NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Consideration of Comments on Second Draft of Vegetation Management SAR (Project 2007-07)

The Vegetation Management SAR drafting team thanks all commenters who submitted comments on Draft 2 of the SAR. This SAR was posted for a 30-day public comment period from April 20 through May 9, 2007. The drafting team asked stakeholders to provide feedback on the SAR through a special SAR Comment Form. There were 27 sets of comments, including comments from 65 different people from more than 50 companies representing 7 of the 10 Industry Segments as shown in the table on the following pages.

Based on the comments received, the drafting team recommends that the Standards Committee advance this SAR to the standard drafting step of the standard development process. The drafting team made only one minor modification to the SAR to clarify (on page 2) that it is the ERO that will collect vegetation-related transmission outage data, not the SDT.

In this "Consideration of Comments" document stakeholder comments have been organized so that it is easier to see the responses associated with each question. All comments received on the standards can be viewed in their original format at:

http://www.nerc.com/~filez/standards/Vegetation-Management_Project_2007-7.html

If you feel that your comment has been overlooked, please let us know immediately. Our goal is to give every comment serious consideration in this process! If you feel there has been an error or omission, you can contact the Director of Standards, Gerry Adamski, at 609-452-8060 or at gerry.adamski@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.[1]

[1] The appeals process is in the Reliability Standards Development Procedures: http://www.nerc.com/standards/newstandardsprocess.html.

The Industry Segments are:

1 — Transmission Owners
2 — RTOs, ISOs
3 — Load-serving Entities
4 — Transmission-dependent Utilities
5 — Electric Generators
6 — Electricity Brokers, Aggregators, and Marketers
7 — Large Electricity End Users
8 — Small Electricity End Users
9 — Federal, State, Provincial Regulatory or other Government Entities
10 – Regional Reliability Organizations, Regional Entities

Commenter		Organization	Industry Segment									
			1	2	3	4	5	6	7	8	9	10
1.	Anita Lee (G1)	AESO		✓								
2.	Jay Farrington (G5)	Alabama Electric Coop.	✓									
3.	Randy Gann (G5) (G6)	Alabama Power	✓									
4.	Ken Goldsmith (G6)	ALT										✓
5.	Mary Hetz	Ameren	✓									
6.	Raymond Wiesehan (G5)	Ameren	✓									
7.	Thad Ness	American Electric Power	✓				✓	✓				
8.	John Neagle (G5)	Associated Electric Coop.	✓									
9.	William T. Rees, Jr.	Baltimore Gas & Electric										
10.	Dave Rudolph (G6)	Basin Electric Power Coop.										✓
11.	Brent Kingsford (G1)	CAISO		✓								
12.	John R. Kellum, Jr.	CenterPoint Energy	✓									
13.	Weston J. Davis	Central Maine Power	✓									
14.	CJ Ingersoll	Constellation (CEDC)			✓							
15.	Gene Walton	Dominion	✓									
16.	Gregory Rowland	Duke Energy	✓		✓		✓	✓				
17.	Billy George (G5)	Duke Energy, Carolinas	✓									
18.	Ralph Hale (G5)	Entergy	✓									
19.	Paul D. Olivier	Entergy Corporation	✓									
20.	Steve Myers (G1)	ERCOT		✓								
21.	Marc Tunstall (G5)	Fayetteville Public Works Comm.	✓									
22.	Doug Hohlbaugh	FirstEnergy Corp.	✓									
23.	John Tamsberg	Florida Power & Light Co.	✓									
24.	Nancy Huddleston (G6)	Georgia Power Co.	✓									
25.	Joe Knight (G6)	Great River Energy										✓
26.	Steve Burns (G6)	Gulf Power Co.	✓									

Commenter		Organization	Industry Segment									
			1	2	3	4	5	6	7	8	9	10
27.	Ken Trump (G6)	Gulf Power Co.	✓									
28.	David Kiguel	Hydro One Networks Inc.	✓									
29.	George Juhn	Hydro One Networks Inc.	✓									
30.	Roger Champagne	Hydro-Québec TransÉnergie (HQT)	✓									
31.	Ron Falsetti (I) (G1)	Independent Electricity SO		✓								
32.	Matt Goldberg (G1)	ISO-NE		✓								
33.	Kathleen Goodman (I) G2)	ISO-NE		✓								
34.	Robert Coish (I) (G6)	Manitoba Hydro	✓		✓		✓	✓				
35.	Terry Bilke (G6)	Midwest ISO										✓
36.	Mike Brytowski (G6)	Midwest Reliability Organization										✓
37.	Carol Gerou (G6)	Minnesota Power										✓
38.	Bill Phillips (G1)	MISO		✓								
39.	Steve Craig (G6)	Mississippi Power Co.	✓									
40.	Ron Reinike (G6)	Mississippi Power Co.	✓									
41.	Thomas E. Sullivan	National Grid	✓									
42.	Anthony Johnson	Northeast Utilities		✓								
43.	Mike Calimano (I) (G1)	NYISO		✓								
44.	Todd Gosnell (G6)	OPPD										✓
45.	Stephen Tankersley	Pacific Gas and Electric Co. (PGE)	✓									
46.	Alicia Daugherty (G1)	PJM		✓								
47.	Jack Gardner (G3) (G5)	Progress Energy Carolinas	✓									
48.	John Pinney (G3)	Progress Energy Florida	✓									
49.	Philip Riley (G4)	Public Service Commission SC									✓	
50.	Mignon L. Clyburn (G4)	Public Service Commission SC									✓	
51.	Elizabeth B. Fleming (G4)	Public Service Commission SC									✓	
52.	G. O'Neal Hamilton (G4)	Public Service Commission SC									✓	
53.	John E. Howard (G4)	Public Service Commission SC									✓	
54.	Randy Mitchell (G4)	Public Service Commission SC									✓	
55.	C. Robert Moseley (G4)	Public Service Commission SC									✓	

Commenter		Organization	Industry Segment									
			1	2	3	4	5	6	7	8	9	10
56.	David A. Wright (G4)	Public Service Commission SC									✓	
57.	John Wolfmeyer (G5)	SERC										✓
58.	Jerry Lindler (G5)	South Carolina E&G	✓									
59.	Roman Carter (G6)	Southern Transmission	✓									
60.	Charles Yeung (G1)	SPP		✓								
61.	Richard Dearman (I) (G5)	TVA	✓									
62.	Jeffrey S. Disorda	VELCO	✓									
63.	Jim Haigh (G6)	WAPA										✓
64.	Neal Balu (G6)	WPSR										✓
65.	Pam Oreschnick (G6)	Xcel Energy										✓

I – Indicates that individual comments were submitted in addition to comments submitted as part of a group
G1 – IRC Standards Review Committee (IRC SRC)
G2 – NPCC CP9 Reliability Standards Working Group (NPCC CP9)
G3 – Progress Energy Carolinas/Progress Energy Florida (PGN)
G4 – Public Service Company of South Carolina (PSC SC)
G5 – SERC Vegetation Management Subcommittee (SERC VMS)
G6 – Southern Company Transmission
G7– MRO Members

Index to Questions, Comments, and Responses

1. **Do you agree there is a reliability need for the proposed modifications and review of the standard?**

Summary Consideration: Most commenters noted that while the FAC-003-1 Standard is technically adequate, they believed that clarification in the form of a technical white paper, and review of applicability parameters is warranted. Many of these commenters also agreed with the need to update the standard to conform to new procedural requirements and inclusion of compliance elements. The SDT shall consider producing a white paper to aid in clarifying the intent of the standard.

Question #1			
Commenter	**Yes**	**No**	**Comment**
AEP		☑	AEP believes that the current standard (when thoroughly read and understood) is completely adequate to maintain a reliable transmission system with minimum risk of vegetation-related outages.
Response: The team concurs that the technical elements are generally adequate and there is no reliability need to revise the standard. However all NERC standards must be updated to comply with new procedural requirements and inclusion of compliance elements. The Standard DT will address the issues raised in the FERC's March 16, 2007 Order 693 - Mandatory Reliability Standards for the Bulk Power System. The SDT shall consider producing a white paper to aid in clarifying the intent of the standard.			
Baltimore Gas & Electric		☑	I'm not convinced that the elements outlined in the proposal will improve reliability and have concerns that the proposed modifications may actually reduce the flexibility that is necessary to promote system reliability or to comply with local regulations. I would prefer to see more specifics in the proposal before supporting the modifications.
Response: The team concurs that the technical elements are generally adequate and there is no reliability need to revise the standard. However all NERC standards must be updated to comply with new procedural requirements and inclusion of compliance elements. The Standard DT will address the issues raised in the FERC's March 16, 2007 Order 693 - Mandatory Reliability Standards for the Bulk Power System. The SDT shall consider producing a white paper to aid in clarifying the intent of the standard.			
CenterPoint Energy		☑	CenterPoint Energy does not agree that a revision to the TVM standard is necessary from a reliability standpoint, and believes that the existing TVM standard is adequate for that purpose.
Response: The team concurs that the technical elements are generally adequate and there is no reliability need to revise the standard. However all NERC standards must be updated to comply with new procedural requirements and inclusion of compliance elements. The Standard DT will address the issues raised in the FERC's March 16, 2007 Order 693 - Mandatory Reliability Standards for the Bulk Power System. The SDT shall consider producing a white paper to aid in clarifying the intent of the standard.			
Central Maine Power		☑	The current Vegetation Management Standard FAC-003-1 has been crafted in such a way as to provide crisp measurable standards that when followed will provide a high level of power quality for the bulk power delivery system. However, clearances between

Question #1			
Commenter	**Yes**	**No**	**Comment**
			conductors and trees required to prevent tree related power outages must be consistent with each utility's established standards and if a transmission line passes through federal, state or locally managed areas this line placement should not impact the established clearances. Utilities should not be expected to negotiate clearances with multiple land managers. The IEEE 516 – 2003 table is an acceptable table to use as the minimum clearance to prevent a flash over and outages. FAC-003-1 is designed to be a reliability standard and the industry adheres to OSHA and ANSI standards to protect workers and the public. The IEEE 516 – 2003 table lists appropriate distances that should be used to measure compliance. The standard should continue to provide the flexibility for utility managers to increase "Clearance 2". The definition for right-of-way should be clarified to include only the area that is cleared and included as routine maintenance. We agree that there is a need to establish time horizons and clarify violation levels.
Response: The team concurs that the technical elements are generally adequate and there is no reliability need to revise the standard. However all NERC standards must be updated to comply with new procedural requirements and inclusion of compliance elements. The Standard DT will address the issues raised in the FERC's March 16, 2007 Order 693 - Mandatory Reliability Standards for the Bulk Power System, including a review of the definition for right-of-way. The SDT shall consider producing a white paper to aid in clarifying the intent of the standard.			
Duke Energy		☑	From a reliability perspective, the current standard contains appropriate requirements and measures to ensure the Transmission Owner's vegetation management program is implemented and managed to ensure the reliability of the transmission system. However the standard should be revised to address non-reliability related items that are in the SAR.
Response: The SAR DT agrees and thanks you for the comment.			
HQT		☑	It is our belief that the Standard in its current form does provide adequate provisions and drivers to minimize vegetation related outages and eliminate the likelihood of reoccurence of the August 14, 2003 blackout. However, it is recognized that the industry needs to consolidate its view on these provisions and we support the preparation of a "white paper" that will document the rationale concerning the requirements of the standard, as well as review certain aspects of the standard that have come into question.
Response: The SAR DT agrees and thanks you for the comment.			

Question #1			
Commenter	**Yes**	**No**	**Comment**
Hydro One Networks		☑	It is our belief that the Standard in its current form does provide adequate provisions and drivers to minimize vegetation related outages and eliminate the likelihood of reoccurence of the August 14, 2003 blackout. However, it is recognized that the industry needs to consolidate its view on these provisions and we support the preparation of a "white paper" that will document the rationale concerning the requirements of the standard, as well as review certain aspects of the standard that have come into question.
Response: The SAR DT agrees and thanks you for the comment.			
National Grid		☑	National Grid believes that compliance with all elements of the present Standard will result in TO's achieving the reliability objectives set forth in the Standard.
Response: The SAR DT agrees and thanks you for the comment.			
Northeast Utilities		☑	Proposed modifications do not increase the levels of reliability above what is already required in the current version of the Stnadard.
Response: The team concurs that the technical elements are generally adequate and there is no reliability need to revise the standard. However all NERC standards must be updated to comply with new procedural requirements and inclusion of compliance elements. The Standard DT will address the issues raised in the FERC's March 16, 2007 Order 693 - Mandatory Reliability Standards for the Bulk Power System. The SDT shall consider producing a white paper to aid in clarifying the intent of the standard.			
PGN		☑	Progress Energy Carolinas and Progress Energy Florida are providing an answer to the question as it relates to the reliability need. The current standard contains appropriate requirements and measures to ensure the Transmission Owner's vegetation management program is implemented and managed to ensure the reliability of the transmission system. In addition, we do not believe that a standard with a zero tolerance for vegetation-related outages in the ROW is in need of reliability-based revisions. However, we do recognize the need for a revision of the standard to address non-reliability related items that are in the SAR. Procedural items such as formatting and clarifications, such as the definition of right-of-way, need to be, and should be, addressed.
Response: The team concurs that the technical elements are generally adequate and there is no reliability need to revise the standard. However all NERC standards must be updated to comply with new procedural requirements and inclusion of compliance elements. The Standard DT will address the issues raised in the FERC's March 16, 2007 Order 693 - Mandatory Reliability Standards for the Bulk Power System. The SDT shall consider producing a white paper to aid in clarifying the intent of the standard.			

Question #1			
Commenter	**Yes**	**No**	**Comment**
SERC VMS		☑	The SERC VMS is providing an answer to the question as it relates to the reliability need. The current standard contains appropriate requirements and measures to ensure the Transmission Owner's vegetation management program is implemented and managed to ensure the reliability of the transmission system. In addition, we do not believe that a standard with a zero tolerance for vegetation-related outages in the ROW is in need of reliability-based revisions. However the SERC VMS recognizes the need for a revision of the standard to address non-reliability related items that are in the SAR. Procedural items such as formatting and clarifications, such as the definition of right-of-way, need to be, and should be, addressed.
Response: The team concurs that the technical elements are generally adequate and there is no reliability need to revise the standard. However all NERC standards must be updated to comply with new procedural requirements and inclusion of compliance elements. The Standard DT will address the issues raised in the FERC's March 16, 2007 Order 693 - Mandatory Reliability Standards for the Bulk Power System. The SDT shall consider producing a white paper to aid in clarifying the intent of the standard.			
CECD	☑		Modifications to capture the Commissions concerns must be addressed therefore these actions are appropriate.
Response: The Standard DT will address the issues raised in the FERC's March 16, 2007 Order 693 - Mandatory Reliability Standards for the Bulk Power System.			
Dominion	☑		We support reinstating the 200kv threshold for reportable events.
Response: The Standard DT will review applicability as requested by the FERC. See also the drafting team responses to question #2.			
Entergy Corp.	☑		The existing FAC-003-1 is flawed and needs revision.
Response: The SAR DT agrees that revisions of this standard are needed primarily to comply with new procedural requirements and inclusion of compliance elements as well as address issues raised in the FERC's March 16, 2007 Order 693 – Mandatory Reliability Standards for the Bulk Power System.			
FirstEnergy Corp.	☑		FirstEnergy agrees that clarification on select issues will aid the intent of this NERC Standard.
Response: The SAR DT agrees and thanks you for the comment.			
Florida Power & Light	☑		FPL believes the technical portion of the standard provides adequate reliability protection to the system. FPL also recognizes the need to re-format the standard to bring it into conformance with the latest version of the Reliability Standard Development Procedure and the ERO Sanctions Guidelines, to remove references to RRO in the standard and substitute a responsible entity and, add compliance elements such as time horizons, and

Question #1			
Commenter	**Yes**	**No**	**Comment**
			violation severity levels.
Response: The SAR DT agrees and thanks you for the comment.			
IESO	☑		
IRC SRC	☑		
ISO-NE	☑		
Manitoba Hydro	☑		The definition of ROW should be clarified. The definition of a critical line should not be kept to a particular voltage threshold. However, consideration could also then be given to exempting non-critical lines operating at higher voltage levels (>200kv). Electrical clearances should be consistent whether on Federal or non-Federal land.
Response: The standard DT will review the definition of ROW. The standard DT will review applicability parameters of this standard, taking into account the comments from stakeholders such as NU, National Grid, Manitoba Hydro, First Energy, and others. The SAR DT concurs with the commenter with respect to applying this standard to Federal and non-Federal lands. The standard DT will evaluate the suitability of a case-by-case approach.			
MRO	☑		
NYISO	☑		
PGE	☑		As stated in the SAR.
Response: The SAR DT agrees and thanks you for the comment.			
PSC SC	☑		
Southern Transm.	☑		We do not feel there is a reliability need for modifying the standard. However, we do agree certain modifications are needed to clarify procedural issues such as the amount of time allowed for taking corrective action when items are found to be out of compliance.
Response: The team concurs that the technical elements are generally adequate and there is no reliability need to revise the standard. However all NERC standards must be updated to comply with new procedural requirements and inclusion of compliance elements. The Standard DT will address the issues raised in the FERC's March 16, 2007 Order 693 - Mandatory Reliability Standards for the Bulk Power System. The SDT shall consider producing a white paper to aid in clarifying the intent of the standard.			
TVA	☑		The primary needs for mocdifications to this standard are in areas to address clarifications and formatting not reliability related issues.
Response: The SAR DT agrees and thanks you for the comment.			

2. **If you are a transmission owner, have you been provided a list from a Regional Entity (formerly RRO) of sub 200 kV critical transmission lines that must comply with FAC-003-1?**

Summary Consideration: During the March 2007 SAR DT meeting, the FERC indicated they had not been presented any evidence with respect to Regional Entity (RE) critical line determinations and asked whether such lists existed. This question was posed to ascertain whether REs have determined which lines below 200 kV are critical.

Some commenters reported that their RE (SERC, FRCC, RFC) have determined there are no critical transmission lines that are under 200 kV. Some commenters (NGrid, NU, HydroOne, HQT) indicated that a list was not provided by their RE (NPCC). A commenter (MRO) noted that a list was submitted to NERC. A commenter responded that their RE (WECC) has provided such a list. On the basis of this informal poll, the SAR DT's assessment is that further specificity may be needed to aid in identifying which <200kV transmission lines should come under the purview of this standard in an attempt to standardize this criteria.. The SDT shall take under consideration other applicability parameter criteria in addition to various stakeholder proposals.

Question #2			
Commenter	**Yes**	**No**	**Comment**
IRC SRC			n/a
NYISO			n/a
Baltimore Gas & Electric		☑	The reason that we do not have a list of critical lines from the RRO may be that we do not have any lines that fit the criteria.
Response: The SAR DT thanks you for your response.			
CECD		☑	SERC does not currently have any sub 200 kV critical transmission lines.
Response: The SAR DT thanks you for your response.			
CenterPoint Energy		☑	
Central Maine Power		☑	The "Northeast Power Coordinating Council Facilities Notification List" may not be the correct list to be used for this standard. FAC- 003-1 should set a clear expectation the each Regional Entity will provide their transmission owners a list of critical lines including any that may be less that 200KV. Will provide list once released from NPCC.
Response: The SAR DT thanks you for your response.			
Dominion		☑	
Duke Energy		☑	The SERC region has not identified any lines below 200kV to be critical to the electrical system in the region. Since no lines have been identified as critical to the region, no list has been provided to Transmission Owners.
Response: The SAR DT thanks you for your response.			
HQT		☑	We consider that it should be the Planning Coordinator role to determine the sub 200kV critical transmission lines and even for any transmission lines irrelevant of voltage level.

Question #2			
Commenter	**Yes**	**No**	**Comment**
			For that, it should follow an impact based methodology such as the one used in NPCC.
Response: The SAR DT thanks you for your response.			
Hydro One Networks		☑	
Manitoba Hydro		☑	
MRO		☑	The MRO We have not generated a list or criteria yet. We have submitted a draft criteria to NERC
Response: The SAR DT thanks you for your response.			
National Grid		☑	The Reliability Entity has not provided a list of sub 200 kV lines subject to compliance with FAC-003-1. The Standard became effective in February 2007, just 3 months ago. Having no list today should not imply that the RE or the Standard has failed in any way. National Grid suggests that a revised Standard should direct the RE to produce a list of "sub 200 kV critical transmission lines" within 6 to 12 months of adoption.
Response: The standard DT will review applicability parameters of this standard, taking into account the comments from stakeholders such as NU, National Grid, Manitoba Hydro, First Energy, and others.			
Northeast Utilities		☑	The Reliability Entity has not provided a list of facilities covered under FAC-003-1. This is not a fault of the RE as there has been no direction provided as to what factors or charateristics are required for sub-200kV lines to be included under the Standard. It is our position that the factors that will be used to develop the list of sub-200kV faciltities to be covered by the Standard be developed at the national level (NERC) and adopted by all RE's for consistency.
Response: The standard DT will review applicability parameters of this standard, taking into account the comments from stakeholders such as NU, National Grid, Manitoba Hydro, First Energy, and others.			
PGN		☑	The SERC and FRCC regions have not identified any lines below 200kV to be critical to the electrical system in the region. Since no lines have been identified as critical to the region, no list has been provided to Progress Energy Carolinas and Progress Energy Florida. (Please note our comments on this issue in question #4.)
Response: The SAR DT thanks you for your response.			
SERC VMS		☑	The SERC region has not identified any lines below 200kV to be critical to the electrical system in the region. Since no lines have been identified as critical to the region, no list has been provided to Transmission Owners. (Please note the subcommittee's comments on this issue in question #4.)
Response: The SAR DT thanks you for your response.			
TVA		☑	We detemined that there are no TVA lines below 200kv that must comply to this standard due to their criticial needs in SERC.

Question #2			
Commenter	**Yes**	**No**	**Comment**
Response: The SAR DT thanks you for your response.			
VELCO		☑	VELCO has not been provided a specific list of critical lines below 200 kV from the RE that need to be in compliance with FAC-003-1. VELCO suggests changing the wording in the standard to identify those lines affected as 200 kV and great or those defined as Bulk Power System facilities.
Response: The standard DT will review applicability parameters of this standard, taking into account the comments from stakeholders such as NU, National Grid, Manitoba Hydro, First Energy, and others.			
Entergy Corp.	☑		Yes, the Reliability Entity (SERC) has performed its duty in evaluating our transmission system. SERC has confirmed that Entergy has no lines operating below 200kV that are critical to system reliability. Entergy has received its "list," but the list is blank. With respect to applicability, it is inappropriate to set a blunt voltage level criterion for determining which transmission lines are critical to bulk system reliability. There is no basis in engineering or in fact for voltage-based categories of applicability. Many lines operating at 200kV and higher essentially serve only local load, and there may in fact be some lines operating below 200kV where the standard should be applied. Many lines of all voltages are redundant and do not even impact local load during an outage. Therefore, the voltage criterion is overly broad. To support this statement, Entergy supplies the following facts: First, during the aftermath of Hurricanes Katrina and Rita, Entergy had (59) 230kV and 500kV lines out of service simultaneously. Additionally, Entergy had (85) 115kV and 161kV lines out of service simultaneously. During the aftermath of Hurricane Rita, Entergy had (41) 230kV and 500kV lines out of service simultaneously. Additionally, Entergy had (124) 115kV and 161kV lines out of service simultaneously. Dispite this overwhelming combination of simultaneous outages, no system-wide cascading blackout was initiated. Only local load was lost during restoration. This illustrates that Standard FAC-003-1, as it currently stands placing so much focus and penalty on even single-contingency outages, is overbroad, arbitrary and capricious. Second, each year the Entergy transmission system (like all other large electric utilities) suffers numerous outages from a great number of different sources: material defects, rot and decay, animal damage, human damage, extreme wind, lightning and, vegetation. Over the years 2001 through 2006, 927 transmission lines suffered 5,688 outages from a variety of sources. Vegetation outages accounted for 7.14% of those outages. Each

Question #2			
Commenter	**Yes**	**No**	**Comment**
			utility is unique, but these numbers are not unusual for a transmission system comprising 15,000 miles of line. Dispite this large number of outages, no cascading system black out has been intiated. Finally, Entergy has had as many as 17 transmission lines outaged from a single tornado event without even losing service to local load. Standard FAC-003-1 assigns too much risk to outages in general, and too mush risk to vegetation outages in particular. NERC and the regional reliability entities should define performance criteria that specifically define certain contingencies and certain undesireable outcomes that would classify a line as truly critical to bulk system reliability. The modeling software necessary to do this is readily available and already in use today by the Reliability Entities and their subject utilities. If FERC has concerns about potentially devistating (albeit rare) combinations of multiple simultaneous line outage contingencies, the REs can define strict criteria for multiple contingencies. With respect to lines that result in IROLs and SOLs, these lines can also be identified with specificity, without resorting to blunt voltage distinctions. Defining system-critical lines too broadly is actually detrimental to FERC's reliability goals. It dilutes the resources available to maintain reliability on those lines that truly affect system reliability. Utilities should employ a more focused and intelligent approach to targeted reliability. Such an approach would have benefits to the users of the transmission system and to the ratepayers that pay for it.
Response: The standard DT will review applicability parameters of this standard, taking into account the comments from stakeholders such as yourself and others.			
Florida Power & Light	☑		
PGE	☑		Provided from WECC
Response: The SAR DT thanks you for your response.			
AEP	☑	☑	Of the three regions in which AEP has transmission facilities, only one RE has provided a listing of sub-200 kV facilities of what we consider applicable under this standard.
Response: The SAR DT thanks you for your response.			
FirstEnergy Corp.	☑	☑	ReliabilityFirst, the Reliability Entity (formerly the RRO) was requested to provide a list of lines below 200 kV deemed as critical transmission lines that must comply with FAC-003-01. ReliabilityFirst responded "there are no lines below 200kV deemed as critical

Question #2			
Commenter	**Yes**	**No**	**Comment**
			infrastructure".
Response: The SAR DT thanks you for your response.			
Southern Transm.	☑	☑	We are not really sure how to answer this question. The Regional Entity has not sent us a list, but they have advised us that we do not have any sub 200 kv critical transmisison lines that must comply with FAC-003-1.
Response: The SAR DT thanks you for your response.			

3. **If you are a transmission owner would you provide your methodology for determining clearance 1 and clearance 2? (As described in FAC-003-1 R1.2.1 and R1.2.2) If so, please attach.**

Summary Consideration: This question was posed to poll transmission owners with respect to determination of Clearance 1 and Clearance 2 requirements. This information was sought to obtain examples of how industry members determine Clearance 1 since it is a qualitative requirement. Clearance 2 information was sought to evaluate the application of components of IEEE 516.

Of the 15 respondents to this poll question, some provided summary methodology for determining their Clearance 1 and Clearance 2, others have indicated that a methodology exists and is available upon request. On the basis of these responses to the poll question, the SDT shall consider reviewing IEEE 516 components to affirm their suitability in this standard and this information can assist in a white paper.

Question #3			
Commenter	**Yes**	**No**	**Comment**
IRC SRC			n/a
NYISO			n/a
SERC VMS			This question does not apply to the SERC EC Vegetation Management Subcommittee.
Response: The SAR DT thanks you for your response.			
Baltimore Gas & Electric		☑	
Central Maine Power		☑	The clearance 2 was taken directly from IEEE Table 516 – 2003. Clearance 1 is based on "Appendix C – ISO New England Right of way Vegetation Management Standard".
Response: The SAR DT thanks you for your response.			
Florida Power & Light		☑	
National Grid		☑	Detailed methodology is not attached. In summary, National Grid used Table 5 IEEE Section 516 for determing clearance 2. These data for each voltage class were rounded to the next higher whole number. Clearance 1 was determined by adding the clearance 2 distance, conductor sag distance, and anticipated tree growth over the maintenance cycle.
Response: The SAR DT thanks you for your response.			
PGN		☑	Progress Energy has an individual on the Drafting Team and will share the Progress Energy Florida clearance Tables with the team.
Response: The SAR DT thanks you for your response.			
VELCO		☑	VELCO has defined Clearance 1 as the maximum allowed vegetation heights (12ft high) at time of maintenance. This maximum height has evolved from experience with regional

Question #3			
Commenter	**Yes**	**No**	**Comment**
			growth rates and other factors. VELCO's Clearance 2 is determined by the New England ISO's Operating Procedure 3, which is slightly more stringent than IEEE 516.
Response: The SAR DT thanks you for your response.			
AEP	☑		For Clearance 1, AEP has chosen to use the minimum approach distances set forth in ANSI Tree Care Standard Z133.1 (rev. October 2000) for persons other than qualified line-clearance arborists and qualified line-clearance arborist trainees. For Clearance 2, AEP utilizes the Z133.1 minimum approach distances for qualified line clearance arborists and qualified line-clearance arborist trainees.
Response: The SAR DT thanks you for your response.			
CenterPoint Energy	☑		CenterPoint Energy has developed a methodology to determine clearance 1 and clearance 2 as described in FAC-003-1 R1.2.1 and R1.2.2. This methodology is included in a document titled "Specification for Transmission Vegetation Management Program" dated February 2007. Section 5.1 of that document covers NERC Clearance 1, and Section 5.2 covers NERC Clearance 2. Text and Tables from both Sections 5.1 and 5.2 are shown below: 5.1 NERC CLEARANCE 1 5.1.1 The appropriate clearance to conductors at the time of vegetation management work is established as Clearance 1 in accordance with NERC Standard FAC-003-1 Requirement R1.2.1. 5.1.2 Clearance 1 is determined by considering transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, the effects of wind velocities on conductor sway, and the anticipated average growth rate of the prevalent tree species within the Company's service area over a 5-year period. 5.1.2.1 The minimum clearance distance of IEEE Standard 516-2003 Section 4.2.2.3, Minimum Air Insulation Distances without Tools in the Air Gap, is a component of Clearance 1. 5.1.3 Table 5.1 contains the horizontal clearance components and nominal values for Clearance 1, and Table 5.2 contains the vertical clearance components and nominal values for Clearance 1. Table 5.1

Question #3			
Commenter	**Yes**	**No**	**Comment**
			NERC Clearance 1: Horizontal Clearance, feet Horizontal Clearance Component, Nominal Voltage p-p 69kV 138kV 345kV Electrical Clearance (1) 2.46 2.95 4.40 Average 5-Year Horizontal Tree Growth 12.00 12.00 12.00 Average Mid-span Conductor Sway (2) 5.98 8.13 10.04 Total 20.44 23.08 26.44 Nominal Horizontal Value (3) 20 23 26 (1) Based on IEEE 516-2003 Table 5 for 69kV & 138kV and Table 7 for 345kV (2) Based on NESC C2-2007 Rule 233A(1) (3) May be reduced for site specific tree species or conductor span configuration but not less than Clearance 2. Table 5.2 NERC Clearance 1: Vertical Clearance, feet Vertical Clearance Component, Nominal Voltage p-p 69kV 138kV 345kV Electrical Clearance (1) 2.46 2.95 4.40 Average 5-Year Vertical Tree Growth 15.75 15.75 15.75 Average Conductor Final Sag Increase (2) 7.52 9.01 10.24 Total 25.73 27.71 30.39 Nominal Vertical Value (3) 26 28 30

Question #3			
Commenter	**Yes**	**No**	**Comment**
			(1) Based on IEEE 516-2003 Table 5 for 69kV & 138kV and Table 7 for 345kV (2) Based on NESC C2-2007 Rule 233A(1) (3) May be reduced for site specific tree species or conductor span configuration but not less than Clearance 2. 5.2 NERC CLEARANCE 2 5.2.1 The minimum radial clearance to prevent flashover between vegetation and conductors is established as Clearance 2 in accordance with NERC Standard FAC-003-1 Requirement R1.2.2. 5.2.2 Clearance 2 is determined by considering transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, and the effects of wind velocities on conductor sway. Clearance 2 is a radial clearance, so the vertical component and the horizontal component are both calculated, and the largest clearance is selected as the prevailing clearance for Clearance 2. 5.2.2.1 The minimum clearance distance of IEEE Standard 516-2003 Section 4.2.2.3, Minimum Air Insulation Distances without Tools in the Air Gap, is a component of Clearance 2. 5.2.3 Table 5.3 contains the horizontal clearance component, Table 5.4 contains the vertical clearance component, and Table 5.5 contains the prevailing nominal values for Clearance 2. Table 5.3 Horizontal Clearance Component, feet Horizontal Clearance Component, Nominal Voltage p-p 69kV 138kV 345kV Electrical Clearance (1) 2.46 2.95 4.40 Average Mid-span Conductor Sway (2) 5.98 8.13 10.04

Question #3			
Commenter	**Yes**	**No**	**Comment**
			Total 8.44 11.08 14.44 Nominal Horizontal Value (3) 8 11 14 (1) Based on IEEE 516-2003 Table 5 for 69kV & 138kV and Table 7 for 345kV (2) Based on NESC C2-2007 Rule 233A(1) (3) May be reduced for site specific tree species or conductor span configuration but not less than Clearance 2. Table 5.4 Vertical Clearance Component, feet Vertical Clearance Component, Nominal Voltage p-p 69kV 138kV 345kV Electrical Clearance (1) 2.46 2.95 4.40 Average Conductor Final Sag Increase (2) 7.52 9.01 10.24 Total 9.98 11.96 14.64 Nominal Vertical Value (3) 10 12 15 (1) Based on IEEE 516-2003 Table 5 for 69kV & 138kV and Table 7 for 345kV (2) Based on NESC C2-2007 Rule 233A(1) (3) May be reduced for site specific tree species or conductor span configuration but not less than Clearance 2. Table 5.5 NERC Clearance 2: Minimum Radial Clearance to Prevent Flashover, feet Nominal Voltage p-p 69kV 138kV 345kV 10 12 15

Question #3			
Commenter	**Yes**	**No**	**Comment**
Response: The SAR DT thanks you for your response.			
Entergy Corp.	☑		Entergy defines four sets of clearances for vegetation approach to transmission lines. The first set of clearances is the Vegetation Pruning Distance. This is the clearance to be achieved at the time of vegetation management work which vegetation management employees and contractors complete as part of this program. This distance varies with each line, but is set to be the EDGE OF ROW in each case. (This clearance is referred to as "Clearance 1" in the NERC Vegetation standard FAC-003-1, Cf B.R1.2.1). The second set of clearances is the Vegetation Growth Alert Distance. This is the approach distance that triggers an alert to the Asset Management vegetation management employees that vegetation maintenance is required. Vegetation spotted on an aerial inspection that encroaches upon this clearance is noted on the inspection for future scheduling of pruning. The third set of clearances is the Minimum Energized Pruning Distance. This is the minimum approach distance vegetation can have to energized transmission lines and still be pruned without an outage on the energized transmission line, in accordance with OSHA safety guidelines. Any vegetation that encroaches on this minimum distance must be pruned, and must be pruned during an outage on the associated transmission line. The fourth set of clearances is the Minimum Vegetation Approach Distance. This is the absolute minimum radial approach distance to prevent flashover between vegetation and overhead ungrounded supply conductors. Under this program, vegetation should never encroach these minimum approach distances. Vegetation must be pruned prior to reaching this distance and must be pruned with an outage on the transmission line. (This distance is referred to as "Clearance 2" in the NERC vegetation standard, FAC-003-1, Cf B.R1.2.2.) These clearance distances are based upon those set forth in the Institute of Electrical and Electronics Engineers (IEEE) Standard 516-2003 (Guide for Maintenance Methods on Energized Power Lines) and as specified in Table 5. Under this program, vegetation can encroach the Vegetation Growth Alert Distance and the Minimum Energized Pruning Distance, but it shall not encroach upon the Minimum Vegetation Approach Distance.
Response: The SAR DT thanks you for your response.			

Question #3			
Commenter	**Yes**	**No**	**Comment**
FirstEnergy Corp.	☑		For R1.2.1 (Clearance 1), FirstEnergy used our existing specification requirement "for minimum clearance to be achieved at locations with an easement or other restriction" to define the minimum acceptable clearance. For R1.2.2 (Clearance 2), FirstEnergy uses the IEEE 516-2003 standard as the minimum as referenced in FAC-003-01. This is the minimum clearance under all operating conditions. FirstEnergy believes this is an appropriate definition.
Response: The SAR DT thanks you for your response.			
HQT	☑		HQT clearance methodology is not specifically based on the value specified in Clearance 1 and Clearance 2. HQT TVMP is such organized that vegetation management work minimize costs for line clearing and brush control while preventing outages from vegetation cause. As such, staff qualifications required to work near energized facilities are less than under the absolute minimum as stipulated in IEEE 516-2003, and in most cases, the work is less labour and equipment intensive. However clearances are never less than the absolute minimum stipulated in FAC-003-1 (R1.2.2). The above provides the basic approach used at HQT. If the Standard Drafting Team would like a copy of the HQT approach and methodology, this could be provided.
Response: The SAR DT thanks you for your response.			
Hydro One Networks	☑		Hydro One clearance standards are based on the Ontario Health and Safety Act (OHSA) clearances rather than the absolute minimum specified in Clearance 2. OHSA clearances at time of work minimize costs for line clearing and brush control. By maintaining OHSA clearances during normal working conditions, staff qualifications required to work near energized facilities are less than under the absolute minimum as stipulated in IEEE 515-3003, and in most cases, the work is less labour and equipment intensive. As part of work planning, qualified staff determine the amount of vegetation that has to be removed to achieve OHSA clearances at the time of the next scheduled work. As well, provisions are built into the clearances at time of work to account for conductor and tree movement during adverse weather conditions. The objective is to provide OHSA clearances under adverse conditions, but these are not always achieved, however clearances are never less than the absolute minimum stipulated in FAC-003-1. The above provides a description of our planning process. If the Standard Drafting Team would like a copy of the Hydro One standard, this can be provided.
Response: The SAR DT thanks you for your response.			

Question #3			
Commenter	**Yes**	**No**	**Comment**
Manitoba Hydro	☑		Clearance 1 was developed based on the limits of approach for non-qualified people (public). At a minimum, we would clear beyond this distance during vegetation control activities. Our cycle times and management approach are adjusted for this distance, taking into account growth rates. The values will vary depending on voltage class. Clearance 2 is based on internal design standards that take into account our understanding of switching surge values for our system. The values used are more conservative than IEEE 516-2003.
Response: The SAR DT thanks you for your response.			
MRO	☑		n/a
Northeast Utilities	☑		The methodology for determining clearance 2 is based on the requirements of FAC-003-1. The IEEE Section 516 has been considered the base minimum limits for clearances as provided under FAC-003-1 R.1.2.2. Clearances used for R.1.2.1 on the NU Transmission System comply with the requirements of ISO-NE Operating Procedure OP-3, that provides clearance levels required at the time of vegetation trimming or clearing under the various transmission voltages.
Response: The SAR DT thanks you for your response.			
PGE	☑		Will be provided to the SARDT in a separate attachment[TH1].
Response: The SAR DT thanks you for your response.			
Southern Transm.	☑		IEEE 516-2003, Section 4.2.2.3 was adopted as the minimum allowable distance for Clearance 2, with the expectation that work would normally occur prior to Clearance 2 reaching the minimum allowable distance. Clearance 1 was determined by using the Clearance 2 value and adding a growth buffer. Sagging of conductors and their movement in wind was then considered to ensure the growth buffer is adequate.
Response: The SAR DT thanks you for your response.			
TVA	☑		We utilize a clearance 2 based on IEEE 516 2003 Table 5 criteria. Our Clearance 1 is a greater amount to allow for growth between clearing and next inspection or clearance activities. We will provide our tables is requested.
Response: The SAR DT thanks you for your response.			

4. Are there any other comments regarding the standard, its possible modifications or the SAR?

Summary Consideration:
The comments were mixed with regard to:

- Whether reporting of Category 3 outages are necessary.

Most that commented agreed that:

- The 200kV applicability threshold could be clarified and the SAR DT deemed a review of applicability parameters is desirable.
- A consistent approach to both federal and non federal lands is desirable.
- A review of the definition of ROW is desirable.
- Components of the IEEE 516 standard are suitable.
- The exclusion of major disaster related events is appropriate.
- The inclusion of compliance elements and other procedural updates of the standard are needed.
- The development of a technical white paper is desirable.
- The standard DT should review the need for Requirement R4.

On the whole, the comments are supportive of the SAR as written and the SAR DT have made no changes to the second draft of the request.

Question #4			
Commenter	**Yes**	**No**	**Comment**
CenterPoint Energy		☑	
Manitoba Hydro		☑	
PSC SC		☑	
Southern Transm.		☑	We appreciate the efforts of the SAR Drafting Team.
AEP	☑		The SAR directs the SDT to collect and analyze outage data as part of an effort to define clearances for transmission lines on federal and non-federal lands. AEP believes that the analysis of outage data will be meaningless and unproductive. The SAR directive presupposes a cause-and-effect relationship between vegetation-related outages and federal/non-federal land status. On the contrary, AEP believes that vegetation-related data is more indicative of the effectiveness of the utility's VM program, in spite of onerous and inordinately expensive measures required on federal lands.
Response: The standard DT looks to receive the results of the ERO analysis and use it in developing the standard.			

Question #4			
Commenter	**Yes**	**No**	**Comment**
Ameren	☑		Ameren does not agree that each of 11 items listed in the SAR are necessary to improve reliability. The following comments are offered for each of the 11 items identified in the SAR detail description: 1. Standard Applicability: Ameren disagrees with revising the 200 kV threshold for determining facilities subject to this standard. Extending the requirements to lines other than those >200kV will dilute the focus on those lines that impact grid reliability and shift attention to facilities, <200kV. Utilities generally have an incentive to maintain reliability on lines less than 200kV. State commissions and customer expectations for reliable service provide this incentive. While many facilities above 200kV directly support customer load, transmission lines below 200kV primarily support customer load, and interruptions to those facilities reduces load on the grid. The majority of transmission facilities below 200 kV also have significantly different design/construction/operating characteristics and have not been cited as impacting bulk power system reliability. For example, the Final Report on the August 14, 2003 Blackout in the United states and Canada: Causes and Recommendations April 2004 by the U.S.-Canada Power System Outage Task Force and all referenced major blackouts (pages 103-115) in that report, cited only outages which involved vegetation at line voltages above 200kV. Generally applying requirements that are appropriate for >200kV lines to lines less than 200kV will result in significant documentation and reporting of items such as restrictions, mitigation plans, off right-of-way vegetation-related outage investigation/ information and other issues, all of which dilutes the focus on lines that directly impact bulk power system reliability. Revising the standard to use general criteria or broad language for defining "Bulk Power System" transmission lines covered by the standard is a "one size fits all" approach. If that approach were taken, the standard would cover a significant number of transmission lines that have no direct impact on bulk power system reliability under standard planning/operating conditions, resulting in a significant cost burden for electric customers without improving "grid" reliability. Ameren believes that the applicability provision of the standard should focus attention of the standard only on the transmission lines below 200kV that directly impact "Bulk Power System" reliability, as the current version requires.

Question #4			
Commenter	**Yes**	**No**	**Comment**
			Ameren recognizes some validity in the Commission's concern; Ameren recommends that the applicability provision of this standard should be revised only if existing system design, planning or operating reliability criteria and parameters are considered as a basis for defining the applicability of the standard. Ameren recommends each Regional Entity (RE) determine applicability of FAC-003 to those lines within the region that are between 100kV and 200KV, if, and only if, they are identified as operationally significant elements of Interconnection Reliability Operating Limits ("IROLs"). That is, any facility below 200kV that by itself would cause an Interconnected Reliability Limit Violation should the facility be outaged. 2. Issue of Clearances (Federal vs Non-Federal Lands): FAC-003-1 presently requires the transmission owner (TO) "identify and document clearances between vegetation and any overhead, ungrounded supply conductors, taking into consideration transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, and the effects of wind velocities on conductor sway." The intent of this requirement is to ensure adequate clearances to prevent vegetation related outages. Ameren believes that only the TO has the technical information required to determine the clearances that are necessary at the time of VM work and that any "federal lands exemption" to clearances will result in inadequate clearances for the existing conditions. Consistency in application of the TO's clearance requirements, not exceptions, is the only assurance in providing a uniform and reliable electrical system to meet the nation's current and future energy demands. Any exception for a case by case clearance approach to determine vegetation management activities/clearances on Federal lands will continue to drive inconsistency and/or delays associated with vegetation management decisions being driven by diverse vegetation management practices/beliefs and staff changes at the local level of Federal agencies. Vegetation-related outages have occurred on Federal lands as a result of this case by case approach, and if "Bulk Power Transmission System" lines continue to be addressed on a "case by case" basis on National Forest Service (or any other Federal lands), those lines will potentially be subject to a higher risk for vegetation-related outages, resulting in reduced reliability for the "Bulk Power System". Ameren believes that reliability of the "Bulk Power System" should have the same focus on Federal and private lands and that the EEI MOU with federal agencies is the

Question #4			
Commenter	**Yes**	**No**	**Comment**
			appropriate vehicle for TO's to identify clearance variances on Ferderal lands, not exemption language in the standard. The standard should not be used as a mechanism by federal agencies to impose variances to proven vegetation management practices and clearances. 3. Defining Right-of-Way: Ameren agrees that it is appropriate to further address the definition of "right-of-way". Corridor widths beyond design clearance requirements have been acquired for a variety of reasons in the past; future use, property line buffers, etc. Vegetation in those areas that would normally fall outside of the area necessary for operation of the facility should not be considered or treated different than vegetation that is outside of a defined easement/permit area that is designed for the reliable operation of an existing single line corridor. 4. IEEE Standard for Minimum Clearances: Ameren disagrees with objections to the use of the IEEE 516-2003 clearance as the minimum acceptable distances for "Clearance 2". The IEEE 516-2003 tables are appropriate for defining the minimum acceptable clearances to prevent flashover between conductors and vegetation under all rated electrical operating conditions. FERC staff references ANSI Z-133 which is a safety standard that addresses worker safety as well as the safety of the general public. As such, the purpose of ANSI Z-133 is to address worker safety and is not focused on transmission line reliability, which is the purpose of FAC-003-1. OSHA, NESC and other related safety standards have clearances in excess of IEEE 516-2003. Those clearances are clearly focused on safety issues and will still apply to other aspects of design and operation of electric facilities (such as public and worker safety) but are not appropriate to be referenced in a vegetation management reliability standard. 5/6/7. Procedural Items: Ameren agrees that the procedural items related to formatting RRO references and additional compliance elements should be addressed by the standard drafting team. 8. Technical Reference Materials:

Question #4			
Commenter	**Yes**	**No**	**Comment**
			Ameren agrees that a "white paper" that defines the technical basis for the standard is appropriate to avoid the potential for differences in interpretation of the standard's requirements during the various region's audit processes. 9. Category 3 Outages: Since the right to control off right-of-way vegetation is generally beyond control of the transmission owner Ameren believes that the reporting of category 3 outages should be removed from the requirements. 10. Requirement R4: Ameren believes that requirement R4 should be deleted from the standard, based on the ERO formation and the process for delegation of authority to the regional entities. 11. Reporting Exemptions: Ameren believes that the reporting requirement exemptions for natural disasters should include all categories of outages. It would, for example, be difficult, without delaying restoration efforts, to determine if the vegetation from high winds, hurricanes, tornadoes, etc. is from on or off the "right-of-way".

Response:

1. The standard DT will review applicability parameters of this standard, taking into account the comments from stakeholders such as NU, National Grid, Manitoba Hydro, First Energy, and others.
2. The SAR DT concurs with the commenter with respect to applying this standard to Federal and non-Federal lands. The standard DT will evaluate the suitability of a case-by-case approach.
3. The standard DT will review the definition of ROW.
4. The SAR DT agrees with the commenter and recognizes that sections of IEEE 516 standard pertaining to minimum air insulation distances are applicable in determining minimum vegetation clearances to prevent flashovers.
5. NERC standards must be updated to comply with new procedural requirements and must include compliance elements.
6. See #5
7. See #5
8. The SDT shall consider producing a white paper to aid in clarifying the intent of the standard.
9. The SAR indicates that the Standard Drafting Team will review reporting criteria for Category 3 outages and will review the reporting requirement of Category 3 outages in R.3 and R.4.

Question #4			
Commenter	**Yes**	**No**	**Comment**
10. The standard DT will consider deletion of R.4. 11. The standard DT will review the reporting exemptions to include all category outages under major disasters in Requirement R3.2.			
Baltimore Gas & Electric	☑		We completely disagree with the proposal to eliminate reporting or off-right-of-way tree outages. In reality, off-R/W outages can cause many of the same problems that on R/W outages do if they were to occur at the most inappropriate time. Granted that they typically do not occur at times of peak load, but they could. Moreover, many off-R/W tree outages are preventable and should be addressed before they occur.
Response: The SAR indicates that the Standard Drafting Team will review reporting criteria for Category 3 outages and will review the reporting requirement of Category 3 outages in R.3 and R.4.			
CECD	☑		CECD supports continuing to use the 200kV threshold for determining applicability of vegetation management criteria. If the standard is deemed to apply to lower voltages these should only be critical lower voltage transmission facilities as determined by the Regional Entities's. CECD would also encourage the drafting team to clarify that the Vegetation Management standards are not applicable to generator interconnection facilities. In the registration process due to the NERC functional definitions, Generation Owners/Operators are required to register as Transmission Owners/Operators because of step-up transformers and other associated interconnection equipment that was not intended to be subject to the Vegetation Management program.
Response: The standard DT will review applicability parameters of this standard, taking into account the comments from stakeholders such as NU, National Grid, Manitoba Hydro, First Energy, and others. As a registered transmission owner this standard is applicable. Registration matters should be referred to the NERC organization certification program and the related regional entity.			
Central Maine Power	☑		The standard FAC-003-1 is intended to create a frame work that will ensure a uniform level of reliability and at the same time must allow transmission owners to meet this objective using efficient and cost effective programs. To this end utilities must have the ability to implement "Clearance 1" distances consistently throughout their service areas. The standard should remain focused only on 200 KV and above lines or lines listed as critical by the Regional Entity. Inspection cycles are sufficient as listed the current version and allow flexibility to meet local variability in growth rates and other conditions. Concerns with inspection cycle length can be addressed in the compliance area.

Question #4			
Commenter	**Yes**	**No**	**Comment**
Response: The SAR DT thanks you for your comments. The standard DT will review applicability parameters of this standard, taking into account the comments from stakeholders such as yourself and others. The FERC is no longer indicating a need to develop a requirement for a minimum inspection cycle (March 16, 2007 Order 693) and stakeholders indicated they did not support this change, so it was removed from the SAR.			
Dominion	☑		In response to Stakeholder item #11, we do not support exempting Category 1 or Category 2 events that occur during natural disasters.
Response: A majority of the industry stakeholder comments support natural disaster exemptions.			
Duke Energy	☑		Regarding the Order 693 items, the applicability provision of the standard should focus attention of the standard only on the transmission lines 200kV and above, and those lines below 200kV that directly impact "Bulk Power System" reliability, as the current version of FAC-003 requires. Each Regional Entity (RE) must determine applicability of FAC-003 to those lines within the region that are less than 200kV. For example, transmission lines below 200kV should be considered within the scope of FAC-003 if they are identified as operationally significant elements of Interconnection Reliability Operating Limits ("IROLs"); i.e. an outage of the facility would cause an Interconnection Reliability Limit Violation. The Standard DT should address the issue of the necessity of maintaining consistent clearances for lines on both federal and non-federal lands. We agree with the use of the IEEE 516-2003 standard for for defining the minimum acceptable clearances to prevent flashover between conductors and vegetation under all rated electrical operating conditions. We believe that the reporting requirement exemptions for natural disasters should include all categories of outages.
Response: The standard DT will review applicability parameters of this standard, taking into account the comments from stakeholders such as NU, National Grid, Manitoba Hydro, First Energy, and others. The SAR DT concurs with the commenter with respect to applying this standard to Federal and non-Federal lands. The standard DT will evaluate the suitability of a case-by-case approach. The SAR DT agrees with the commenter and recognizes that sections of IEEE 516 standard pertaining to minimum air insulation distances are applicable in determining minimum vegetation clearances to prevent flashovers.			

Question #4			
Commenter	**Yes**	**No**	**Comment**
The standard DT will review the reporting exemptions to include all category outages under major disasters in Requirement R3.2.			
Entergy Corp.	☑		The policy to increase sanctions based on a finding of an "intentional economic decision to violate the standard" is ill-concieved: 1. Every transmission line outage that has ever occured could have been avoided if more money had been spent on SOMETHING, SOMWHERE. 2. No utility has an unlimited budget, so decisions based on risk, cost and benefit are made every day. 3. After the outage, the localized initiating cause will appear so trivial and inexpensive that it would seem that it could easily have been fixed in advance. 4. Therefore, reviewers could conclude that EVERY outage (a defacto violation of the standard), is the result of an "economic decision to violate the standard." Economic choices are a necessary and natural part of doing business, and do not necessarily imply the existence of malicious motives or wrong-doing. The current policy is going to create unnecessary costs to ratepayers, even to avoid inconsequential outages.
Response: The compliance sanctions guideline addresses the matter of willful noncompliance. Refer to the Compliance program with respect to this issue. However the standard DT and Compliance Elements DT will review and assign Violation Severity Levels when modifying FAC-003-1.			
FirstEnergy Corp.	☑		The definition of Right-Of-Way requires modification to clarify it is the width required by engineering to operate the line. This may or may not be the legal Right-of-Way. (See previously submitted comments submitted by FE in Feb 2007 for more details).
Response: The standard DT will review the definition of ROW.			
Florida Power & Light	☑		For the record FPL re-emphasize its comments from the previous FAC 003-1 SAR. Requirement 3.2 exempts reporting of outages from outside the ROW when natural disasters such as tornados or hurricanes occur. Our experience with numerous hurricanes indicates that all outages during these types of events should be exempt. The focus in these situations is to get the lines back in service and restore customers. There is insufficient manpower to adequately complete the forensics necessary to determine an accurate root cause. It is not uncommon to find vegetation debris in the lines or downed trees on the ROW in this situation. In most cases it is not possible to determine the original location of these trees.

Question #4			
Commenter	**Yes**	**No**	**Comment**
			In the compliance section of the document a transmission owner becomes non compliant with a single category 1 or 2 outage. This occurs regardless of the circumstances. A non compliant penalty for a single outage in a situation where no customers were affected and the system could not have been compromised is not reasonable. It is also not an indicator of a poorly maintained system. We agree that several Category 1 or 2 interruptions could be an indicator of neglect but one is not. We recommend that the compliance section be reviewed with this in mind.
Response: The SDT will review the reporting exemptions to include all category outages under major disasters in Requirement R3.2. The SDT and Compliance Elements DT will review and assign Violation Severity Levels when modifying FAC-003-1. Note that the levels of non-compliance that are in the approved version of FAC-003 will be replaced with violation severity levels.			
HQT	☑		Here are some general comments on the SAR: 1. In the purpose section of the SAR, item 1, we don't understand the substitution of BPS by «electric transmission system»; it seems like there is a will to make the Standards applicable to more than the BPS. It is our understanding that NERC Standards are aimed at the reliability of the BPS. The term BPS should be retained and instead of modifying the SAR to widen the applicability, the Standard itself should be modified to specifically used the term BPS in item A.3. 2. In the detailed description section, item 1, sub-bullet, it is written that: "...the SDT may consider other criteria in determining applicability of the Standard to sub 200 kV lines...". We think that in item 4.3 (Applicability) of the existing Standard, there is already the possibility of applying the Standard to sub 200 kV lines if determined by RRO. This could be reworded by saying: "...as determined by a methodology to define BPS element"; such as the one used by NPCC. 3. We noticed that most Definitions (e.g. RC, IA, PC, RP, TP, TOP, DP, GO, GOP, PSE, MO (not even in the Glossary), LSE) used to described the Reliability Functions in the SAR form, are somewhat different than those used in the Glossary of Terms approved with the Standards deposited at the FERC. For consistency, if the definition needs to be changed, this should be done through the right process, not just casually in the SAR Form. 4. Also, although the title in that same section of the SAR form refers to Reliability Functions, these are in fact the Responsible Entity that performs those functions; maybe a correction in the SAR form would be necessary.

Question #4			
Commenter	**Yes**	**No**	**Comment**
Response: 1. The SAR DT used 'Bulk Electric System' because that is the term defined in the NERC Glossary. 2. The standard DT will review applicability parameters of this standard, taking into account the comments from stakeholders such as NU, National Grid, Manitoba Hydro, First Energy, and others. Furthermore the standard DT will ensure that any new terms defined for use in this standard will also be added to the Glossary of Terms. 3. The standard DT will ensure that any new terms defined for use in this standard will also be added to the Glossary of Terms. the drafting teams were directed to use the definitions for the functional model entities in the version of the Functional Model just approved by the BOT in February, 2007. The glossary will be updated to include the revised definitions for the functional entities. 4. Thanks for the comment.			
Hydro One Networks	☑		We believe from a transmission system perspective, category 3 outages are no different than many of the other types of outages that take place on the system, such as hardware failures, lightning damage and station equipment outages to name a few. It is our understanding that there is no requirement to report these "other" outages, which makes one wonder why the tree related outages that originate off the right of way need to be reported. We are not diminishing the importance of category 3 outages, but from a system cascading perspective, these outages are no more important than other line or station outages, and are fewer in number than the "other" random outages. To initiate system cascading as occurred during August 14, 2003, a number of the random outages would have to coincide to cause a wide spread system event, which in our opinion is a very low probability occurrence. On the other hand, a category 1 outage can occur as a result of any system disturbance should there be deficiencies in clearances to vegetation, as such the importance of category 1 outages is apparent and reporting is appropriate. We support the review concerning the need to report category 3 outages and that the ultimate decision should be based on reporting rules that take into consideration the broader topic of reliability, rather than just vegetation related outages.
Response: The SAR indicates that the Standard Drafting Team will review reporting criteria for Category 3 outages and will review the reporting requirement of Category 3 outages in R.3 and R.4.			
IESO	☑		1. The SAR indicates that a list of critical low voltage transmission lines will be provided to FERC. We do not interpret Order 693 to direct NERC to provide this list. Rather, we interpret that FERC asks for defining a criteria that would include low voltage transmission lines that have impact on Bulk Power System reliability. We do not think the list is required. 2. The SAR indicates: "The standard DT may consider other criteria in determining

Question #4			
Commenter	**Yes**	**No**	**Comment**
			applicability of the standard to sub 200kV lines…" Per Order 693, the criteria is quite clearly stated to be the transmission lines of less than 200 kV that could impact Bulk Power System reliability. We don't feel any other criteria would be necessary. Further, to identify the candidates that meet these criteria, we believe they should be determined by the Reliability Coordinator, similar to the PRC-023 standard, since the RC has the primary responsibility and knowledge of interconnection reliability impact. 3. We do not understand why the SDT considers removing Category 3 incidents? In our view, Category 3 outages are important information for assessing the effectiveness of vegetation program. Since the industry started reporting vegetation related outages about 3 years ago, data collected so far indicates that of a total of 98 reported vegetation outages, 67 of them were category 3 outages. With this high percentage, reporting of Category 3 events should be a must since the associated trends can provide valuable information to the TOs to aid its evaluation of the vegetation management program. 4. The white paper and field tests are a good idea and the SDT should be commended for these, especially the white paper. 5. Item 2 under the FERC Order 693 Items in the Detailed Description Section indicates the SDT will also collection outage data. While we understand that FERC has directed the ERO to collect outage data for transmission outages of lines that cross both federal and non-federal lands, we do not feel that it is the SDT's role to perform this task. We feel that this task should be performed by the ERO line functions or a group separate from the SDT such that the task does not add burden to the SDT which may slow down the standard development process or result in the standard development being driven by unanalyzed data and resulting in erroneous requirements. 6. With respect to reporting exemptions, our position during development of the previous version of this standard was to limit them. We commend the SDT intention to clarify the outage exemptions under major disasters, but to consider including all category outage exemptions in the standard body is too prescriptive and will add to the already extended list. It can end up with a very long list of outage exemptions, thereby reducing the coverage of the standard substantially and defeating its purpose
Response: 1. On the basis of the responses from stakeholders to Question #2 above, the SAR DT's assessment is that further			

Question #4			
Commenter	**Yes**	**No**	**Comment**
specificity may be needed to aid in identifying which <200kV transmission lines should come under the purview of this standard. The SDT shall take under consideration other applicability parameter criteria, various stakeholder proposals including IROL violation potential. 2. See # 1 above. 3. The SAR indicates that the Standard Drafting Team will review reporting criteria for Category 3 outages and will review the reporting requirement of Category 3 outages in R.3 and R.4. 4. The SAR DT thanks you for your comment. 5. The SDT looks to receive the results of the ERO analysis and use it in developing the standard. 6. The SDT will review the reporting exemptions to include all category outages under major disasters in Requirement R3.2.			
IRC SRC	☑		1. The SAR indicates that a list of critical low voltage transmission lines will be provided to FERC. We do not interpret Order 693 to direct NERC to provide this list. Rather, we interpret that FERC asks for defining a criteria that would include low voltage transmission lines that have impact on Bulk Power System reliability. We do not think the list is required. 2. The SAR indicates: "The standard DT may consider other criteria in determining applicability of the standard to sub 200kV lines…" Per Order 693, the criteria is quite clearly stated to be the transmission lines of less than 200 kV that could impact Bulk Power System reliability. We don't feel any other criteria would be necessary. Further, to identify the candidates that meet this criteria, we believe they should be determined by the Reliability Coordinator, similar to the PRC-023 standard, since the RC has the primary responsibility and knowledge of interconnection reliability impact. 3. We do not understand why the SDT considers removing Category 3 incidents? In our view, Category 3 outages are important information for assessing the effectiveness of vegetation program. Since the industry started reporting vegetation related outages about 3 years ago, data collected so far indicates that of a total of 98 reported vegetation outages, 67 of them were category 3 outages. With this high percentage, reporting of Category 3 events should be a must since the associated trends can provide valuable information to the TOs to aid its evaluation of the vegetation management program. 4. The white paper and field tests are a good idea and the SDT should be commended for these, especially the white paper.

Question #4			
Commenter	**Yes**	**No**	**Comment**
			5. Item 2 under the FERC Order 693 Items in the Detailed Description Section indicates the SDT will also collect outage data. While we understand that FERC has directed the ERO to collect outage data for transmission outages of lines that cross both federal and non-federal lands, we do not feel that it is the SDT's role to perform this task. We feel that this task should be performed by the ERO or a group separate from the SDT such that the task does not add burden to the SDT which may slow down the standard development process or result in the standard development being driven by unanalyzed data and resulting in erroneous requirements. 6. With respect to reporting exemptions, our position during development of the previous version of this standard was to limit them. We commend the SDT intention to clarify the outage exemptions under major disasters, but to consider including all category outage exemptions in the standard body is too prescriptive and will add to the already extended list. It can end up with a very long list of outage exemptions, thereby reducing the coverage of the standard substantively and defeating its purpose. If this list was to be developed, they could be attached as guidelines aside of the standard. 7. The SAR DT states it will deal with "critical facilities" . The SRC suggest that the DT not use the word "critical" and adopt another term. There is a need to define in a single standard what the term "critical" means. Standards FAC-014 (R5.1.1); IRO-002-1 (R6) and others use the term "critical" as in: critical loads, critical infrastructure, critical assets. The Veg Management Team is asked to avoid making the current situation worse.

Response:

1. On the basis of the responses from stakeholders to Question #2 above, the SAR DT's assessment is that further specificity may be needed to aid in identifying which <200kV transmission lines should come under the purview of this standard. The SDT shall take under consideration other applicability parameter criteria, various stakeholder proposals including IROL violation potential.
2. The FERC Order includes the following language which indicates that FERC would support inclusion of any circuit below 200 kV that was subject to an IROL and the SAR has been written to allow this modification..
3. The SAR indicates that the Standard Drafting Team will review reporting criteria for Category 3 outages and will review the reporting requirement of Category 3 outages in R.3 and R.4.
4. The SDT shall consider producing a white paper to aid in clarifying the intent of the standard, however a field test is not contemplated at this time.
5. The SAR was revised to clarify that it is the ERO that will collect data and the Standard DT will receive the results of

Question #4			
Commenter	**Yes**	**No**	**Comment**
the ERO analysis and use it in developing the standard. 6. The standard DT will review the reporting exemptions to include all category outages under major disasters in Requirement R3.2. 7. The FERC Order includes the following language which indicates that FERC would support inclusion of any circuit below 200 kV that was subject to an IROL and the SAR has been written to allow this modification.			
ISO-NE	☑		1. The SAR indicates that a list of critical low voltage transmission lines will be provided to FERC. We do not interpret Order 693 to direct NERC to provide this list. Rather, we interpret that FERC asks for defining a criteria that would include low voltage transmission lines that have impact on Bulk Power System reliability. We do not think the list is required. 2. The SAR indicates: "The standard DT may consider other criteria in determining applicability of the standard to sub 200 kV lines…" Per Order 693, the criteria is quite clearly stated to be the transmission lines of less than 200 kV that could impact Bulk Power System reliability. We don't feel any other criteria would be necessary. Further, to identify the candidates that meet this criteria, we believe they should be determined by the Reliability Coordinator, similar to the PRC-023 standard, since the RC has the primary responsibility and knowledge of interconnection reliability impact. 3. We do not understand why the SDT considers removing Category 3 incidents. In our view, Category 3 outages are important information for assessing the effectiveness of a vegetation program. Since the industry started reporting vegetation-related outages about 3 years ago, data collected so far indicates that of a total of 98 reported vegetation outages, 67 of them were category 3 outages. With this high percentage, reporting of Category 3 events should be a must since the associated trends can provide valuable information to the TOs to aid its evaluation of the vegetation management program. 4. The white paper and field tests are a good idea and the SDT should be commended for these, especially the white paper. 5. Item 2 under the FERC Order 693 Items in the Detailed Description Section indicates the SDT will also collect outage data. While we understand that FERC has directed the ERO to collect outage data for transmission outages of lines that cross both federal and non-federal lands, we do not feel that it is the SDT's role to perform this task. We feel that this task should be performed by the ERO or a group separate from the SDT such

Question #4			
Commenter	**Yes**	**No**	**Comment**
			that the task does not add burden to the SDT which may slow down the standard development process or result in the standard development being driven by unanalyzed data and resulting in erroneous requirements. 6. With respect to reporting exemptions, our position during development of the previous version of this standard was to limit them. We commend the SDT's intention to clarify the outage exemptions under major disasters, but to consider including all category outage exemptions in the standard body is too prescriptive and will add to the already extended list. It can end up with a very long list of outage exemptions, thereby reducing the coverage of the standard substantively and defeating its purpose. If this list was to be developed, they could be attached as guidelines aside of the standard. 7. The SAR DT states it will deal with "critical facilities." The SRC suggest that the DT not use the word "critical" and adopt another term. There is a need to define in a single standard what the term critical means. Standards FAC-014 (R5.1.1); IRO-002-1 (R6) and others use the term "critical" as in: critical loads, critical infrastructure, critical assets. This Team is asked to avoid making the current situation worse.

Response:

1. On the basis of the responses from stakeholders to Question #2 above, the SAR DT's assessment is that further specificity may be needed to aid in identifying which <200kV transmission lines should come under the purview of this standard. The SDT shall take under consideration other applicability parameter criteria, various stakeholder proposals including IROL violation potential.
2. The FERC Order includes the following language which indicates that FERC would support inclusion of any circuit below 200 kV that was subject to an IROL and the SAR has been written to allow this modification..
3. The Standard Drafting Team intends to review reporting criteria for Category 3 outages in the proposed technical reference material and may review the reporting requirement of Category 3 outages in R.3 and R.4.
4. The SDT shall consider producing a white paper to aid in clarifying the intent of the standard, however a field test is not contemplated at this time.
5. The standard DT looks to receive the results of the ERO analysis and use it in developing the standard.
6. The standard DT will review the reporting exemptions to include all category outages under major disasters in Requirement R3.2.
7. The FERC Order includes the following language which indicates that FERC would support inclusion of any circuit below 200 kV that was subject to an IROL and the SAR has been written to allow this modification.

Question #4			
Commenter	**Yes**	**No**	**Comment**
MRO	☑		If the Regional Reliability Organization is removed as an applicable entity, what is the Regional Entity's responsible? How will a general consensus be formed? How do you get people to participate in this formation? For good planning and application of standards, methodologies need to be consistently applied through guidelines to the drafting teams. Specifically, this standard should provide consistent methodology that provides guidance to the transmission owner. In the next revision of the standard, the MRO requests that more authority be given to the applicable entities with respect to the latitude allowed them in removing trees to the legal limits of their agreement. The MRO commends FERC on empowering NERC and the SAR DT via their Order 693 to revisit the issue of clearances for lines on both Federal and non-Federal Lands. It has come to the attention of the MRO that Federal Forest Employees as well as BLM employees have begun the practice of chemically treating noxious weeds and invasive species on Federal Lands. he MRO would like to have FERC, NERC, and the Standard DT consider meeting with Federal Land Managers to discuss, on a National Level, the issue of herbicide application by utilities on Federal Lands. At the present time there are inconsistencies regionally on this issue that allow application in some regions but not in others.
Response: 1. The term RRO is no longer in use and RE (or regional entity) is now the preferred term for the former Regional Reliability Organizations. The term RE is defined in the delegation agreements between these organizations and the ERO. 2. Such a guideline exists and is available on the NERC website entitled "Standard Drafting Team Guidelines". 3. See answer #2 above. 4. The removal of trees within the limits stated in agreements is outside the scope of this standard. 5. The coordination of the use of herbicides is outside the scope of this standard.			
National Grid	☑		1) National Grid supports amending FAC-003-1 to bring the Standard into compliance with "latest version of the Reliability Standard Development Procedure and the ERO Sanctions Guidelines" as discussed in the SAR Background Information. 2) We do not support amendments to the Standard to address all of the issues raised by FERC Order 693. We believe most of the FERC's concerns can be addressed by

Question #4			
Commenter	**Yes**	**No**	**Comment**
			developing a "white paper" to better explain the Standard and guide its implementation. 3) National Grid does not support changing the basic approach to defining clearance from vegetation. The clearance 1 and clearance 2 concept adopts the two management approaches used by most TO's today and required in some state or ISO level standards. National Grid supports using the reference to IEEE 516 as the basis for clearance 2 for two reasons: 1 - there is no other definitive reference for flash over distances to vegetation and 2- decades of experience by TO's acrosss the North America suggest the IEEE 516 distances are more than adequate. The well known tree caused outages in 1996 and 2003 occurred as a result of hard contact with vegetation not flashover at distances close to those in IEEE 516. Furthermore, FERC accepted IEEE 516 as appropriate for use in vegetation management in the October 2006, NOPR. 4) National Grid supports amending the definition of a right-of-way though we are not clear on what is meant in the SAR language by "to encompass required clearing areas". National Grid is concerned with the interpretation of the present definition that the right-of-way includes uncleared fee owned or easement land reserved for future construction. In many jurisdictions the TO may not be allowed to remove trees from these areas. A "white paper" could better describe the definition and prevent future compliance issues stemming from an ambiguous definition.
Response: 1. The SAR DT thanks you for your comment. 2. The SAR indicates that the SDT will produce a technical white paper to clarify intent of the standard. 3. The SAR DT agrees with the commenter not to change the basic approach and recognizes that sections of IEEE 516 standard pertaining to minimum air insulation distances are applicable in determining minimum vegetation clearances to prevent flashovers. 4. The Standard DT will review the definition of ROW. See also answer #2 above.			
Northeast Utilities	☑		NU does not support the proposed revisions based on the issues raised by FERC Order 693. The Standard has not been in effect long enough to determine if there are any shortcomings with the current requirements. It is our position that the current clearance requirements are satisfactory in that a base minimum distance as provided under IEEE Section 516 is sufficient and there is the need for variations in the second level of clearances base on Regional needs and conditions. The revisions to the definition of "right-of-way" to encompass required clearance areas can e problematic as this could cause significant problems with current systems. There is no detailed description on what the new definition will include or what the actual impact will be to TO's. If the definition will include defined limits or widths of rights-of-

Question #4			
Commenter	**Yes**	**No**	**Comment**
			way this may affect current facilities that do not meet these distances. Second, there are areas where the company owns or possesses additional area beyond the current maintained right-of-way widths. Is it proposed that the new definition expand the limits of clearing or maintenance to include easemented or fee-owned areas beyond the current maintained limits? Until the new definition can be presented - it is difficult to support any changes at this time and we can only comment on the perceived negative impacts.
Response: The SDT will review the standard to address the Commission's determinations. The standard DT will review the definition of ROW. Note that the ERO is required to respond to the FERC directives.			
NYISO	☑		1. The SAR indicates that a list of critical low voltage transmission lines will be provided to FERC. We do not interpret Order 693 to direct NERC to provide this list. Rather, we interpret that FERC asks for defining a criteria that would include low voltage transmission lines that have impact on Bulk Power System reliability. We do not think the list is required. 2. The SAR indicates: "The standard DT may consider other criteria in determining applicability of the standard to sub 200kV lines…" Per Order 693, the criteria is quite clearly stated to be the transmission lines of less than 200 kV that could impact Bulk Power System reliability. We don't feel any other criteria would be necessary. Further, to identify the candidates that meet this criteria, we believe they should be determined by the Reliability Coordinator, similar to the PRC-023 standard, since the RC has the primary responsibility and knowledge of interconnection reliability impact. 3. We do not understand why the SDT considers removing Category 3 incidents? In our view, Category 3 outages are important information for assessing the effectiveness of vegetation program. Since the industry started reporting vegetation related outages about 3 years ago, data collected so far indicates that of a total of 98 reported vegetation outages, 67 of them were category 3 outages. With this high percentage, reporting of Category 3 events should be a must since the associated trends can provide valuable information to the TOs to aid its evaluation of the vegetation management program. 4. The white paper and field tests are a good idea and the SDT should be commended for these, especially the white paper. 5. Item 2 under the FERC Order 693 Items in the Detailed Description Section indicates

Question #4			
Commenter	**Yes**	**No**	**Comment**
			the SDT will also collect outage data. While we understand that FERC has directed the ERO to collect outage data for transmission outages of lines that cross both federal and non-federal lands, we do not feel that it is the SDT's role to perform this task. We feel that this task should be performed by the ERO or a group separate from the SDT such that the task does not add burden to the SDT which may slow down the standard development process or result in the standard development being driven by unanalyzed data and resulting in erroneous requirements. 6. With respect to reporting exemptions, our position during development of the previous version of this standard was to limit them. We commend the SDT intention to clarify the outage exemptions under major disasters, but to consider including all category outage exemptions in the standard body is too prescriptive and will add to the already extended list. It can end up with a very long list of outage exemptions, thereby reducing the coverage of the standard substantively and defeating its purpose. If this list was to be developed, they could be attached as guidelines aside of the standard.
Response: 1. On the basis of the responses from stakeholders to Question #2 above, the SAR DT's assessment is that further specificity may be needed to aid in identifying which <200kV transmission lines should come under the purview of this standard. The SDT shall take under consideration other applicability parameter criteria, various stakeholder proposals including IROL violation potential.. 2. The FERC Order includes the following language which indicates that FERC would support inclusion of any circuit below 200 kV that was subject to an IROL and the SAR has been written to allow this modification.. 3. The Standard Drafting Team intends to review reporting criteria for Category 3 outages in the proposed technical reference material and may review the reporting requirement of Category 3 outages in R.3 and R.4. 4. The SAR indicates that the SDT will produce a white paper to aid in clarifying the intent of the standard, however a field test is not contemplated at this time. 5. The SDT looks to receive the results of the ERO analysis and use it in developing the standard. 6. The SDT will review the reporting exemptions to include all category outages under major disasters in Requirement R3.2.			
PGE	☑		1) Applicability 4.3 of the standard - PG&E believes the RE is in the best position to determine sub-200kV facilities are designated critical and covered under FAC-003-1. We suggest the ERO direct the RE to provide a list of sub-200kV lines designated critical along with methodology used to make that determination. 2) Clearances for lines on federal and non-federal lands - PG&E believes there should be no distinction between requirements on different lands. Vegetation encroachments have

Question #4			
Commenter	**Yes**	**No**	**Comment**
			the same impact regardless of land ownership. 3) Definition of right of way - agreed 4) Suitability of IEEE 516-2003 - PG&E believes the use of IEEE 516 as the standard for clearance requirements are adequate to ensure transmission system reliability provided the TO has an appropriate methodology for determining clearance at time of trim and an adequate cycle to prevent vegetation from encroaching within minimum distances. Use of ANSI Z133.3 or FedOSHA 1910, as suggested by FERC, is not appropriate as it is intended for worker safety and not system reliability. TO compliance with R1.2 of the standard should address concerns FERC has with maintaining minimum clearance. 5-7) Procedural items - No comment 8) Preparation of technical manual (white paper) - agreed 9) PG&E believes the current reporting requirements under R3 of the standard should be revised. Distinction is placed on fall-in's "in and out of the ROW" and may not be the best method for determining severity for reporting purposes. PG&E believes a better distinction is (a) green/healthy/no obvious decline and (b) dead or obvious signs of disease, decay or decline. A key component of any TMVP should be hazard tree mitigation regardless if in or out of the ROW. Suggested categories: Category 1 - Any grow-in (as currently stated). Category 2 - Any fall-in of a dead tree or one with obvious signs of disease, decay or decline in or out of the ROW. Category 3 - Either eliminate this category or specify healthy green tree or tree with no obvious signs of decline (if retained, be specific about this being for reporting purposes only) PG&E recognizes that tree failures, even if dead or diseased, are not necessarily an indicator of problematic VM program and the severity level should be reflected as such. Tree density along with other factors make 100% identification not possible. However, multiple occurrences could be an indicator of substandard performance and the current standard does remains silent in respect to hazard trees other than if in or out of the ROW.
Response:			

Question #4			
Commenter	**Yes**	**No**	**Comment**
1. On the basis of the responses from stakeholders to Question #2 above, the SAR DT's assessment is that further specificity may be needed to aid in identifying which <200kV transmission lines should come under the purview of this standard. The SDT shall take under consideration other applicability parameter criteria, various stakeholder proposals including IROL violation potential.. 2. The SAR DT concurs with the commenter with respect to applying this standard to Federal and non-Federal lands. The standard DT will evaluate the suitability of a case-by-case approach. 3. The standard DT will review the definition of ROW. 4. The SAR DT agrees with the commenter and recognizes that sections of IEEE 516 standard pertaining to minimum air insulation distances are applicable in determining minimum vegetation clearances to prevent flashovers. 5. n/a 6. n/a 7. n/a 8. The SAR indicates that the SDT will produce a technical white paper to clarify intent of the standard. 9. The SAR indicates that the SDT will review reporting criteria for Category 3 outages and will review the reporting requirement of Category 3 outages in R.3 and R.4. The SDT and Compliance Elements DT will review and assign Violation Severity Levels when modifying FAC-003-1.			
PGN	☑		Progress Energy Carolinas (PEC) and Progress Energy Florida (PEF) do not agree that each of 11 items listed in the SAR are necessary to improve reliability. The following comments are offered for each of the 11 items identified in the SAR detail description: 1. Standard Applicability: PEC and PEF believe that the current standard wording for determining facilities subject to this standard should not be revised. The standard as it is written provides for lines below 200kV, that are determined to impact the grid, to be subject to the standard. Extending the requirements to a bright line below 200kV, such as 100kV, will dilute the focus on those lines that impact grid reliability, lines >200kV, and shift attention to facilities, those <200kV, that do not necessarily impact grid reliability. Customer reliability is an issue that impacts customer satisfaction and is generally driven by state utility commissions. While some facilities above 200kV directly support customer load, transmission lines below 200kV primarily support customer load, and interruptions to those facilities generally reduce load on the grid. The majority of transmission facilities below 200 kV also have significantly different design/construction/operating characteristics and have not been cited as impacting bulk

Question #4			
Commenter	**Yes**	**No**	**Comment**
			power system reliability. For example, the Final Report on the August 14, 2003 Blackout in the United states and Canada: Causes and Recommendations April 2004 by the U.S.-Canada Power System Outage Task Force and all referenced major blackouts (pages 103-115) in that report, cited only outages which involved vegetation at line voltages above 200kV. Generally applying requirements that are appropriate for >200kV lines to lines less than 200kV will result in significant documentation and reporting of items such as restrictions, mitigation plans, off right-of-way vegetation-related outage investigation/ information and other issues, all of which dilutes the focus on lines that directly impact bulk power system reliability. Revising the standard to use general criteria or broad language for defining "Bulk Power System" transmission lines covered by the standard is a "one size fits all" approach. If that approach were taken, the standard would cover a significant number of transmission lines that have no direct impact on bulk power system reliability under standard planning/operating conditions, resulting in a significant cost burden for electric customers without improving "grid" reliability. PEC and PEF believe that the applicability provision of the standard should instead focus attention of the standard only on the transmission lines below 200kV that directly impact "Bulk Power System" reliability, as the current version requires. While PEC and PEF recognize some validity in the Commission's concern, PEC and PEF recommend that the applicability provision of this standard should be revised only if existing system design, planning or operating reliability criteria and parameters are considered as a basis for defining the applicability of the standard. To that end, PEC and PEF recommend each Regional Entity (RE) determine applicability of FAC-003 to those lines within the region that are between 100kV and 200KV, if, and only if, they are identified as operationally significant elements of Interconnection Reliability Operating Limits ("IROLs"). That is, any facility below 200kV that, by itself, would cause an Interconnected Reliability Limit Violation should the facility be outaged. 2. Issue of Clearances (Federal vs Non-Federal Lands): FAC-003-1 presently requires the transmission owner (TO) "identify and document clearances between vegetation and any overhead, ungrounded supply conductors, taking into consideration transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, and the effects of wind velocities on

Question #4			
Commenter	**Yes**	**No**	**Comment**
			conductor sway." The intent of this requirement is to ensure adequate clearances to prevent vegetation related outages. PEC and PEF believe that only the TO has the technical information required to determine the clearances that are necessary at the time of VM work and that any "federal lands exemption" to clearances will result in inadequate clearances for the existing conditions. Consistency in application of the TO's clearance requirements, not exceptions, is the only assurance in providing a uniform and reliable electrical system to meet the nation's current and future energy demands. Any exception for a case by case clearance approach to determine vegetation management activities/clearances on Federal lands will continue to drive inconsistency and/or delays associated with TO vegetation management decisions being driven by diverse vegetation management practices/beliefs and staff changes at the local level of Federal agencies. Vegetation-related outages have occurred on Federal lands as a result of this case by case approach, and if "Bulk Power Transmission System" lines continue to be addressed on a "case by case" basis on National Forest Service (or any other Federal lands), those lines will potentially be subject to a higher risk for vegetation-related outages, resulting in reduced reliability for the "Bulk Power System". PEC and PEF believe that reliability of the "Bulk Power System" should have the same focus on Federal and private lands and that the EEI MOU with federal agencies is an appropriate avenue for TO's to identify clearances on Federal lands, not an exemption in the language of a reliability standard. 3. Defining Right-of-Way: PEC and PEF agree that it is appropriate to further address the definition of "right-of-way". Corridor widths that exceed the design clearance requirements have been acquired for a variety of reasons in the past; future use, property line buffers, etc. Vegetation in those areas that would normally be outside of the corridor width necessary for reliable operation of the facility, but within an expanded easement area, should not be considered, or treated, different than vegetation that is outside of a defined easement/permit right-of-way corridor that was designed and acquired specifically for the reliable operation of a single line. 4. IEEE Standard for Minimum Clearances:

Question #4			
Commenter	**Yes**	**No**	**Comment**
			PEC and PEF believe that the IEEE 516-2003 tables are appropriate for defining the minimum acceptable clearances to prevent flashover between conductors and vegetation under all rated electrical operating conditions. Closer minimum clearances such as the minimum length of a support insulator could have been adopted as a "lowest common denominator" clearance. However the clearance in IEEE 516-2003 was adopted to ensure an additional margin of reliability. FERC staff has made references to the use of ANSI Z-133 which is a safety standard that addresses worker safety as well as the safety of the general public. The purpose of ANSI Z-133 is to address worker safety and is not focused on transmission line reliability, which is the purpose of FAC-003-1. OSHA, NESC and other related safety standards have clearances in excess of IEEE 516-2003. Those clearances are clearly focused on safety issues and will still apply to other aspects of design and operation of electric facilities (such as public and worker safety) but are not appropriate to be referenced in a vegetation management reliability standard as a flashover clearance. 5/6/7. Procedural Items: PEC and PEF agree that the procedural items related to formatting RRO references and revising the compliance elements to meet the new standard format should be addressed by the standard drafting team. 8. Technical Reference Materials: PEC and PEF agree that a "white paper" that defines the technical basis for the standard is appropriate. This type of document, if crafted by the drafting team, should help to avoid the potential for differences in interpretation of the standard's requirements by the various regions during the audit process. 9. Category 3 Outages: Since control off right-of-way vegetation is generally beyond control of the TO and since "fall-in" outages are random events that do not threaten grid reliability, PEC and PEF believe that the reporting of category 3 outages should be removed from the requirements. 10. Requirement R4:

Question #4			
Commenter	**Yes**	**No**	**Comment**
			PEC and PEF believe that requirement R4 should be deleted from the standard, since the ERO formation provides for delegation of authority to the regional entities. 11. Reporting Exemptions: PEC and PEF believe that the reporting requirement exemptions for natural disasters should include all categories of outages. For example, with outages caused by high winds, hurricanes, tornadoes, etc., it would be difficult (or practically impossible in some cases) to determine if the vegetation came from on, or off, the "right-of-way". In addition, the effort and time necessary to make that determination would result in delaying outage restoration efforts.
Response: 1. On the basis of the responses from stakeholders to Question #2 above, the SAR DT's assessment is that further specificity may be needed to aid in identifying which <200kV transmission lines should come under the purview of this standard. The SDT shall take under consideration other applicability parameter criteria, various stakeholder proposals including IROL violation potential.. 2. The SAR DT concurs with the commenter with respect to applying this standard to Federal and non-Federal lands. The standard DT will evaluate the suitability of a case-by-case approach. 3. The standard DT will review the definition of ROW. 4. The SAR DT agrees with the commenter and recognizes that sections of IEEE 516 standard pertaining to minimum air insulation distances are applicable in determining minimum vegetation clearances to prevent flashovers. 5. NERC standards must be updated to comply with new procedural requirements and must include compliance elements. 6. See #5 7. See #5 8. The SAR indicates that the SDT will produce a technical white paper to clarify intent of the standard. 9. The SAR indicates that the SDT will review reporting criteria for Category 3 outages and will review the reporting requirement of Category 3 outages in R.3 and R.4. 10. The standard DT will consider deletion of R.4. 11. The standard DT will review the reporting exemptions to include all category outages under major disasters in Requirement R3.2.			
SERC VMS	☑		The SERC VMS does not agree that each of 11 items listed in the SAR are necessary to improve reliability. The following comments are offered for each of the 11 items identified in the SAR detail description: 1. Standard Applicability:

Question #4			
Commenter	**Yes**	**No**	**Comment**
			The SERC VMS disagrees with revising the 200 kV threshold for determining facilities subject to this standard. Extending the requirements to lines other than those >200kV will dilute the focus on those lines that impact grid reliability and shift attention to facilities, those <200kV. The reliability of lower voltage lines involves local customers' reliability and satisfaction hence that reliability should be addressed by local and state utility commissions. The majority of the >200kV lines are solely elements of the grid and and interruptions to those lines negatively impact grid reliability. The majority of the <200kV lines primarily support customer load, and interruptions to those facilities actually reduces load on the grid. The majority of transmission facilities below 200 kV also have significantly different design/construction/operating characteristics and have not been cited as impacting bulk power system reliability. For example, the Final Report on the August 14, 2003 Blackout in the United states and Canada: Causes and Recommendations April 2004 by the U.S.-Canada Power System Outage Task Force and all referenced major blackouts (pages 103-115) in that report, cited only outages which involved vegetation at line voltages above 200kV. Generally applying requirements that are appropriate for >200kV lines to lines less than 200kV will result in significant documentation and reporting of items such as restrictions, mitigation plans, off right-of-way vegetation-related outage investigation/ information and other issues, all of which dilutes the focus on lines that directly impact bulk power system reliability. Revising the standard to use general criteria or broad language for defining "Bulk Power System" transmission lines covered by the standard is a "one size fits all" approach. If that approach were taken, the standard would cover a significant number of transmission lines that have no direct impact on bulk power system reliability under standard planning/operating conditions, resulting in a significant cost burden for electric customers without improving "grid" reliability. The SERC VMS believes that the applicability provision of the standard should instead focus attention of the standard only on the transmission lines below 200kV that directly impact "Bulk Power System" reliability, as the current version requires. In sum, while the SERC VMS recognizes some validity in the Commission's concern, the SERC VMS recommends that the applicability provision of this standard should be revised only if existing system design, planning or operating reliability criteria and parameters

Question #4			
Commenter	**Yes**	**No**	**Comment**
			are considered as a basis for defining the applicability of the standard. To that end, the SERC VMS recommends each Regional Entity (RE) determine applicability of FAC-003 to those lines within the region that are between 100kV and 200KV, if, and only if, they are identified as operationally significant elements of Interconnection Reliability Operating Limits ("IROLs"). That is, any facility below 200kV that by itself would cause an Interconnected Reliability Limit Violation should the facility be outaged. 2. Issue of Clearances (Federal vs Non-Federal Lands): FAC-003-1 presently requires the transmission owner (TO) "identify and document clearances between vegetation and any overhead, ungrounded supply conductors, taking into consideration transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, and the effects of wind velocities on conductor sway." The intent of this requirement is to ensure adequate clearances to prevent vegetation related outages. The SERC VMS believes that only the TO has the technical information required to determine the clearances that are necessary at the time of VM work and that any "federal lands exemption" to clearances will result in inadequate clearances for the existing conditions. Consistency in application of the TO's clearance requirements, not exceptions, is the only assurance in providing a uniform and reliable electrical system to meet the nation's current and future energy demands. Any exception for a case by case clearance approach to determine vegetation management activities/clearances on Federal lands will continue to drive inconsistency and/or delays associated with TO vegetation management decisions being driven by diverse vegetation management practices/beliefs and staff changes at the local level of Federal agencies. Vegetation-related outages have occurred on Federal lands as a result of this case by case approach, and if "Bulk Power Transmission System" lines continue to be addressed on a "case by case" basis on National Forest Service (or any other Federal lands), those lines will potentially be subject to a higher risk for vegetation-related outages, resulting in reduced reliability for the "Bulk Power System". The SERC VMS believes that reliability of the "Bulk Power System" should have the same focus on Federal and private lands and that the EEI MOU with federal agencies is the appropriate vehicle for TO's to identify clearance variances on Ferderal lands, not exemption language in the standard.

Question #4			
Commenter	**Yes**	**No**	**Comment**
			3. Defining Right-of-Way: The SERC VMS agrees that it is appropriate to further address the definition of "right-of-way". Corridor widths beyond design clearance requirements have been acquired for a variety of reasons in the past; future use, property line buffers, etc. Vegetation in those areas that would normally fall outside of the area necessary for operation of the facility should not be considered or treated different than vegetation that is outside of a defined easement/permit area that is designed for the reliable operation of an existing single line corridor. 4. IEEE Standard for Minimum Clearances: The SERC VMS disagrees with objections to the use of the IEEE 516-2003 clearance as the minimum acceptable distances for "Clearance 2". The IEEE 516-2003 tables are appropriate for defining the minimum acceptable clearances to prevent flashover between conductors and vegetation under all rated electrical operating conditions. Closer minimum clearances such as the minimum length of a support insulator could have been adopted as a "lowest common denominator" clearance. However the clearance in IEEE 516-2003 was adopted to ensure an additional margin of reliability. FERC staff references ANSI Z-133 which is a safety standard that addresses worker safety as well as the safety of the general public. As such, the purpose of ANSI Z-133 is to address worker safety and is not focused on transmission line reliability, which is the purpose of FAC-003-1. OSHA, NESC and other related safety standards have clearances in excess of IEEE 516-2003. Those clearances are clearly focused on safety issues and will still apply to other aspects of design and operation of electric facilities (such as public and worker safety) but are not appropriate to be referenced in a vegetation management reliability standard. 5/6/7. Procedural Items: The SERC VMS agrees that the procedural items related to formatting RRO references and additional compliance elements should be addressed by the standard drafting team. 8. Technical Reference Materials: The SERC VMS agrees that a "white paper" that defines the technical basis for the

Question #4			
Commenter	**Yes**	**No**	**Comment**
			standard is appropriate to avoid the potential for differences in interpretation of the standard's requirements during the various region's audit processes. 9. Category 3 Outages: Since the right to control off right-of-way vegetation is generally beyond control of the TO, the SERC VMS believes that the reporting of category 3 outages should be removed from the requirements. 10. Requirement R4: The SERC VMS believes that requirement R4 should be deleted from the standard, based on the ERO formation and the process for delegation of authority to the regional entities. 11. Reporting Exemptions: The SERC VMS believes that the reporting requirement exemptions for natural disasters should include all categories of outages. It would, for example, be difficult, without delaying restoration efforts, to determine if the vegetation from high winds, hurricanes, tornadoes, etc. is from on or off the "right-of-way".

Response:

1. On the basis of the responses from stakeholders to Question #2 above, the SAR DT's assessment is that further specificity may be needed to aid in identifying which <200kV transmission lines should come under the purview of this standard. The SDT shall take under consideration other applicability parameter criteria, various stakeholder proposals including IROL violation potential..
2. The SAR DT concurs with the commenter with respect to applying this standard to Federal and non-Federal lands. The standard DT will evaluate the suitability of a case-by-case approach.
3. The standard DT will review the definition of ROW.
4. The SAR DT agrees with the commenter and recognizes that sections of IEEE 516 standard pertaining to minimum air insulation distances are applicable in determining minimum vegetation clearances to prevent flashovers.
5. NERC standards must be updated to comply with new procedural requirements and must include compliance elements.
6. See #5
7. See #5
8. The SAR indicates that the SDT will produce a technical white paper to clarify intent of the standard.
9. The SAR indicates that the SDT will review reporting criteria for Category 3 outages and will review the reporting requirement of Category 3 outages in R.3 and R.4.

Question #4			
Commenter	**Yes**	**No**	**Comment**
10. The standard DT will consider deletion of R.4. 11. The standard DT will review the reporting exemptions to include all category outages under major disasters in Requirement R3.2.			
TVA	☑		We feel that the reporting of Category 3 outages should be eliminated. We agree with the need for a "white paper" to expand on definitions and intent. We feel that a defined maintainable width of right of way is more appropriate than the actual easement widths because easement widhts are not purchased or operated exclusively with or for vegetation manitenance activies. We will be pleased to share greater details on this concern if requested.
Response: The SAR DT thanks you for your comments.			
VELCO		☑	