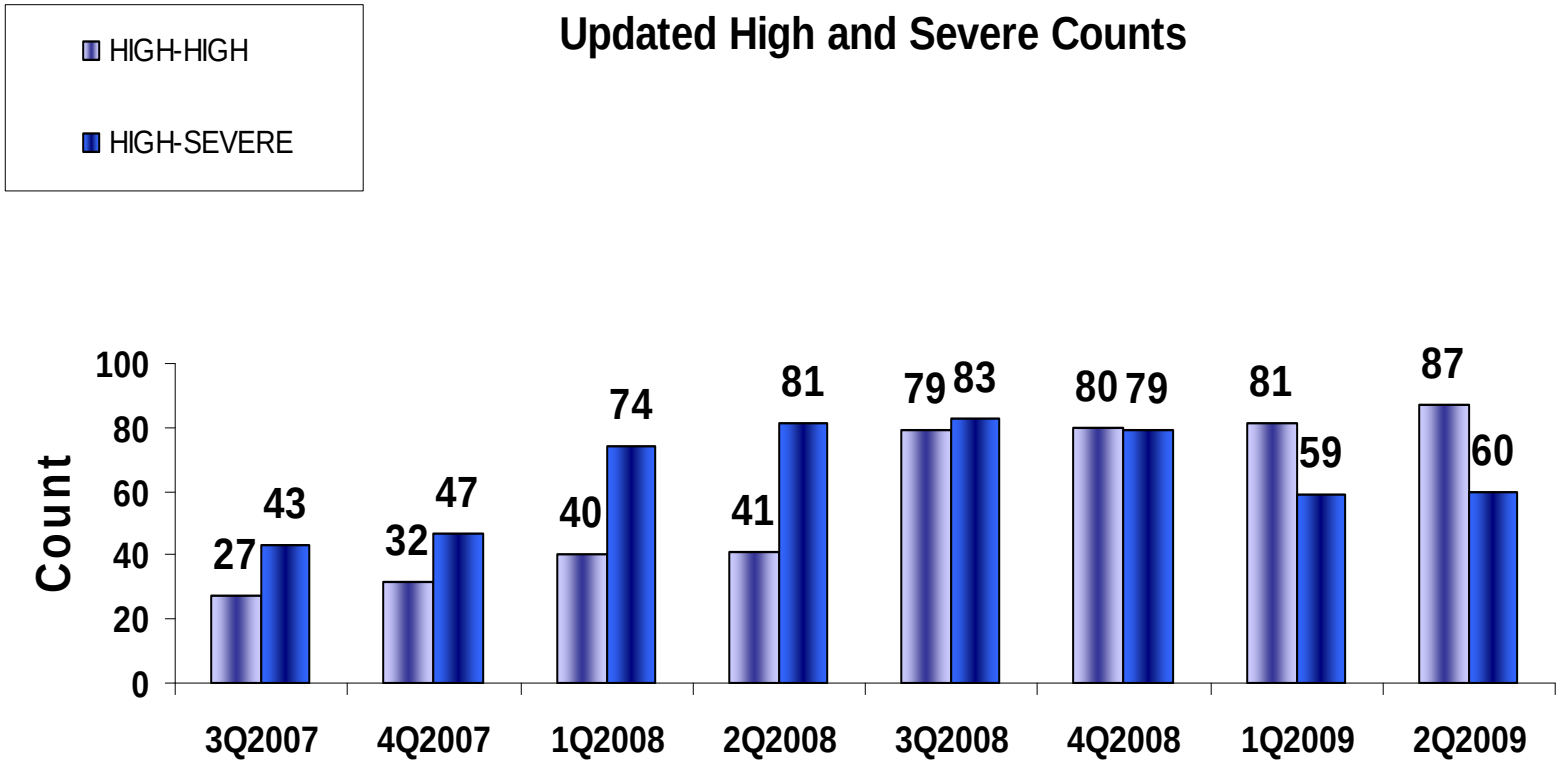
Relative Performance Measurement



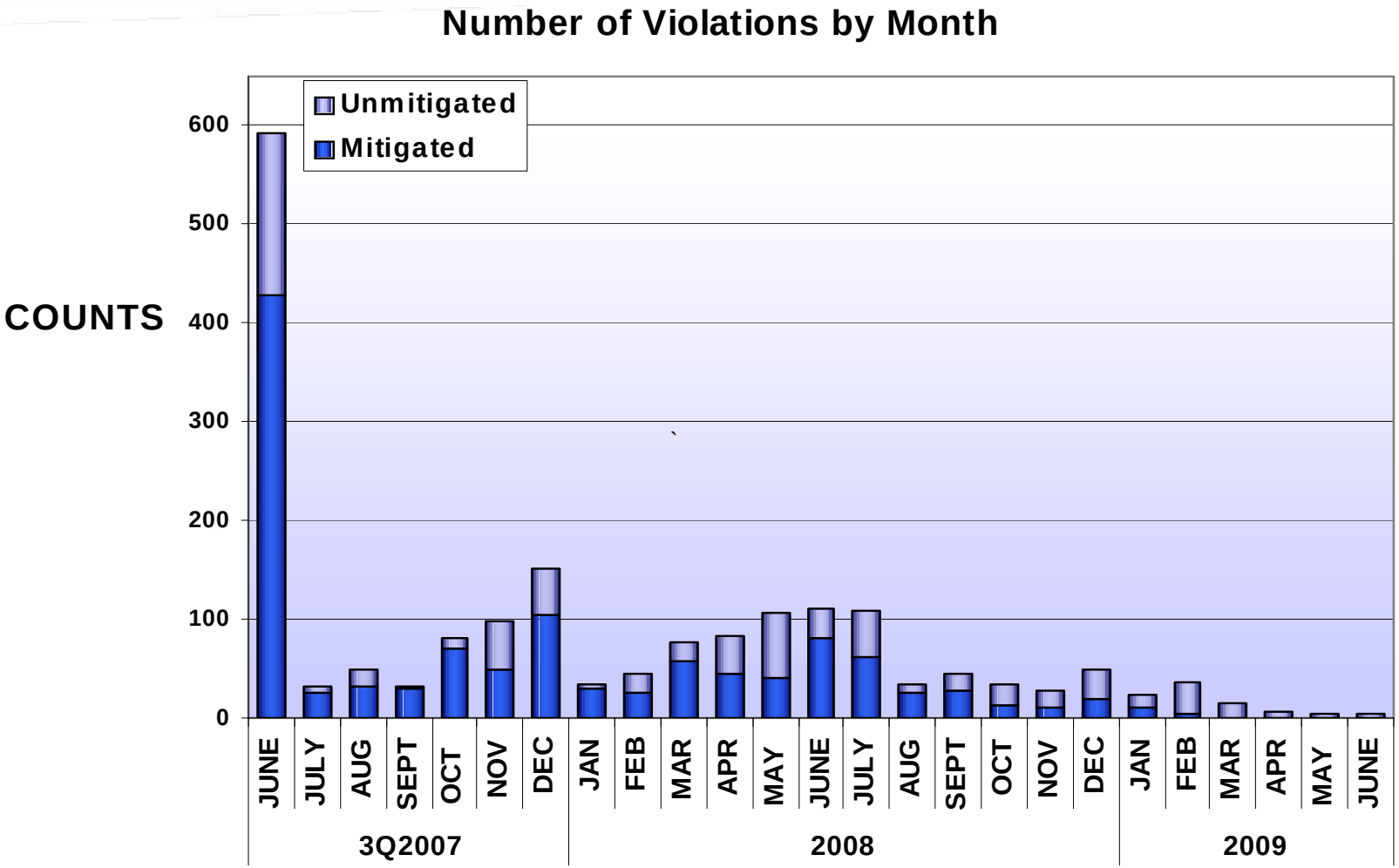
Violation Risk Index – Starting 2008



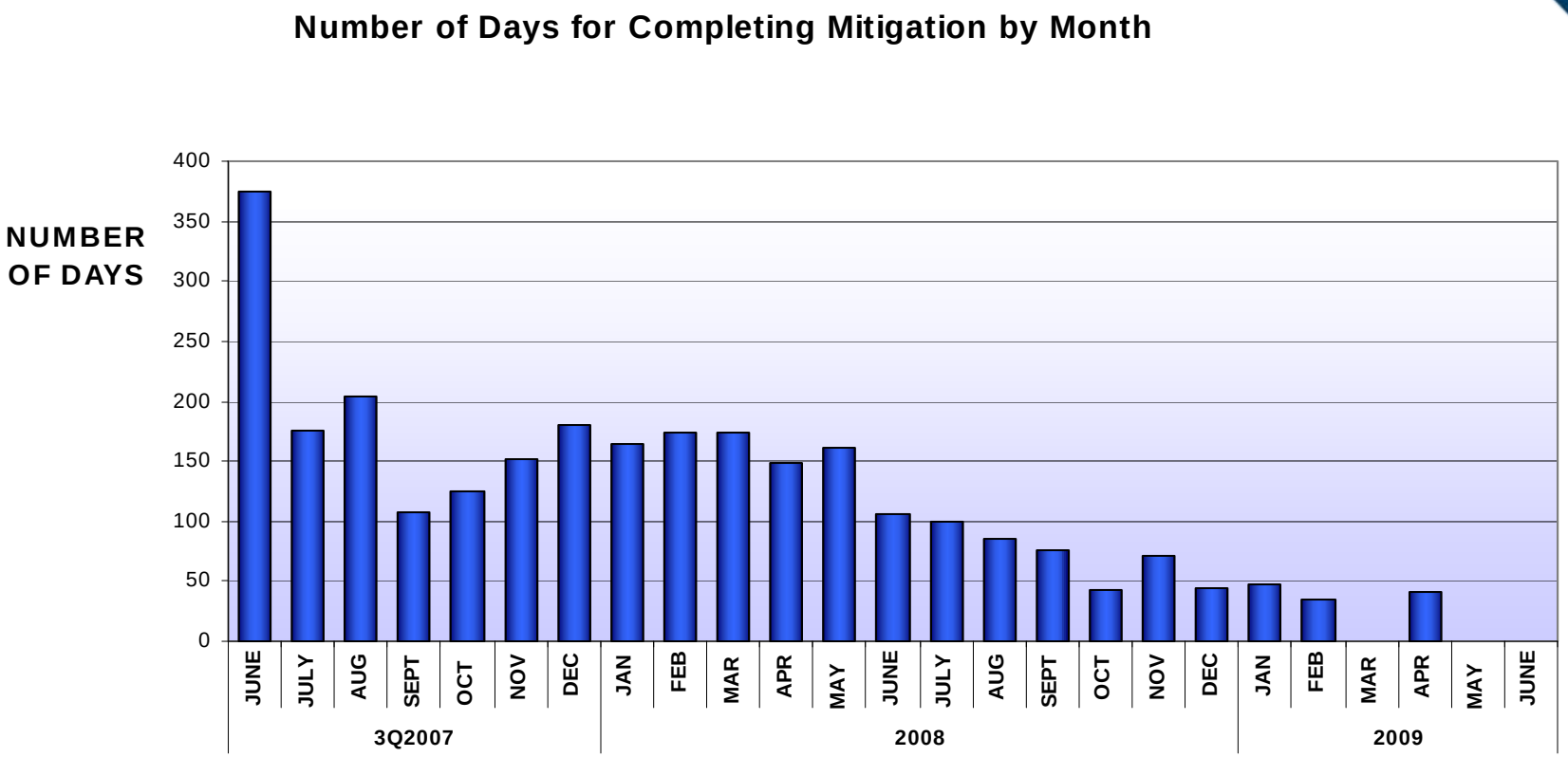
VRF High & VSL High/Severe Unmitigated Violations



Number of Violations by Month



Average Number of Days for Completing Mitigation Plans



Monthly Reported Violation Trends

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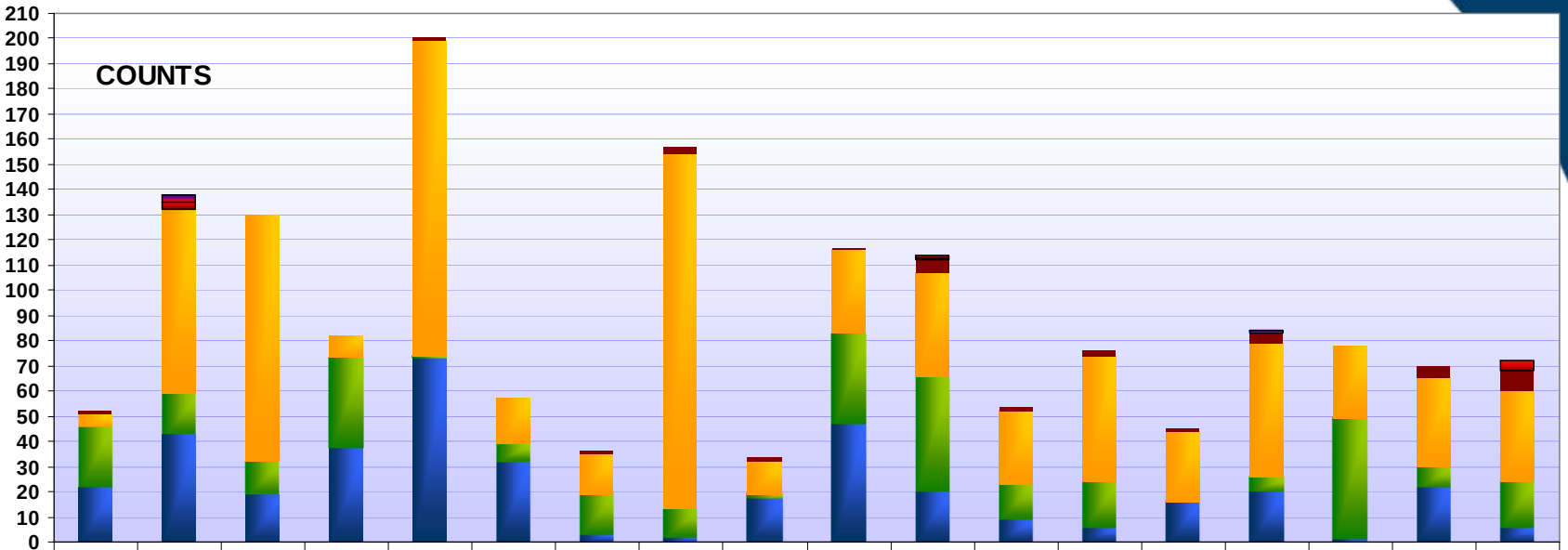
Monthly Reported Violation Trend By Discovery Method & Year



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE
	2008												2009					
Exception		3													1			0
Investigation		3									1							4
Periodic											1							0
Spot Check	1	0	0		1		1	3	2	1	5	2	2	1	4		5	8
Self-Report	5	73	98	9	125	18	16	141	13	33	41	29	50	28	53	29	35	36
Self-Certification	24	16	13	35	1	7	16	11	2	36	46	14	18		6	48	8	18
Audit	22	43	19	38	73	32	3	2	17	47	20	9	6	16	20	1	22	6

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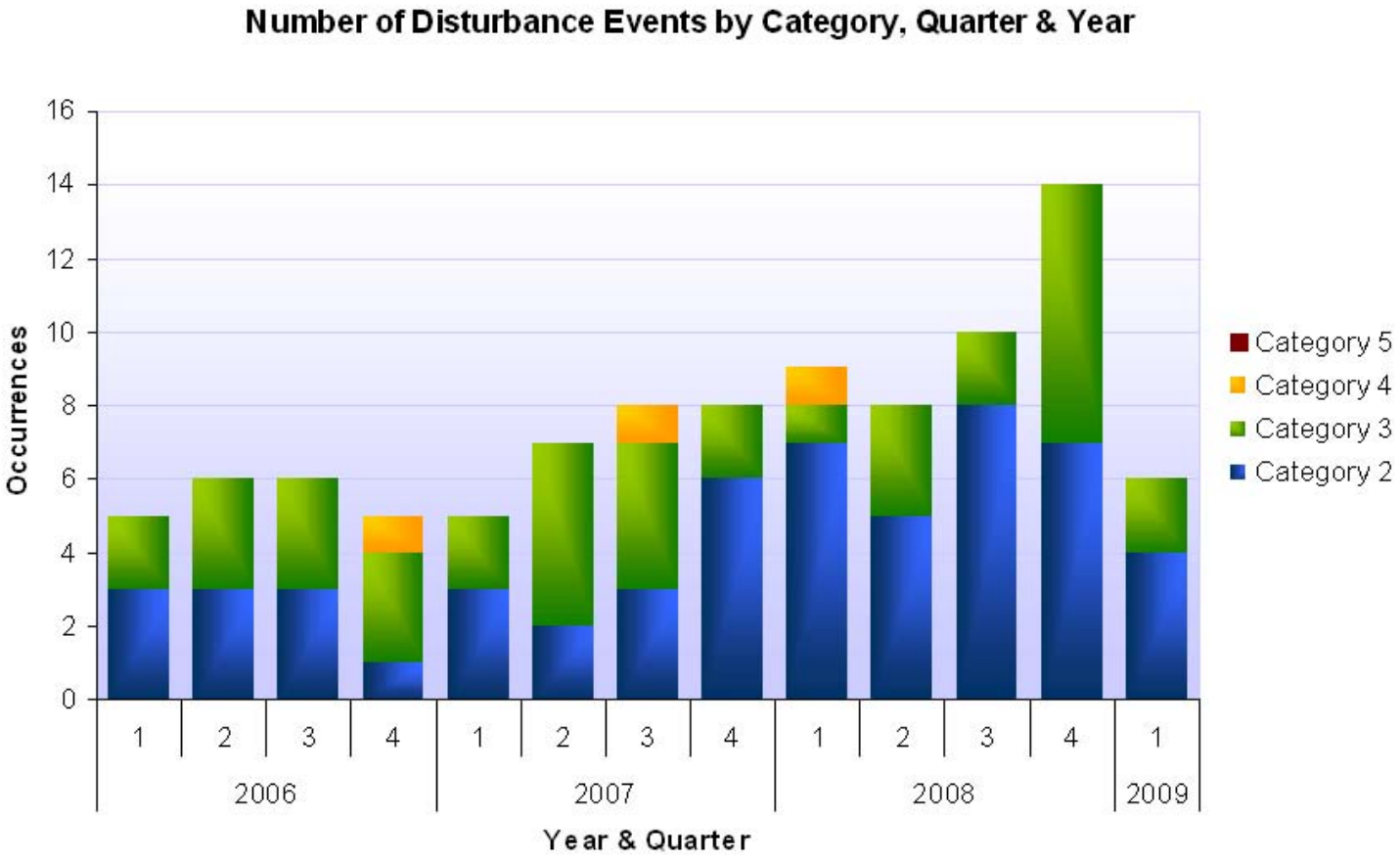
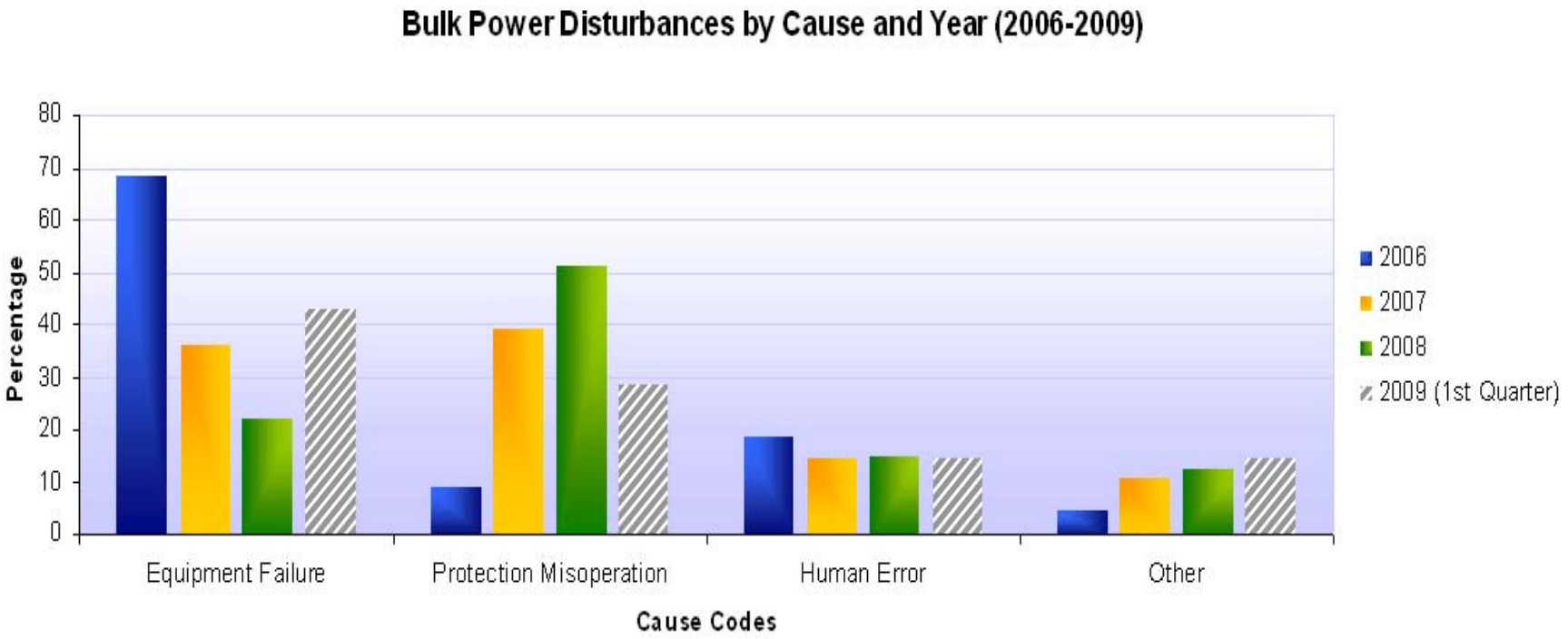
Other Two Reliability Indicators

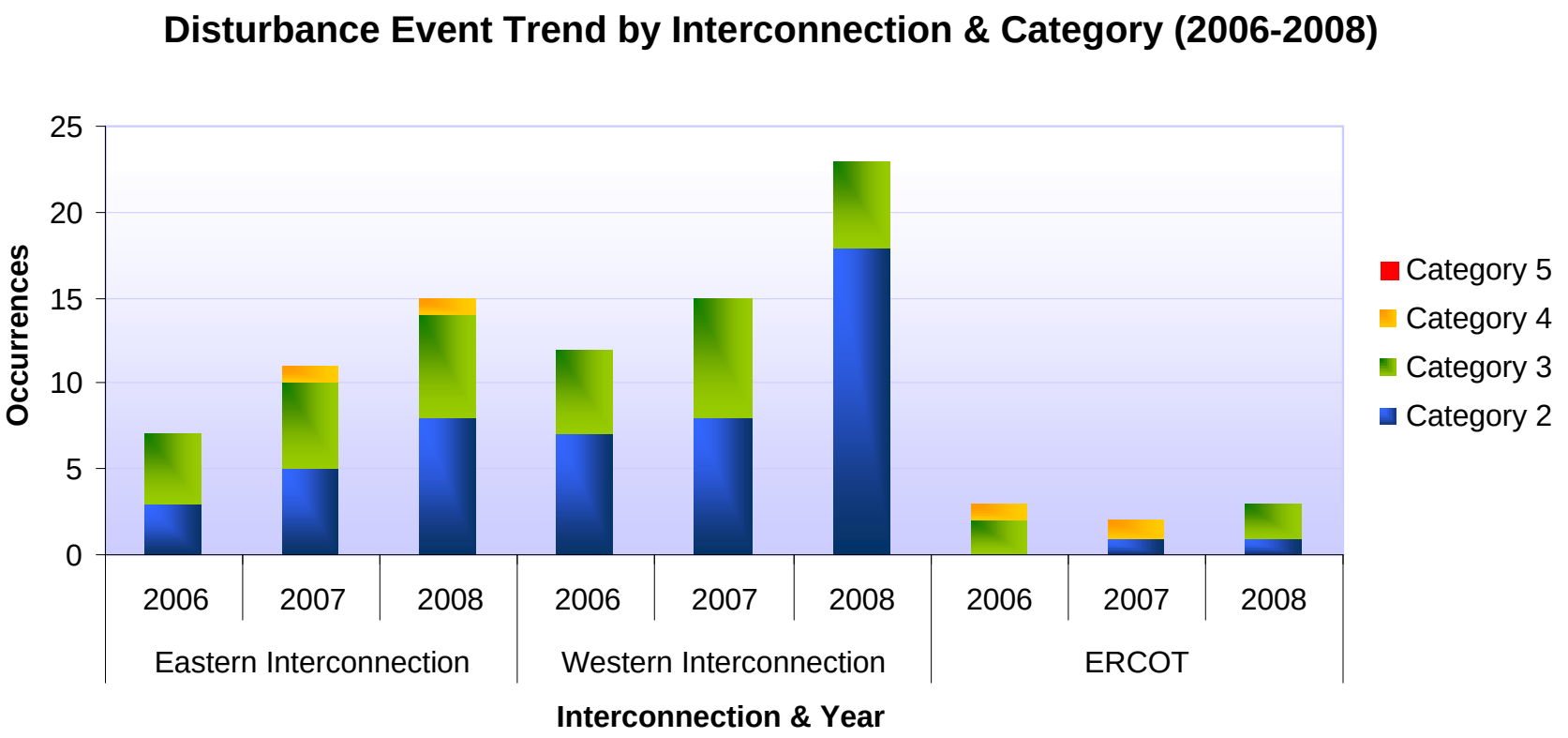
Reliability Performance Gap



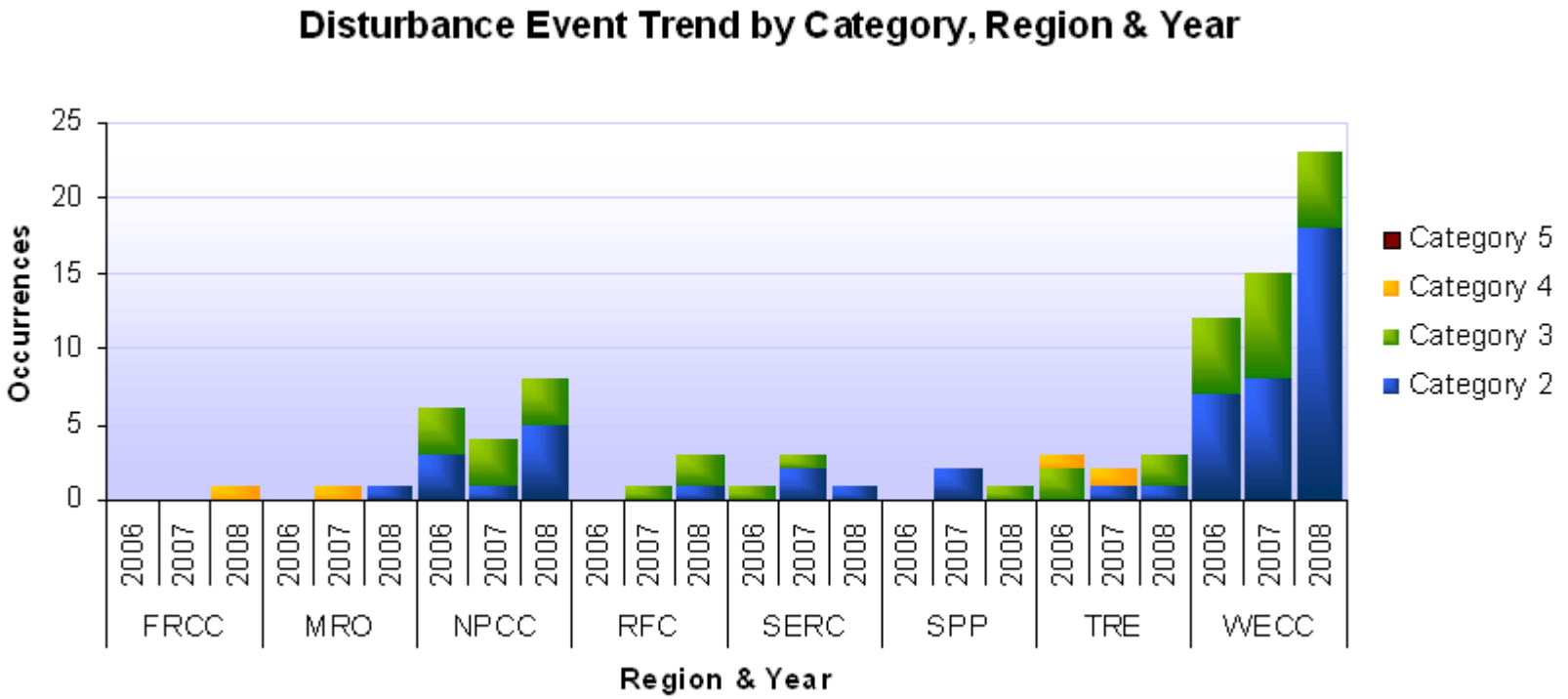
Three Leading Root Causes



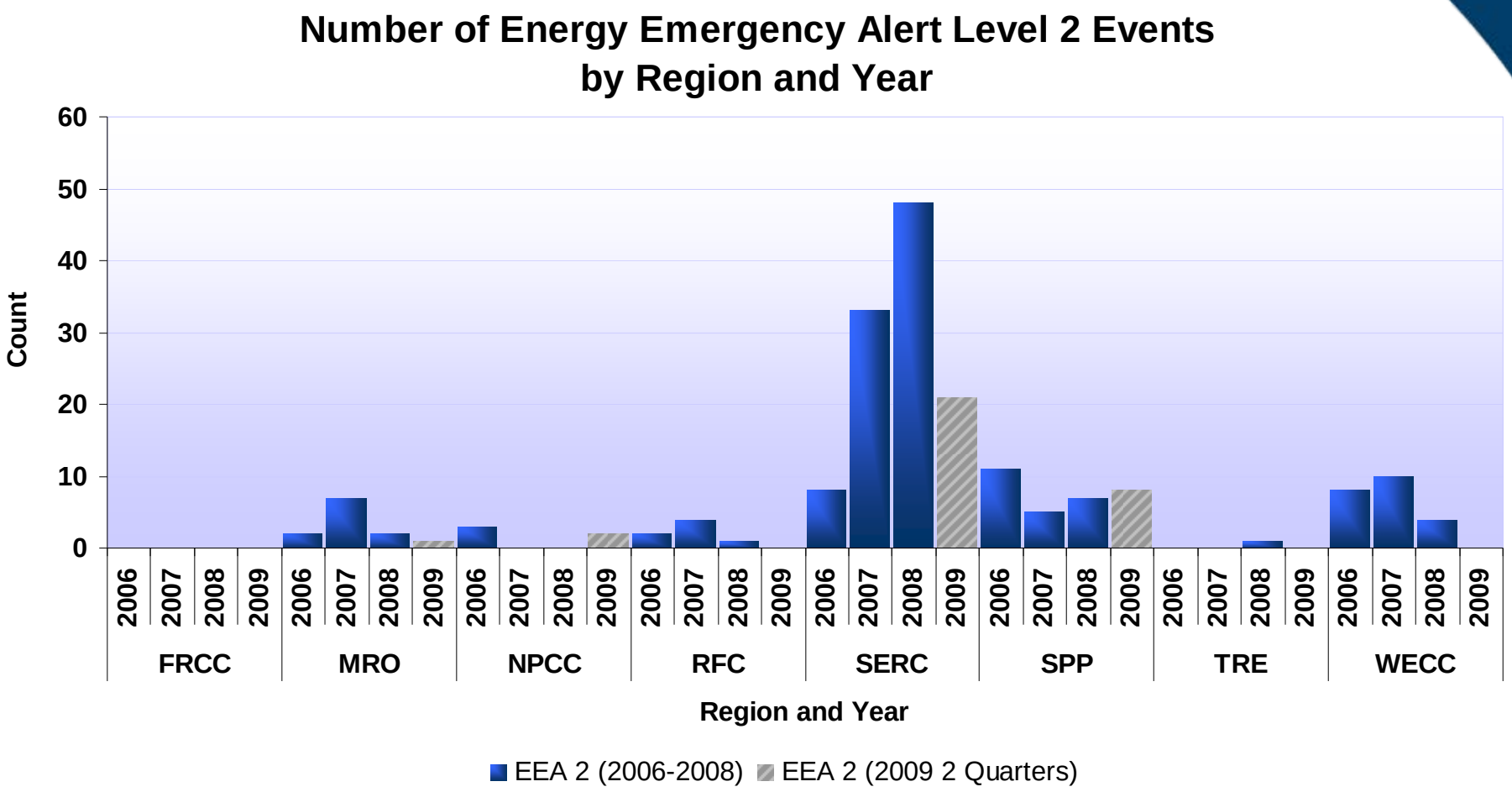
Performance Gap by Interconnection



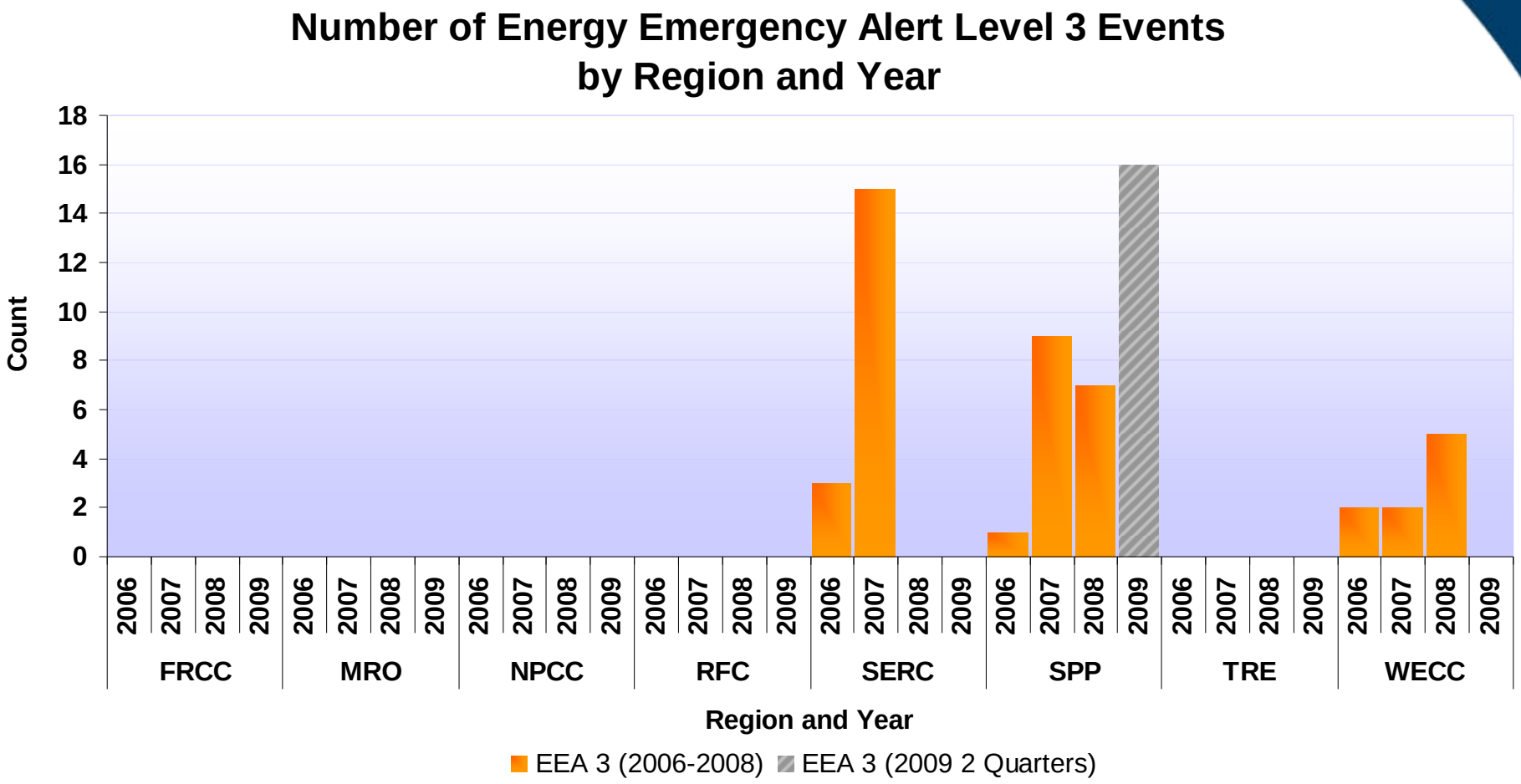
Performance Gap



Adequacy Gap



Adequacy Gap



Key Findings and Recommendations

Key Findings

- Violation risk indicator takes a turn for the better
  - Risk to BPS was reduced two consecutive quarters (Starting 4th quarter of 2008)
  - Number of worst violations decreased by 28% from the peak (Unmitigated high VRF and severe VSL violations)
- Number of monthly reported violations stabilized in 2009: CMEP process, from violation discovery to mitigation completion, is working
- The growing trend of unmitigated high VRF and high VSL violations remains a concern

Recommendations

- Create an ongoing industry “feedback” focused on BPS reliability improvement
- Focus on mitigating violations with high VRFs first, reducing the risk to BPS reliability
  - Top 3: PRC-005, FAC-003, VAR-001
- Share implemented mitigation plans for medium and low VRFs to accelerate backlog processing
  - Top 5:CIP-001,FAC-008,TOP-002,FAC-009,VAR-002
  - Fastest growing violation: CIP-004

Recommendations

- Provide training and education
  - Webinars, workshops and templates
- Gain industry input and acceptance of VRI
- Use VRI as a metric for performance assessment

Appendix A

Appendix A

- Violation Weighting Factor Table

	Violation Severity Level			
Violation Risk Factors	**Lower**	**Moderate**	**High**	**Severe**
Lower	0.012987	0.025974	0.038961	0.06493
Medium	0.025974	0.051948	0.077922	0.12987
High	0.051948	0.103896	0.155844	0.25974

Note:
1. The weighting values are derived by applying similar ratios developed in the Base Penalty Amount Table described in section 4 of the ERO Sanction Guidelines, Appendix 4B to the NERC Rules of Procedure.
2. Reference materials are available in a NERC white paper “Toward Ensuring Reliability: Reliability Performance Metrics”. It can be viewed at: http://www.nerc.com/docs/pc/rmwg/Reliability_Metrics_white_paper.pdf.

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Item 5
Supplement

Compliance Program Status
Canadian Alleged Violations

Board Compliance Committee

August 4, 2009

to ensure the reliability of the bulk power system

Reliability Standard Violations – Canada

- Reliability Standards are in varying states of enforceability in Canada
  - Fully enforceable in some provinces
  - In process of achieving enforceability in others
- 13 Total Violations to date
  - 5 from Canadian entities in NPCC
  - 6 from Canadian entities in MRO
  - 2 from Canadian entities in WECC

Canadian Violations Identified

- There have been confirmed violations in Canada by Canadian entities for three NERC standards: PRC-005-1; FAC-003-1 and TOP-004-1
  - Confirmed violations are those violations for which the Cross Border Regional Entity (WECC, MRO or NPCC) has issued a Notice of Confirmed Violation or reached a Settlement with the entity in question
  - Mitigation plans were implemented for all of the confirmed violations of FAC-003-1, PRC-005-1 and TOP-004-1

Mitigation of Violations

- Mitigation of violation of PRC-005-1 included such actions as:
  - Documenting an existing maintenance plan which has been in place "for decades."
  - Transition to a new maintenance and testing program administered in a "centralized maintenance management system (CMMS).
- Mitigation of violation of TOP-004-1 included such action as:
  - implementing changes to AGC/SCADA to address system shortcoming
  - Provide training to System Operators on... implementing activation of contingency reserve... with emphasis on addressing the evaluation of conflicting data during system events

Mitigation of Violations

- Mitigation of violation of FAC-003-1 included such actions as:
  - Implementation of annual aerial patrols
  - Additional training to field staff, including: review of acceptable practices; reinforcement that tree height is the ultimate measure of a potential hazard; removal of discretion from vegetation management activities
  - Research, develop and implement a process by which to revise calculations in a current computer modeling program to determine tree growth along and under transmission right of ways; validate the program's results from field survey results

Compliance Violation Investigations

- NERC and Regional Entities, in conjunction with Canadian provinces, have conducted CVIs in Canada
- Issues
  - Cross border investigations
    - Sharing of data with regulators continues to be problematic
    - Coordination of meetings due to inability to share data
    - Delayed the completion of CVIs by at least 3 months

International Power Lines

- National Energy Board of Canada
  - Responsible for permitting International Power Lines
  - Reporting procedure developed and implemented for reporting violations of reliability standards on International Power Lines
  - Requires greater granularity to the facility level vs. registered entity level.

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Backlog Omnibus Filing

Board of Trustees Compliance Committee

August 4, 2009

to ensure the reliability of the bulk power system

OVERVIEW

- NERC and Regional Entities are working on a Backlog Omnibus Filing
- Purpose
  - To address through a one-time filing older violations that pre-date FERC's July 3, 2008 Order
  - Help reduce the backlog to allow Regional Entities to focus on the more serious violations.
- Approximately 500 violations are under consideration for inclusion in the filing
- Target filing date is fourth quarter 2009

FILING FEATURES

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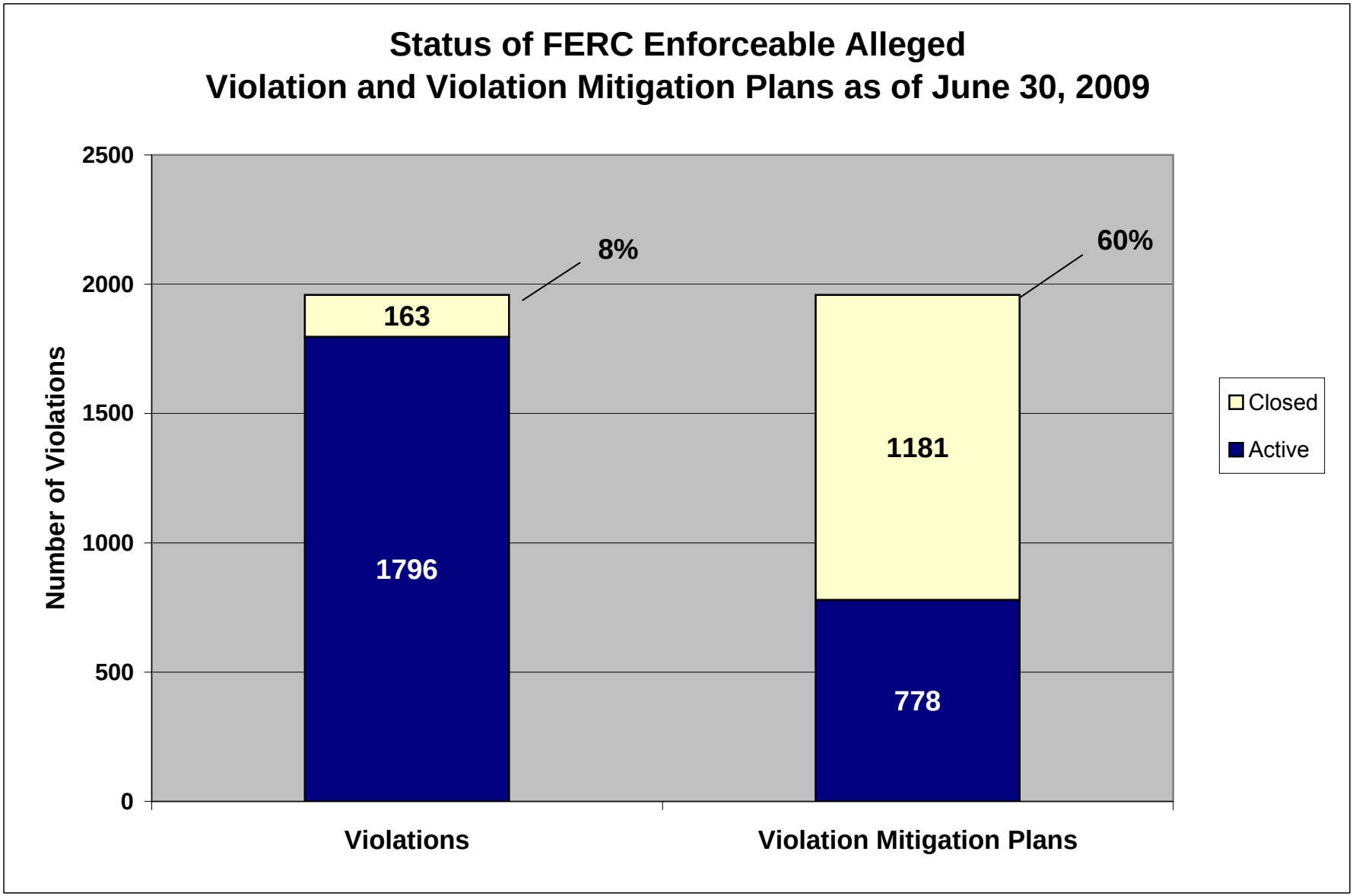
- Key features of the Backlog Omnibus Filing are:
  - This filing will be limited to violations that occurred from June 18, 2007 through July 3, 2008
  - Violation candidates must not have posed a serious or significant risk to the reliability to the bulk power system
    - Violation candidates include those with lower and medium VRFs
    - High VRF violations, such as those involving documentation issues, may be included if they meet the risk criteria

FILING FEATURES (CONT'D)

- For each Violation, there must be a completed Mitigation Plan
  - It must be certified by the Registered Entity and verified by the Regional Entity as completed
- May include non-zero ($0) dollar enforcement actions

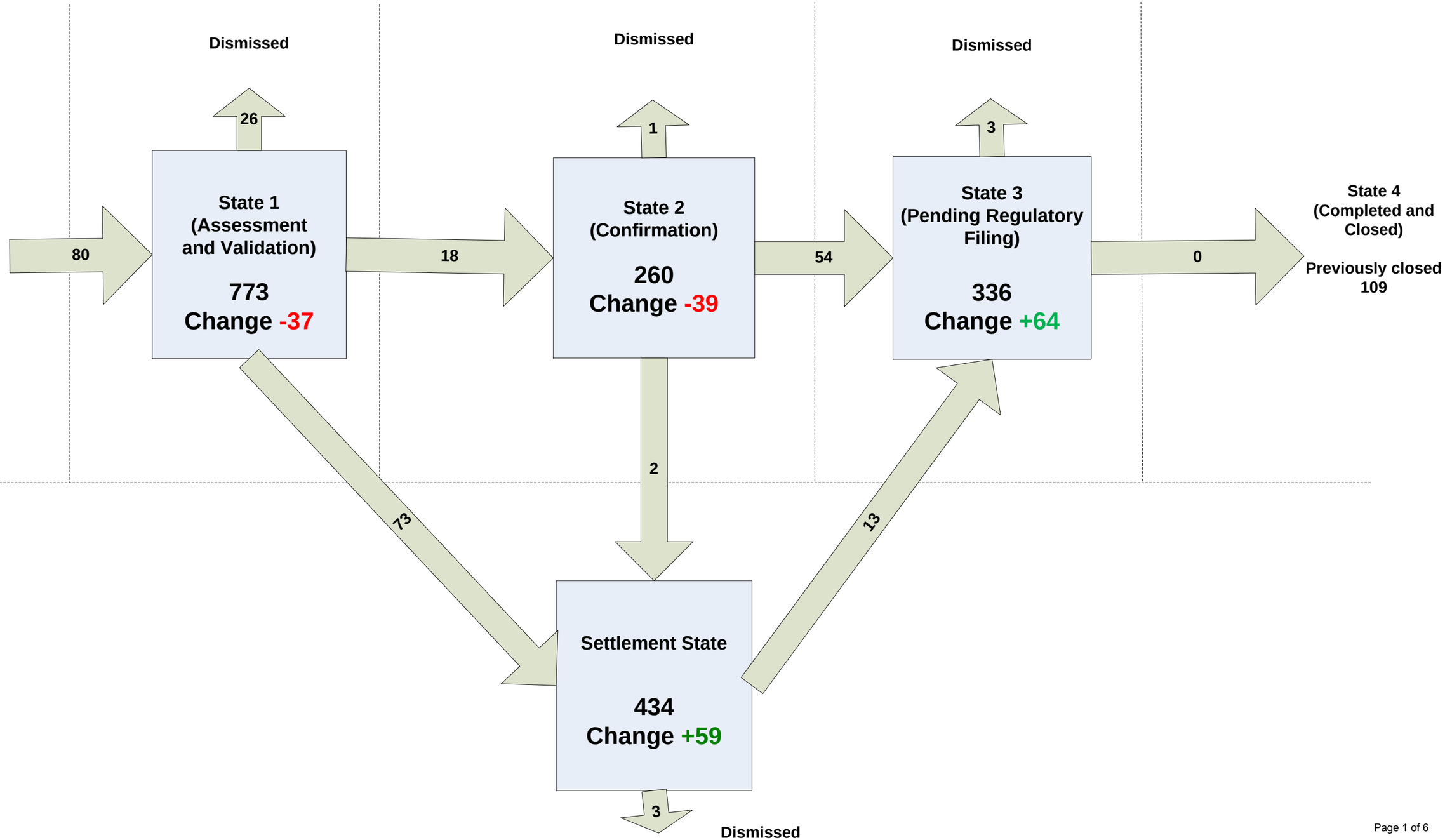
NEXT STEPS

- Next steps
  - Regional Entities have identified potential violation candidates
    - Preparing the support for the violation candidates to be included in the filing
    - Working to ensure Mitigation Plans are in place and to verify completion of Mitigation Plans
    - Final candidates will be submitted to NERC in August or early September, 2009
  - The NERC Board of Trustees Compliance Committee ultimately will review and approve the violations to be included in the filing
  - The filing will be submitted to the Federal Energy Regulatory Commission during the fourth quarter of 2009


Status of FERC Enforceable Alleged
Violation and Violation Mitigation Plans as of June 30, 2009
Number of Violations
2500
2000
1500
1000
500
0
8%
60%
163
1796
1181
778
Closed
Active
Violations
Violation Mitigation Plans

Violation Process States

Snapshot comparison between April 1, 2009 and April 30, 2009



Pending Violations Summary by Process Steps
FERC Enforceable Alleged Violations Summarized by State

Below is a breakdown, as of April 30, 2009, of the Compliance Monitoring and Enforcement Program (CMEP) Violation Process Steps summarized by State for the 1803 FERC enforceable violations.

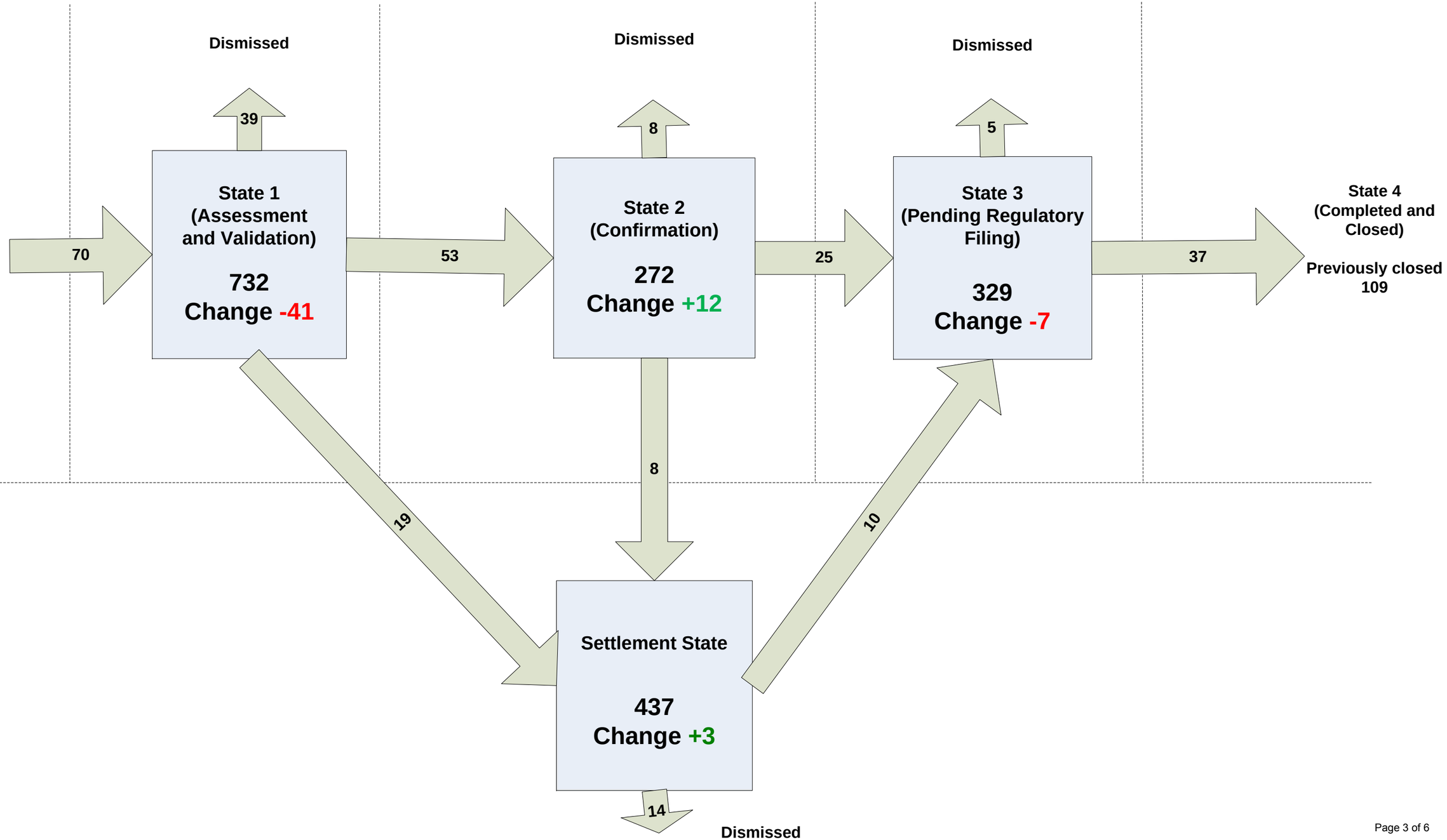
	STATE 1	STATE 2		STATE 3	STATE 4		
	Assessment and Validation	Confirmation	Settlement Negotiations	Pending Regulatory Filing	Completed and Closed (Previous 12 Months)		
Region						Total Active	% Closed to Total
FRCC	11	3	81	52	0	147	0%
MRO	12	0	4	40	7	56	11%
NPCC	0	0	29	17	12	46	21%
RFC	47	2	51	16	1	116	1%
SERC	33	1	77	43	74	154	32%
SPP	15	4	10	41	5	70	7%
TRE	18	0	13	23	10	54	16%
WECC	637	250	169	104	0	1160	0%
TOTAL	773	260	434	336	109	1803	6%

* Includes new violations received through 4/30/2009.

Report Date: 5/4/2009

Violation Process States

Snapshot comparison between May 1, 2009 and May 31, 2009



Pending Violations Summary by Process Steps
FERC Enforceable Alleged Violations Summarized by State

Below is a breakdown, as of May 31, 2009, of the Compliance Monitoring and Enforcement Program (CMEP) Violation Process Steps summarized by State for the 1770 FERC enforceable violations.

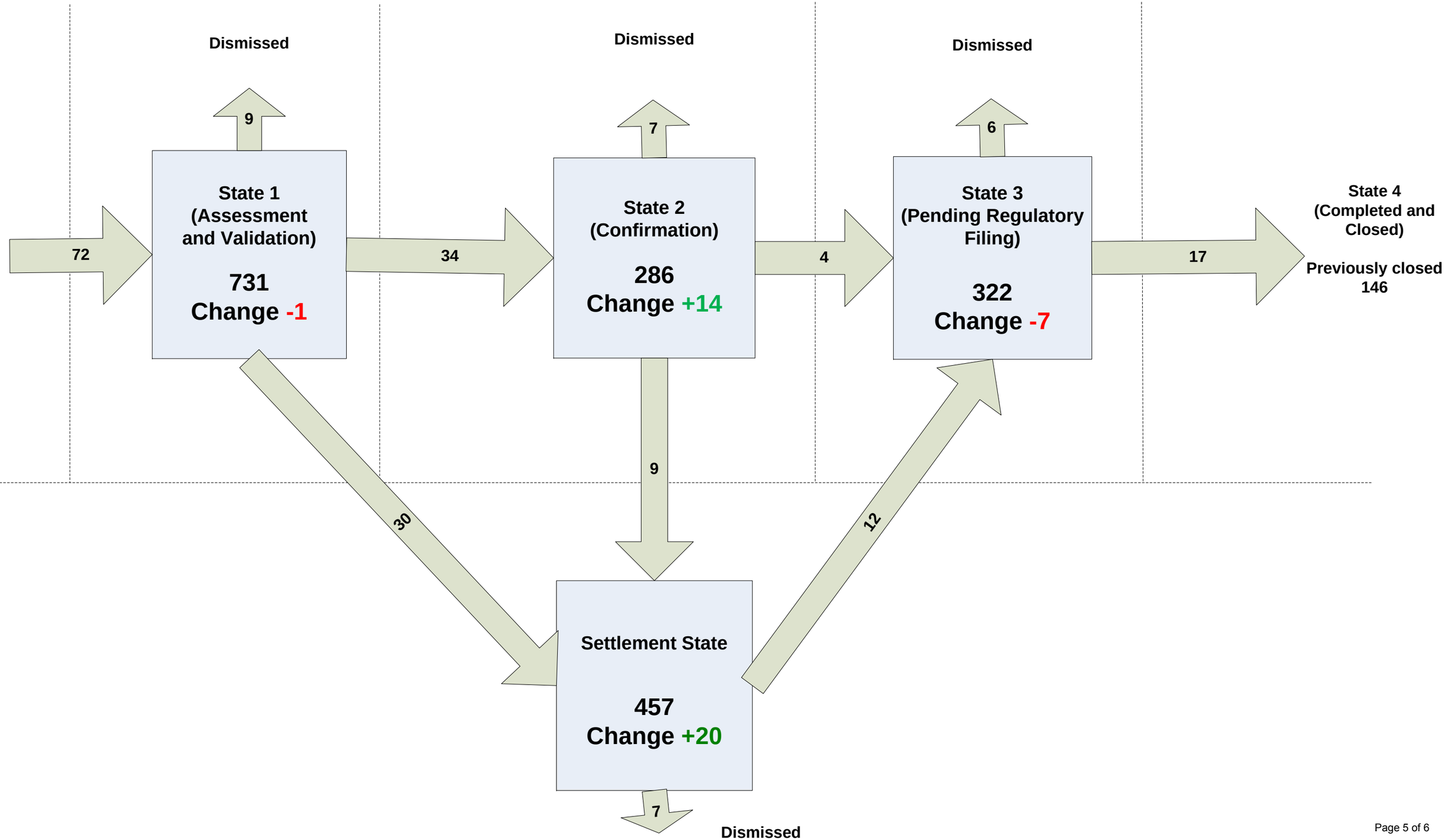
	STATE 1	STATE 2		STATE 3	STATE 4		
	Assessment and Validation	Confirmation	Settlement Negotiations	Pending Regulatory Filing	Completed and Closed		
Region						Total Active	% Closed to Total
FRCC	23	0	94	49	2	166	1%
MRO	20	0	4	37	10	61	14%
NCEA	3	0	0	0	0	3	0%
NPCC	0	0	29	16	13	45	22%
RFC	48	0	57	19	1	124	1%
SERC	43	1	73	29	93	146	39%
SPP	15	3	12	42	5	72	6%
TRE	18	0	13	11	22	42	34%
WECC	562	268	155	126	0	1111	0%
TOTAL	732	272	437	329	146	1770	8%

* Includes new violations received through 5/31/2009.

Report Date: 6/1/2009

Violation Process States

Snapshot comparison between June 1, 2009 and June 30, 2009



Pending Violations Summary by Process Steps
FERC Enforceable Alleged Violations Summarized by State

Below is a breakdown, as of June 30, 2009, of the Compliance Monitoring and Enforcement Program (CMEP) Violation Process Steps summarized by State for the 1959 FERC enforceable violations.

Region	Assessment and Validation	Confirmation	Settlement	Pending Regulatory Filing	Completed and Closed	Total	% Closed to Total
FRCC	16	0	104	48	2	170	1%
MRO	12	1	13	19	25	70	36%
NPCC	7	0	27	18	13	65	20%
RFC	51	0	62	19	2	134	1%
SERC	50	0	68	37	94	249	38%
SPP	21	3	12	42	5	83	6%
TRE	22	1	13	11	22	69	32%
WECC	546	281	158	128	0	1113	0%
NCEA	6	0	0	0	0	6	0%
TOTAL	731	286	457	322	163	1959	8%

* Includes new violations received through 6/301/2009.

Report Date: 7/1/2009

Summary of all Post June 18th Alleged Violations by Region

Below is a breakdown, as of June 30, 2009 of the Compliance Monitoring and Enforcement (CMEP) alleged violation summary for all 2836 violations.

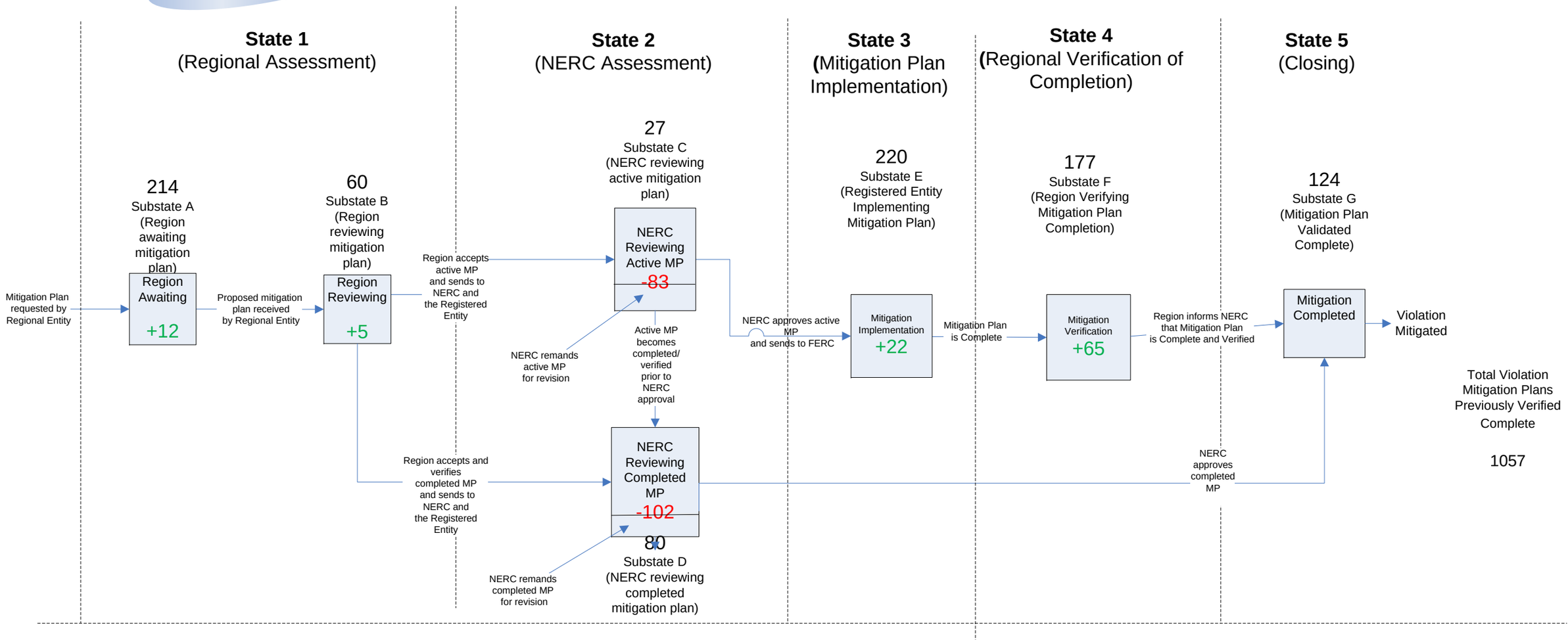
	Dismissed	Previously Closed	Newly Closed	FERC Enforceable			Total Canadian Violations	Total
				Total	Normalized by Registered Entity	% Non-Document Related		
FRCC	20	2	0	168	2.40	55%	0	190
MRO	23	10	15	45	0.38	51%	6	99
NPCC	9	13	0	52	0.19	29%	5	79
RFC	17	1	1	132	0.37	66%	0	151
SERC	43	93	1	155	0.69	53%	0	292
SPP	1	5	0	78	0.68	72%	0	84
TRE	4	22	0	47	0.21	83%	0	73
WECC	747	0	0	1113	2.39	54%	2	1862
NCEA	0	0	0	6	2.00	67%	0	6
TOTAL	**864**	**146**	**17**	**1796**	**0.98**	**56%**	**13**	**2836**

Includes new violations received through 6/30/2009.

Report Date: 7/1/2009

Mitigation Process States and Underlying Process Substates

Snapshot comparison between June 1, 2009 and June 30, 2009



Mitigation Plans Process State Table — Active FERC Enforceable Alleged Violations

Below is a breakdown, as of June 30, 2009, of the Compliance Monitoring and Enforcement Program (CMEP) Mitigation Plan "state" summary for the 902 active violations.

	State 1		State 2			State 3	State 4	State 5	
	(Regional Assessment)		(NERC Assessment)			(Mitigation Plan Implementation)	(Regional Verification of Completion)	(Closing)	
	Substate A	Substate B	Substate C		Substate D	Substate E	Substate F	Substate G	
Region	Region Awaiting	Region Reviewing	Accepted MP Not Received from Region	NERC Reviewing Active MP	NERC Reviewing Completed MP	Registered Entity Implementation	Regional Verification of MP Completion	Mitigation Plan Validated Complete	**Total**
FRCC	14	2	2	5	3	16	30	7	**79**
MRO	15	2	0	0	2	1	1	1	**22**
NPCC	7	19	0	0	1	0	13	0	**40**
RFC	36	0	0	0	0	19	54	0	**109**
SERC	47	2	0	0	2	4	11	0	**66**
SPP	14	0	0	3	0	31	0	0	**48**
TRE	24	0	0	2	0	5	1	0	**32**
WECC	54	32	0	15	72	144	67	116	**500**
NCEA	3	3	0	0	0	0	0	0	**6**
TOTAL	**214**	**60**	**2**	**25**	**80**	**220**	**177**	**124**	**902**
State Totals	**274**		**107**			**220**	**177**	**124**	

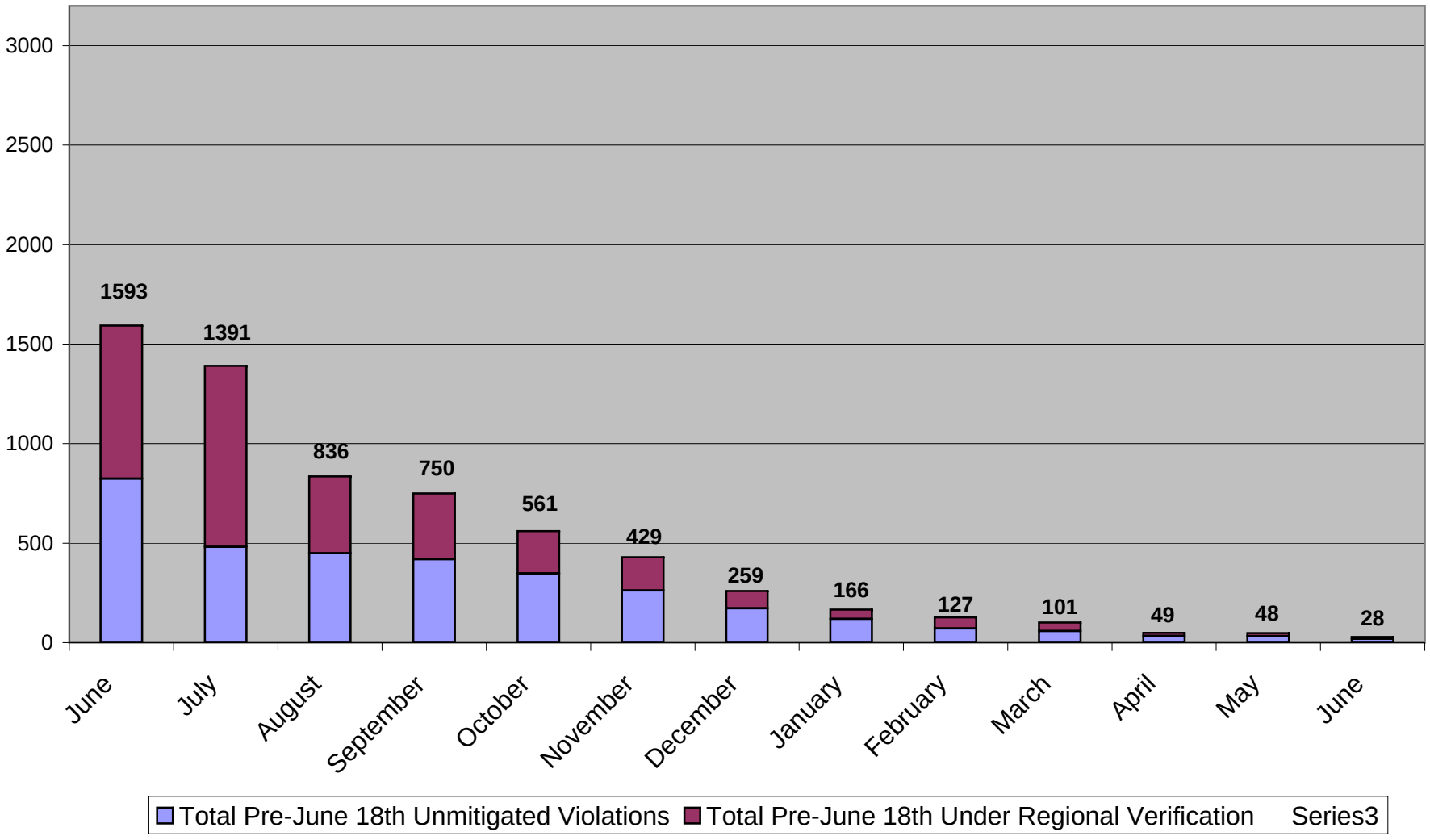
Definitions

Substate A = Region is still awaiting receipt of mitigation plan from Registered Entity.
Substate B = Region has received mitigation plan and is reviewing.
Substate C = NERC has received mitigation plan and is reviewing. Also includes any mitigation plans not yet received by NERC.
Substate D = Mitigation plan has been verified completed by the Region but is still awaiting approval by NERC.
Substate E = Mitigation plan has been approved by NERC, and sent to FERC, but has not been completed.
Substate F = Mitigation Plan has been completed per Registered Entity but is being verified by the Region.
Substate G = Mitigation plan has been verified completed by Region, has been approved by NERC, and sent to FERC.

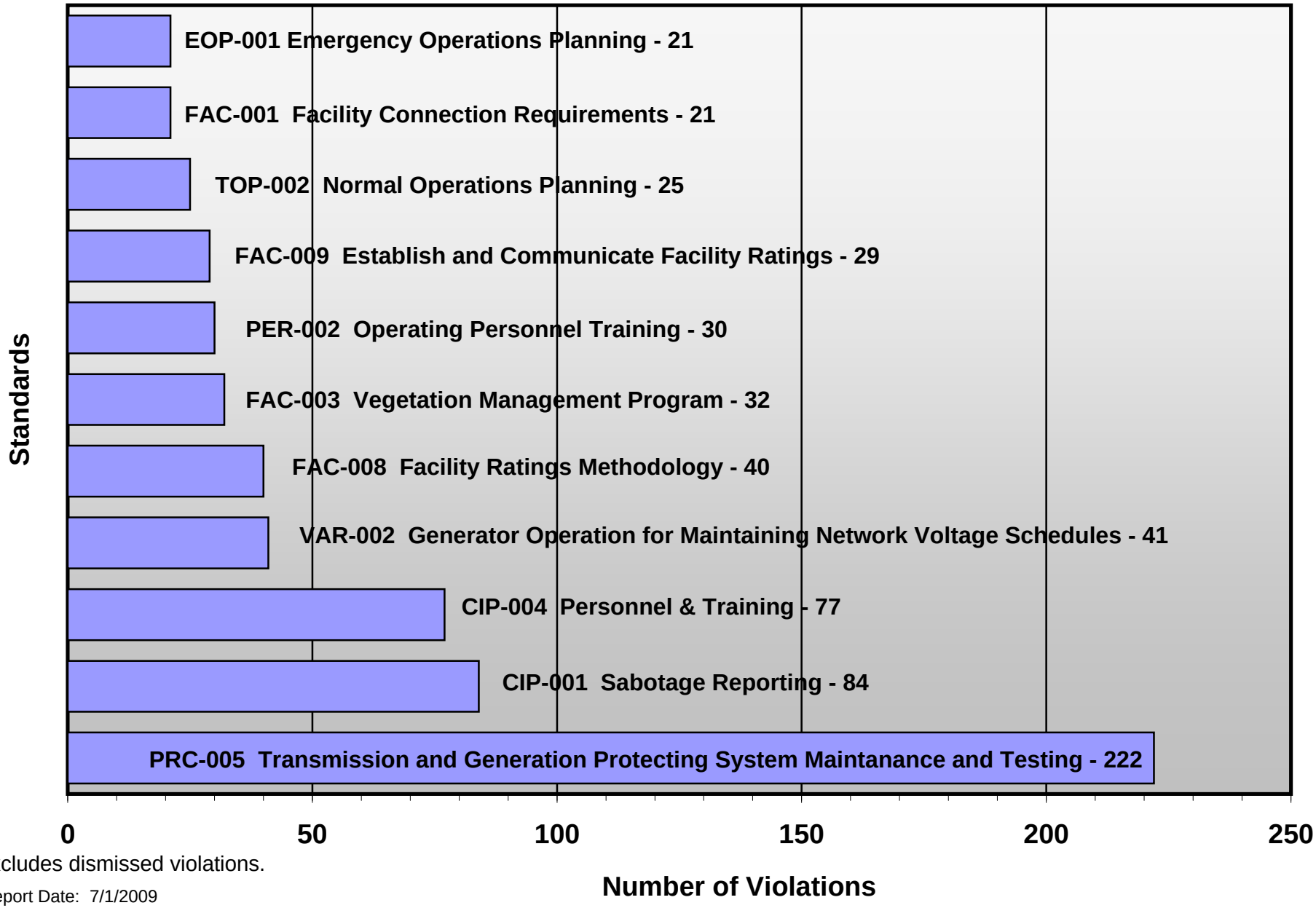
- Includes Mitigation Plans received through 6/30/2009.
- Mitigation information reported at the violation level.

Report Date: 7/1/2009

Progress with Pre-June 18th Violation Mitigation Plans



Top 11 FERC Enforceable Standards
(Submit Dates: 7/1/2008 thru 6/30/2009)



Excludes dismissed violations.

Report Date: 7/1/2009

CONFIDENTIAL (NON-PUBLIC)

Regional Outstanding Issues Summary Report

July 2, 2009

Table 1: Number of Alleged Violations without NAVAPS Received[1]

Region	< 50 days	50–100 days	101–200 days	201–300 days	> 301 days
FRCC	8	1		1	2
MRO	2	1	9		
NPCC	7				
RFC	15	4	10	21	1
SERC	19	11	1		19
SPP	6	4	9	2	
TRE	5		1	16	
WECC	33	81	89	102	241
NCEA	6				

Table 2: Mitigation Plan Accepted by Region but not received by NERC

Region	< 50 days	50–100 days	101–200 days	201–300 days	> 301 days
FRCC	2				

Table 3: Confirmed violations where the Region has not received a mitigation plan

There are no confirmed violations where the Region has not received a mitigation plan.

Table 4: Confirmed violations (NAVAPS accepted) where the Region has not provided a NOCV to NERC

Region	< 50 days	50–100 days	101–200 days	201–300 days	> 301 days
SPP					3
WECC	11	17	63	107	10

[1] Excludes alleged violations that have entered into settlement negotiations.