

## Consideration of Comments on 2<sup>nd</sup> Draft of SAR for Project 2008-01 — Voltage and Reactive Planning and Control

The Voltage and Reactive Planning and Control SAR Drafting Team thanks all commenters who submitted comments on the proposed SAR for Voltage and Reactive Planning and Control. The SAR was posted for a 30-day public comment period from February 24, 2010 through March 26, 2010. The stakeholders were asked to provide feedback through a special Electronic Comment Form. There were 28 sets of comments, including comments from more than 85 different people from approximately 45 companies representing 9 of the 10 Industry Segments as shown in the table on the following pages.

All comments received have been posted in the original format at the following site:

[http://www.nerc.com/filez/standards/Project2008-01\\_Voltage\\_and\\_Reactive\\_Planning\\_and\\_Control.html](http://www.nerc.com/filez/standards/Project2008-01_Voltage_and_Reactive_Planning_and_Control.html)

In this document, comments have been organized so it is easier to see where there is consensus.

During the second posting of the SAR, the drafting team asked for feedback on its proposal to expand the list of standards that may need conforming changes as a result of the proposed requirements. Most commenters agreed with the addition of the standards noted to the SAR. Some commenters felt that too many standards have been included, but the SAR DT provided an explanation that if these standards are not included in the SAR, the Standard Drafting team will have to revise the SAR and re-post for comment (per the Standard Development Process) if it is determined that a particular standard needs to be revised. This would cause unnecessary project delays. The SAR DT points out that the Standard drafting team is not obligated to revise all of the listed standards, only to consider whether revisions are appropriate. At the request of commenters, the SAR DT added FAC-010-2 and FAC-011-2 in the SAR and revised the SAR to include TPL-001-0 through TPL-004-0 or TPL-001-1 as appropriate.

The SAR DT had originally proposed a five-year reactive and control plan, but replaced that in the second draft with a proposal to require an annual review of reactive support and control plans that address any coordination issues between the planning and operating horizon. Stakeholders made suggestions for additional clarity and these were adopted as noted below:

- Add clarity to the “coordination” in the development of a reactive plan. SAR revisions:
  - The neighboring Planning Coordinators and Transmission Planners should review and coordinate plans (e.g. - to ensure coordination of generator voltage schedules, reactive resources, and target voltage levels, etc.) developed by the functional entities involved.
  - This includes functional entity local plans for reactive support and control to maintain local system reliability and within applicable equipment voltage ratings
- Add clarity regarding the “review of the plan” with neighboring entities (removed “peer” review). SAR revisions:
  - The Reliability Coordinators, Transmission Operators and other functional entities associated with a neighboring Planning Coordinator’s and Transmission Planner’s footprint should review and comment, as they deem necessary, on the Planning Coordinator’s and Transmission Planner’s criteria and VAR Plan.
- Add clarity regarding the “Planning documentation and operations review cycle “. SAR revisions:
  - Review cycle should continue on an annual basis. The Standard Drafting Team will develop requirements regarding the conduct of the annual review.
- Removed reference to “best practices” and “to avoid equipment damage”

The Detailed Description of the SAR now reads:

In addition to establishing reactive planning criteria, the standards should require a reactive support and control plan ('VAR Plan'). The neighboring Planning Coordinators and Transmission Planners should review and coordinate plans (e.g. - to ensure coordination of generator voltage schedules, reactive resources, and target voltage levels, etc.) developed by the functional entities involved. This includes functional entity local plans for reactive support and control to maintain local system reliability and within applicable equipment voltage ratings. The Reliability Coordinators, Transmission Operators and other functional entities associated with a neighboring Planning Coordinator's and Transmission Planner's footprint should review and comment, as they deem necessary, on the Planning Coordinator's and Transmission Planner's criteria and VAR Plan. This review cycle should continue on an annual basis. The Standard Drafting Team will develop requirements regarding the conduct of the annual review.

Stakeholders also suggested that the SDT be cautious when creating coordination requirements. These requirements should not be to simply coordinate the plans because that is too vague. Rather the requirement should be results/performance based such as review your neighbor's plan to ensure there are no conflicts in generator voltage schedules. The SAR has been modified to add clarity that future plans be shared with entities in adjacent areas, and the entities in those adjacent areas may provide comment. The exact details for this coordination will be developed further by the standard drafting team with industry input.

With the second draft of the SAR, the SAR DT clarified that the "Reactive Support & Control Whitepaper" dated 05/18/2009 should be "considered" in the development of the requirements rather than "reflected" in the requirements. Most comments agreed with this revision.

Most commenters agreed that the SAR needs to address the reactive demand and resources needed among bulk power facilities. However, further clarification is needed. The SAR addresses reactive and voltage control from Generation, to Transmission to Distribution facilities. These facilities need to be covered to address the reactive demand and resources needed to maintain bulk power system reliability. The SAR Drafting Team spent considerable time discussing the planning and operating horizons. The Standard Drafting Team will address whether it is appropriate that the VAR Standards are applicable to Planning Coordinators, Transmission Planners and Reliability Coordinators. The SDT will propose specific changes to the VAR Standards. The SAR provides sufficient flexibility for the SDT to make recommendations to the other Drafting Teams. VRPC related topics are directly or indirectly covered in several Standards, however, several gaps and unclear Requirements have been identified. The VRPC SDT will review the Standards listed in the SAR and determine what needs to be changed in the VAR Standards and make recommendations to close the VRPC related gaps in other Standards.

Many stakeholders agreed with applicability of the SAR. The majority of the comments included concerns related to the applicability of the Balancing Authority in reactive support and control. The SAR team responded that the Balancing Authority may be called upon to place into service appropriate generation resources for reactive support and control when directed/requested and therefore was included as a possible responsible entity for consideration by the standard drafting team.

The SAR DT received conflicting comments regarding the applicability to the Resource Planner. The SAR DT has decided to make the Resource Planner a potential Applicable Entity under this SAR. The Standard Drafting Team will develop any requirements and vet them through the stakeholder process.

Several commenters provided specific comments or suggestions for standard revisions. These are not appropriate to include in the SAR, however the SAR DT will forward these comments to the SDT for their consideration in the development of specific requirements.

Other commenters had concerns regarding the potential to develop redundant requirements under this SAR. The SAR DT recognizes that the SDT will need to coordinate with other standard development projects to ensure that there is no redundancy and that the body of standards developed under this SAR and other SARs.

Commenters also had concerns that requirements written under this SAR may be too prescriptive. The SAR indicates there should be requirements to document the criteria and methodology for dynamic reactive power resources. The SDT will develop requirements based on the SAR which should avoid being overly prescriptive to allow individual compliance with the requirements. The SAR DT encourages stakeholders to keep abreast of development of requirements and provide comments to the SDT.

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 Vice President and Director of Standards, Gerry Adamski, at 609-452-8060 or at [gerry.adamski@nerc.net](mailto:gerry.adamski@nerc.net). In addition, there is a NERC Reliability Standards Appeals Process.<sup>1</sup>

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

## Consideration of Comments on Project 2008-01 — Voltage and Reactive Planning and Control

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### Index to Questions, Comments, and Responses

1. The following standards, which contain references to voltage and/or reactive control, were added to the SAR as standards which may need to be revised based on VAR Standard DT future recommendations: ..... 10
2. The requirement relating to a five-year reactive support and control plan has been removed from the SAR. The revised SAR describes the concept of an annual review of a reactive support and control plan. The plan needs to address any coordination issues between the planning and operating horizon. Do you agree with this change? If not, please explain in the comment area..... 17
3. The revised SAR clarifies that criteria and methodology should be developed to document the required dynamic and static resources but does not specify that this needs to be achieved by defining “reactive clusters”. The documented criteria, methodology and results are to be coordinated with neighboring areas. Do you agree with this change? If not, please explain in the comment area..... 23
4. The revised SAR was reworded to include FERC order 693 language to provide clarity to the SAR. Do you agree that this change provides clarity to the SAR? If not, please explain in the comment area. .... 30
5. The SAR was also revised such that the Transmission Issues Subcommittee “Reactive Support & Control Whitepaper” dated 05/18/2009 is listed as a reference document and clarifies that the SDT should “consider” the whitepaper in developing proposed requirements. Do you agree with this change? If not, please explain in the comment area..... 34
6. The revised SAR clarified the need to address the reactive demand and resources needed among bulk power facilities (see revised “Brief Description” section). Do you agree with this change? If not, please explain in the comment area..... 38
7. The functional entities listed as possible responsibility entities for consideration by the standard drafting team has been revised to include the Balancing Authority and to remove the Resource Planner and Market Operator. Do you agree with this change? If not, please explain in the comment area..... 43
8. If you have any other comments on the SAR that you haven’t already provided in response to the previous questions, please provide them here..... 50

## Consideration of Comments on Project 2008-01 — Voltage and Reactive Planning and Control

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.	Group	Jim Case	SERC OC Standards Review Group	X		X								
Additional Member		Additional Organization		Region			Segment Selection							
1.	Gerry Beckerle	Ameren		SERC			1, 3							
2.	Larry Akens	TVA		SERC			1, 3, 5, 9							
3.	Gene Delk	SCE&G		SERC			1, 3, 5							
4.	Marc Butts	Southern		SERC			1, 3, 5							
5.	Hugh Francis	Southern		SERC			3, 5, 1							
6.	Shih-min Hsu	Southern		SERC			1, 3, 5							
7.	Steve Fritz	ACES Power Mktg		SERC			6							
8.	Timothy LeJeune	LA Generating		SERC			1, 3, 5							
9.	David Plauck	Calpine		SERC			5							
10.	Fred Krebs	Calpine		SERC			5							
11.	Gene Warnecke	Ameren		SERC			1, 3							
12.	Chad Randall	E.ON.US		SERC			1, 3, 5							
13.	Melinda Montgomery	Entergy		SERC			1, 3							

**Consideration of Comments on Project 2008-01 — Voltage and Reactive Planning and Control**

	Commenter	Organization	Industry Segment									
			1	2	3	4	5	6	7	8	9	10
14.	Robert Thomasson	Big Rivers EC	SERC									1, 3, 5, 9
15.	Patrick Woods	EKPC	SERC									1, 3, 5, 9
16.	John Troha	SERC Reliability Corp.	SERC									10
2.	Group	Guy Zito	Northeast Power Coordinating Council									X
Additional Member		Additional Organization		Region						Segment Selection		
1.	Alan Adamson	New York State Reliability Council, LLC		NPCC						10		
2.	Gregory Campoli	New York Independent System Operator		NPCC						2		
3.	Roger Champagne	Hydro-Quebec TransEnergie		NPCC						2		
4.	Kurtis Chong	Independent Electricity System Operator		NPCC						2		
5.	Sylvain Clermont	Hydro-Quebec TransEnergie		NPCC						1		
6.	Chris de Graffenried	Consolidated Edison Co. of New York, Inc.		NPCC						1		
7.	Gerry Dunbar	Northeast Power Coordinating Council		NPCC						10		
8.	Ben Eng	New York Power Authority		NPCC						4		
9.	Brian Evans-Mongeon	Utility Services		NPCC						8		
10.	Mike Garton	Dominion Resources Services, Inc.		NPCC						5		
11.	Brian L. Gooder	Ontario Power Generation Incorporated		NPCC						5		
12.	Kathleen Goodman	ISO - New England		NPCC						2		
13.	David Kiguel	Hydro One Networks Inc.		NPCC						1		
14.	Michael R. Lombardi	Northeast Utilities		NPCC						1		
15.	Randy MacDonald	New Brunswick System Operator		NPCC						2		
16.	Greg Mason	Dynergy Generation		NPCC						5		
17.	Bruce Metruck	New York Power Authority		NPCC						6		
18.	Chris Orzel	FPL Energy/NextEra Energy		NPCC						5		
19.	Lee Pedowicz	Northeast Power Coordinating Council		NPCC						10		
20.	Robert Pellegrini	The United Illuminating Company		NPCC						1		

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	Commenter	Organization	Industry Segment										
			1	2	3	4	5	6	7	8	9	10	
21.	Saurabh Saksena	National Grid	NPCC							1			
22.	Michael Schiavone	National Grid	NPCC							1			
23.	Peter Yost	Consolidated Edison Co. of New York, Inc.	NPCC							3			
3.	Group	jalal babak	Electric Market Policy	X		X		X	X				
<b>Additional Member</b>		<b>Additional Organization</b>		<b>Region</b>					<b>Segment Selection</b>				
1.	Louis Slade			SERC					1, 3				
2.	Mike Garton			NPCC					5, 6				
4.	Group	Stephen Mizelle	Southern Company	X									
<b>Additional Member</b>		<b>Additional Organization</b>		<b>Region</b>					<b>Segment Selection</b>				
1.	Southern Company		Southern Company Generation	SERC					5				
5.	Group	Denise Koehn	Bonneville Power Administration	X		X		X	X				
<b>Additional Member</b>		<b>Additional Organization</b>		<b>Region</b>					<b>Segment Selection</b>				
1.	Steve Hitchens		BPA, Transmission Technical Operations	WECC					1				
2.	Rebecca Berdahl		BPA, Long Term Sales and Purchases	WECC					3				
6.	Group	Philip R. Kleckley	SERC Planning Standards Subcommittee	X		X		X					
<b>Additional Member</b>		<b>Additional Organization</b>		<b>Region</b>					<b>Segment Selection</b>				
1.	David Marler		Tennessee Valley Authority	SERC					1				
2.	Bob Jones		Southern Company Services - Trans	SERC					1				
3.	Jim Kelley		PowerSouth Energy Cooperative	SERC					1				
4.	James Manning		North Carolina Electric Membership Corporation	SERC					3				
5.	Charles Long		Entergy	SERC					1				
6.	Pat Huntley		SERC Reliability Corporation	SERC					10				
7.	Group	Jason L. Mashall	Midwest ISO Standards Collaborators		X								
<b>Additional Member</b>		<b>Additional Organization</b>		<b>Region</b>					<b>Segment Selection</b>				

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		Commenter	Organization	Industry Segment											
				1	2	3	4	5	6	7	8	9	10		
1.	Terry Harbour		Midamerican Energy	MRO								1			
2.	Barb Kedrowski		We Energies	RFC								3, 4, 5			
3.	Jim Cyrulewski		JDRJC Associates, LLC	RFC								8			
8.	Group	Michael Gammon	Kansas City Power & Light	X		X		X	X						
		<b>Additional Member</b>	<b>Additional Organization</b>	<b>Region</b>						<b>Segment Selection</b>					
1.	Jim Useldinger		KCPL	SPP								1, 3, 5, 6			
2.	Harold Wyble		KCPL	SPP								1, 3, 5, 6			
9.	Group	Ben Li	IRC Standards Review Committee		X										
		<b>Additional Member</b>	<b>Additional Organization</b>	<b>Region</b>						<b>Segment Selection</b>					
1.	James Castle		NYISO	NPCC								2			
2.	Lourdes Estrada-Salinero		CAISO	WECC								2			
3.	Steve Myers		ERCOT	ERCOT								2			
4.	Patrick Brown		PJM	RFC								2			
5.	Bill Phillips		MISO	MRO								2			
6.	Matt Goldberg		ISO-NE	NPCC								2			
7.	Mark Thompson		AESO	WECC								2			
8.	Charles Yeung		SPP	SPP								2			
10.	Individual	Balbir S Sandhu	Generation Project Group, Reliability & Performance Dept, Manitoba Hydro					X							
11.	Individual	Ken Wofford	Bulk Planning Department	X											
12.	Individual	Sandra Shaffer	PacifiCorp	X		X		X	X						
13.	Individual	John Cummings	PPL					X	X						
14.	Individual	Stephen Mizelle	Southern Company Transmission	X											
15.	Individual	Dania Colon	Progress Energy Florida											X	X
16.	Individual	Greg Rowland	Duke Energy	X		X		X	X						



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		Commenter	Organization	Industry Segment										
				1	2	3	4	5	6	7	8	9	10	
17.	Individual	Thad Ness	AEP	X		X		X	X					
18.	Individual	Claudiu Cadar	GDS Associates	X										
19.	Individual	Chris Scanlon	Exelon	X		X		X	X					
20.	Individual	Jon Kapitz	Xcel Energy	X		X		X	X					
21.	Individual	Amir Hammad	Constellation Power Source Generation					X						
22.	Individual	James Sharpe	South Carolina Electric and Gas	X		X		X	X					
23.	Individual	Richard Kafka	Pepco Holdings, Inc.	X		X		X	X					
24.	Individual	Kirit Shah	Ameren	X		X		X	X					
25.	Individual	Kasia Mihalchuk	Manitoba Hydro	X		X		X	X					
26.	Individual	Joe Knight	Great River Energy	X		X		X	X					
27.	Individual	Dan Rochester	Independent Electricity System Operator		X									
28.	Individual	Venkat(Sharma) Kolluri	Entergy	X										

## Consideration of Comments on Project 2008-01 — Voltage and Reactive Planning and Control

**1 The following standards, which contain references to voltage and/or reactive control, were added to the SAR as standards which may need to be revised based on VAR Standard DT future recommendations:**

- MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability
- MOD-026-1 — Verification of Models and Data for Generator Excitation System Functions
- PRC-10-0 — Assessment of the Design and Effectiveness of UVLS Program
- PRC-011-0 — Under Voltage Load Shedding System Maintenance and Testing
- PRC-022-1 — Under voltage Load Shedding Program Performance
- EOP-003-1 — Load Shedding Plans
- IRO-004-1 — Reliability Coordination — Operations Planning
- TOP-002-2 — Normal Operations Planning
- TOP-006-1 — Monitoring System Conditions
- TPL-001-1 — Transmission System Planning Performance Requirements (Project 2006-02)

**Do you agree with this change? If not, please explain in the comment area.**

**Summary Consideration:** Most commenters agreed with the addition of the standards noted to the SAR. Some commenters felt that too many standards have been included, but the SAR DT provided an explanation that if these standards are not included in the SAR, the Standard Drafting team will have to revise the SAR and re-post for comment (per the Standard Development Process) if it is determined that a particular standard needs to be revised. This will cause unnecessary project delays. The Standard drafting team is not obligated to revise the standard, only to consider whether revisions are appropriate. At the request of commenters, the SAR DT added FAC-010-2 and FAC-011-2 in the SAR and revised the SAR to include TPL-001-0 through TPL-004-0 or TPL-001-1 as appropriate.

Organization	Yes or No	Question 1 Comment
Entergy		The IRO and TOP standards should be removed from the scope of the SAR as it could lead to coordination issues
<p><b>Response:</b> The VRPC SAR DT thanks you for your comment. If these standards are not included in the SAR, the Standard Drafting team will have to revise the SAR and re-post for comment (per the Standard Development Process) if it is determined that one of these standards needs to be revised. This will cause unnecessary project delays. The Standard drafting team is not obligated to revise the identified standards, only to consider whether revisions are appropriate. The IRO and TOP standards need to be listed as potential standards requiring revision since they deal with Operations Planning and Monitoring System Conditions in real time. A voltage and reactive control plan, as contemplated by the SAR, will certainly necessitate activities in Operations Planning and Real Time monitoring of system conditions. Including these standards in the SAR will allow the Standard Drafting Team to review them for possible changes to incorporate any requirements developed under the SAR. The NERC Coordinators for each</p>		

**Consideration of Comments on Project 2008-01 — Voltage and Reactive Planning and Control**

Organization	Yes or No	Question 1 Comment
<b>drafting team will ensure that the development of requirements between projects is coordinated.</b>		
Ameren	No	Please note that the existing Reliability Standards TPL-001-0 through TPL-004-0 remain in effect. Reliability Standard TPL-001-1 has not been approved.
<p><b>Response: The VRPC SAR DT thanks you for your comment. The draft SAR has been revised to include TPL-001-0 through TPL-004-0 or TPL-001-1 as appropriate. We have revised the SAR to:</b></p> <p><b>TPL-001-0 through TPL-004-0 or TPL-001-1 as appropriate – coordinate with Transmission System Planning Performance Requirements (Project 2006-02)</b></p>		
Southern Company Transmission	No	The following Standards should not be included in this list for the reasons listed below. PRC-011-0 - UVLS System Maintenance and Testing. As the title of this standard suggests that this is about UVLS system maintenance and testing. The only thing is referred to voltage is the word “undervoltage” load shedding. PRC-022-1 - Under-Voltage Load Shedding Program Performance. Although voltage was referred (R1) in this standard, it is about analyzing and documenting all UVLS operations and Misoperations. EOP-003-1 - Load Shedding Plans. Although voltage was referred (R4) in this standard, its main concern is on Balancing Authority and Transmission Operator operating with insufficient generation or transmission capacity. TOP-006-1 - Monitoring System Conditions. Although voltage and reactive power was referred (R2) in this standard, it is about monitoring voltage and reactive power flow.
<p><b>Response: The VRPC SAR DT thanks you for your comment. If these standards are not included in the SAR, the Standard Drafting team will have to revise the SAR and re-post for comment (per the Standard Development Process) if it is determined that one of these standards needs to be revised. This will cause unnecessary project delays. The Standard drafting team is not obligated to revise the standards, only to consider whether revisions are appropriate. The SAR DT believes that these standards should remain in the SAR to allow the Standard Drafting Team the flexibility to include any requirements that may come from the Voltage and Reactive Control Plan.</b></p>		
SERC OC Standards Review Group	No	The IRO and TOP standards should be removed from the scope of this SAR. These standards are already the subject of current standard drafting teams and should not be added to this scope because this addition would create coordination challenges and ballot body confusion. Additionally, our experience has been that expansive scopes for SARs tend to create long drawn out standards writing projects.
<p><b>Response: The VRPC SAR DT thanks you for your comment. If these standards are not included in the SAR, the Standard Drafting team will have to revise the SAR and re-post for comment (per the Standard Development Process) if it is determined that one of these standards needs to be revised. This will cause unnecessary project delays. The Standard drafting team is not obligated to revise the standard, only to consider whether revisions are appropriate. The IRO and TOP standards need to be listed as potential standards requiring revision since they deal with Operations Planning and</b></p>		

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Organization	Yes or No	Question 1 Comment
<p><b>Monitoring System Conditions in real time. A voltage and reactive control plan, as contemplated by the SAR, will certainly necessitate activities in Operations Planning and Real Time monitoring of system conditions. Including these standards in the SAR will allow the Standard Drafting Team to review them for possible changes to incorporate any requirements developed under the SAR. The NERC Coordinators for each drafting team will ensure that the development of requirements between projects is coordinated.</b></p>		
Kansas City Power & Light	No	<p>The SAR proposed here is too broad in scope and does little to improve the reliability of the bulk electric system. Much of the statements made in this SAR are already sufficiently addressed in many of the Standards mentioned here. We are not in favor of “re-arranging” requirements that do not pose conflicts or confusion within them. Requirements are clear regarding the planning of transmission with real and reactive power under normal and severe operating conditions, coordination of voltage between operating areas, and operating within established voltage limits under normal and N-1 operating conditions, and the operating actions to take when operating outside of established voltage limits. Recommend this SAR focus solely on establishing voltage criteria at the Regional level considering the variations of voltage at the regional borders and between balancing areas which is one of the areas the SAR includes. All other areas should be considered for removal for this to be an effective reliability improvement effort.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SAR DT believes the Standard Drafting Team needs the flexibility and latitude to propose revisions to any standards that have an impact and bearing on the implementation of a VAR Plan. Development and implementation of a VAR Plan goes beyond establishing voltage criteria at a Regional level or at borders between balancing areas. FERC Order 693 requires a broader scope be addressed in the standard revisions.</b></p>		
Constellation Power Source Generation	No	<p>This SAR's scope is too broad. Condensing it to just the VAR and TPL standards would achieve the same result.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SAR DT believes the Standard Drafting Team needs the flexibility to be able to propose revisions to additional standards if required. There is no mandate or requirement to revise these other standards if the SDT determines that is not necessary.</b></p>		
Independent Electricity System Operator	No	<p>We agree with the changes such that a list of existing standards are identified as potential candidates for revision. However, as indicated in our previous comments, some SOLs and IROLs are restricted by voltage performance (voltage stability, voltage depression, etc.) and as such, two other standards - FAC-010 and FAC-011 should be included in the list as well, especially since the SAR puts emphasis on documenting criteria and methodology associated with voltage/VAR assessments.</p>

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Organization	Yes or No	Question 1 Comment
<p><b>Response: The VRPC SAR DT thanks you for your comment. We concur and have added FAC-010-2 and FAC-011-2 in the SAR.</b></p>		
<p>Midwest ISO Standards Collaborators</p>	<p>No</p>	<p>We do not agree with the expansion of the scope of this SAR. The basic premise has been that the VAR standards need to be modified and improved. We agree with this premise. However, the scope continues to grow which risks the success of the project. Furthermore, there are many of these standards such as IRO and TOP that have already been reviewed and modified or are in some state of modification. This will just create additional coordination challenges.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. If these standards are not included in the SAR, the Standard Drafting team will have to revise the SAR and re-post for comment (per the Standard Development Process) if it is determined that one of these standards needs to be revised. This will cause unnecessary project delays. The Standard drafting team is not obligated to revise the standards, only to consider whether revisions are appropriate. The SAR DT believes the scope of standards for potential revision needs to be large enough to allow the Standard Drafting Team the flexibility and latitude to recommend changes to existing standards as appropriate under the scope of the SAR.</b></p>		
<p>IRC Standards Review Committee</p>	<p>No</p>	<p>We do not agree with the expansion of the scope of this SAR. The basic premise has been that the VAR standards need to be modified and improved. We agree with this premise. However, the scope continues to grow which unnecessarily risks the success of the primary purpose of the project. Furthermore, there are many of these standards such as IRO and TOP that have already been reviewed and modified or are in some state of modification. This will just create additional coordination challenges. Some SOLs and IROs are restricted by voltage performance (voltage stability, voltage depression, etc.) and as such, the FAC-010 and FAC-011 may be the only candidates for possible changes since the SAR puts emphasis on documenting criteria and methodology associated with voltage/VAR assessments. We would urge the Drafting Team to emphasize results and desired performance rather than documentation of criteria and methodologies.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. If these standards are not included in the SAR, the Standard Drafting team will have to revise the SAR and re-post for comment (per the Standard Development Process) if it is determined that one of these standards needs to be revised. This will cause unnecessary project delays. The Standard drafting team is not obligated to revise the standards, only to consider whether revisions are appropriate. The SAR DT believes the scope of standards for potential revision needs to be large enough to allow the Standard Drafting Team the flexibility and latitude to recommend changes to existing standards as appropriate under the scope of the SAR. We have added FAC-010-2 and FAC-011-2 in the SAR.</b></p>		
<p>Great River Energy</p>	<p>No</p>	<p>We do not agree with the expansion of the scope of this SAR. The basic premise has been that the VAR standards need to be modified and improved. We agree with this premise. However, the scope continues to grow which risks the success of the project. Furthermore, there are many of these standards such as IRO and TOP that have already been reviewed and modified or are in some state of modification. This will just</p>

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Organization	Yes or No	Question 1 Comment
		create additional coordination challenges
<p><b>Response: The VRPC SAR DT thanks you for your comment. If these standards are not included in the SAR, the Standard Drafting team will have to revise the SAR and re-post for comment (per the Standard Development Process) if it is determined that one of these standards needs to be revised. This will cause unnecessary project delays. The Standard drafting team is not obligated to revise the standards, only to consider whether revisions are appropriate. The SAR DT believes the scope of standards for potential revision needs to be large enough to allow the Standard Drafting Team the flexibility and latitude to recommend changes to existing standards as appropriate under the scope of the SAR.</b></p>		
Southern Company	No	We see no reason to revise MOD-025/026 due to proposed changes to VAR-002. PRC-10 should be PRC-010.
<p><b>Response: The VRPC SAR DT thanks you for your comment. If these standards are not included in the SAR, the Standard Drafting team will have to revise the SAR and re-post for comment (per the Standard Development Process) if it is determined that one of these standards needs to be revised. This will cause unnecessary project delays. The Standard drafting team is not obligated to revise the standards, only to consider whether revisions are appropriate. The SAR DT believes the scope of standards for potential revision needs to be large enough to allow the Standard Drafting Team the flexibility and latitude to recommend changes to existing standards as appropriate under the scope of the SAR. PRC-010 has been corrected.</b></p>		
Northeast Power Coordinating Council	Yes	
Electric Market Policy	Yes	
Bonneville Power Administration	Yes	
SERC Planning Standards Subcommittee	Yes	
Bulk Planning Department	Yes	
PacifiCorp	Yes	
Progress Energy Florida	Yes	
Duke Energy	Yes	

**Consideration of Comments on Project 2008-01 — Voltage and Reactive Planning and Control**

Organization	Yes or No	Question 1 Comment
Exelon	Yes	
Xcel Energy	Yes	
South Carolina Electric and Gas	Yes	
Generation Project Group, Reliability & Performance Dept, Manitoba Hydro	Yes	Agree that some changes may be required to these standards.
<b>Response: The VRPC SAR DT thanks you for your comment.</b>		
GDS Associates	Yes	Agree with emphasis of referenced standards because we consider that there is a need of more explicit VAR standard meant to create the links and to detail the impact of all other standards so the VAR and Voltage Control topic to be seen as a whole. However, VAR standard shall not be developed from a restrictive point of view, but to serve the goal of improving grid reliability based on steady-state and dynamic stability considerations. Agree with comments as follows:- Since TPL-001-1 is not approved yet, SAR shall reference current TPL standards; otherwise a delayed implementation of proposed TPL-001-1 or any other standards under development may determine confusion or mistakes towards the application of proposed SAR.- SAR shall carefully coordinate with further revision of referenced standards in order to reflect uniform / balanced reliability requirements. Standard coordination essential in order to avoid redundant requirements or worst case to contradict specific requirements.- There are several other standards that should be referenced such as IRO or FAC. SAR need to correlate so any redundancies within standards that approach the same topic of voltage and reactive control to be further alleviated
<b>Response: The VRPC SAR DT thanks you for your comment. The draft SAR has been revised to include TPL-001-0 through TPL-004-0 or TPL-001-1 as appropriate. We have revised the SAR to:</b> <b>TPL-001-0 through TPL-004-0 or TPL-001-1 as appropriate – coordinate with Transmission System Planning Performance Requirements (Project 2006-02)</b> <b>We have also added FAC-010-2 and FAC-011-2 to the SAR and IRO-004 is in the SAR.</b>		
Manitoba Hydro	Yes	As this project progresses, many more Standards will probably be added.

**Consideration of Comments on Project 2008-01 — Voltage and Reactive Planning and Control**

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Organization	Yes or No	Question 1 Comment
<b>Response: The VRPC SAR DT thanks you for your comment.</b>		
AEP	Yes	The VAR standards should remain as operating standards. Any planning requirements should be rolled into TPL-001-1 so that planning requirements reside in one place. Planning for voltage control and reactive resources is only one aspect of many involved in planning and it makes no sense to separate out this aspect into another category of standards.
<b>Response: The VRPC SAR DT thanks you for your comment.</b>		
Pepco Holdings, Inc.	Yes	While it is helpful to the SDT to have a set of standards that may need to be revised for a project, this should not be a list of standards requiring change.
<b>Response: The VRPC SAR DT thanks you for your comment. The Standard Drafting Team will only propose revisions to standards that it determines need revisions. It is not obligated to revise all of the standards listed in the SAR.</b>		



- 2 The requirement relating to a five-year reactive support and control plan has been removed from the SAR. The revised SAR describes the concept of an annual review of a reactive support and control plan. The plan needs to address any coordination issues between the planning and operating horizon. Do you agree with this change? If not, please explain in the comment area.

**Summary Consideration:** Most stakeholders agreed with removing the five-year reactive and support control plan from the SAR. Some stakeholders commented on the following items. The SAR DT revised portions of the SAR to conform to these suggested edits:

- Add clarity to the “coordination” in the development of a reactive plan. SAR revisions:
  - The neighboring PC/TPs should review and coordinate plans (e.g. - to ensure coordination of generator voltage schedules, reactive resources, and target voltage levels, etc.) developed by the functional entities involved.
  - This includes functional entity local plans for reactive support and control to maintain local system reliability and within applicable equipment voltage ratings
- Add clarity regarding the “review of the plan” with neighboring entities (removed “peer” review). SAR revisions:
  - The Reliability Coordinators, Transmission Operators and other functional entities associated with a neighboring PC/TP’s footprint should review and comment, as they deem necessary, on the Planning Coordinator’s and Transmission Planner’s criteria and VAR Plan.
- Add clarity regarding the “Planning documentation and operations review cycle “. SAR revisions:
  - Review cycle should continue on an annual basis. The Standard Drafting Team will develop requirements regarding the conduct of the annual review.

The Detailed Description of the SAR now reads:

In addition to establishing reactive planning criteria, the standards should require a reactive support and control plan (‘VAR Plan’). The neighboring Planning Coordinators and Transmission Planners should review and coordinate plans (e.g. - to ensure coordination of generator voltage schedules, reactive resources, and target voltage levels, etc.) developed by the functional entities involved. This includes functional entity local plans for reactive support and control to maintain local system reliability and within applicable equipment voltage ratings. The Reliability Coordinators, Transmission Operators and other functional entities associated with a neighboring Planning Coordinator’s and Transmission Planner’s footprint should review and comment, as they deem necessary, on the Planning Coordinator’s and Transmission Planner’s criteria and VAR Plan. This review cycle should continue on an annual basis. The Standard Drafting Team will develop requirements regarding the conduct of the annual review.

Some stakeholders suggested adding standards to the list of standards that may need conforming changes based on the proposed requirements. The following standards were added to the list of standards that could be revised under the SAR:

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- 1 TPL-001-0 through TPL-004-0 or TPL-001-1 as appropriate – coordinate with Transmission System Planning Performance Requirements (Project 2006-02)
- 2 FAC-010-2 – System Operating Limits Methodology for the Planning Horizon
- 3 FAC-011-2 - System Operating Limits Methodology for the Operations Horizon

Organization	Yes or No	Question 2 Comment
Ameren	No	<p>(1) We have a major concern here regarding potentially duplicative standards requirements being developed under both the TPL and VAR standards.</p> <p>(2) This activity is already be part of the TPL process. The creation of such a plan is nothing more than a just a documentation Requirement and not consistent with a results based standards process. If the concepts embodied in this “plan” need to be addressed as part of TPL methodology, we suggest to make that part of the SAR so that an SDT can add such language as appropriate.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SAR list enumerates standards that address reactive criteria/methods and need to be reviewed and possibly modified when developing changes to VAR-001 and VAR-002. The SAR articulates the required changes without prescribing how best to modify existing standards. There is no intention of having duplicate requirements between standards. The standard drafting team will make specific recommendations for industry comment on how best to modify existing standards.</b></p>		
Exelon	No	<p>Exelon believes there needs to be a forward looking plan for reactive resources. If this requirement is not in the VAR standards, which standard(s) will address this? We agree it is important to identify the line of demarcation between the VAR and the TPL standards so as to coordinate operating and planning considerations.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SAR drafting team agrees with you that a forward looking plan for reactive resources needs to be developed. Based on industry feedback the SAR drafting team deleted the requirement that it specifically be a five-year reactive support and control plan. The requirement for a forward looking plan that is developed with all the functional entities and is coordinated with neighboring system is still specified in the SAR. The specific reference that it must be a 5 year plan has been deleted. The standard drafting team will make specific recommendations for industry comment on how best to develop requirements for a forward looking plan that is coordinated with all the functional entities within the associated Transmission Owner (TO) footprints.</b></p>		
Northeast Power Coordinating Council	No	<p>It was never clear why a five-year plan was included in this SAR when it clearly belongs in the TPL standards. The SAR now states “any coordination issues between planning and the operating horizon”. Isn’t this also a TPL requirement and not an operating horizon requirement?</p>

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Organization	Yes or No	Question 2 Comment
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SAR list enumerates standards that address reactive criteria/methods and need to be reviewed and possibly modified when developing changes to VAR-001 and VAR-002. The SAR articulates the required changes without prescribing how best to modify existing standards. The standard drafting team will make specific recommendations for industry comment on how best to modify existing standards. There is no intention of having duplicate requirements between standards.</b></p>		
Southern Company Transmission	No	The existing TPL Standards requires an annual assessment of the interconnected transmission system. The assessment includes reactive power resources to ensure that adequate reactive resources are available to meet system performance. There is no need to have a similar requirement in the VAR Standards.
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SAR list enumerates standards that address reactive criteria/methods and need to be reviewed and possibly modified when developing changes to VAR-001 and VAR-002. The SAR articulates the required changes without prescribing how best to modify existing standards. There is no intention of having duplicate requirements between standards. The standard drafting team will make specific recommendations for industry comment on how best to modify existing standards.</b></p>		
Midwest ISO Standards Collaborators	No	We support the concept of an annual review of reactive support and control plan. However, within the same section there is a reference to peer reviews that appears intended to satisfy this annual review requirement. While we support the concept of peer reviews, in general, we do not support the concept of peer reviews being prescribed in enforceable reliability standards. Instead we suggest some type of coordinating requirements such as a review of neighboring reactive support and control plans to ensure there are no voltage conflicts with an entity's plan.
IRC Standards Review Committee	No	We support the concept of an annual review of reactive support and control plan. However, within the same section there is a reference to peer reviews that appears intended to satisfy this annual review requirement. While we support the concept of peer reviews, in general, we do not support the concept of peer reviews being prescribed in enforceable reliability standards. Instead we suggest requirements which establish results or performance outcomes, such as a review of reactive support and control plans which can affect other areas to ensure there are no voltage conflicts with an entity's plan.
Great River Energy	No	We support the concept of an annual review of reactive support and control plan. However, within the same section there is a reference to peer reviews that appears intended to satisfy this annual review requirement. While we support the concept of peer reviews, in general, we do not support the concept of peer reviews being prescribed in enforceable reliability standards. Instead we suggest some type of coordinating requirements such as a review of neighboring reactive support and control plans to ensure there are no voltage conflicts with an entity's plan

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Organization	Yes or No	Question 2 Comment
<p><b>Response:</b> Thank you for your response. The SAR Drafting team discussed the issue and has revised the subject paragraph to read:</p> <p>In addition to establishing reactive planning criteria, the standards should require a reactive power support and control plan ('VAR Plan'). The neighboring Planning Coordinators and Transmission Planners should review and coordinate plans (e.g. - to ensure coordination of generator voltage schedules, reactive resources, and target voltage levels, etc.) developed by the functional entities involved. This includes functional entity local plans for reactive support and control to maintain local system reliability and within applicable equipment voltage ratings. The RCs, TOPs and other functional entities associated with a neighboring PC/TP's footprint should review and comment, as they deem necessary, on the PC/TP's criteria and VAR Plan. This review cycle should continue on an annual basis. The Standard Drafting Team will develop requirements regarding the conduct of the annual review.</p> <p>The Standard Drafting Team will vet any standards developed with respect to this topic. We will forward your comment to the Standard Drafting Team for their consideration.</p>		
Duke Energy	No	While we agree with removing the requirement for a five-year plan and including the concept of an annual review of a reactive support and control plan, we think the SAR should more clearly describe what is meant by "address coordination issues between the planning and operating horizon". This could be done in the SAR Detailed Description bullet "Planning documentation and operations review cycle".
<p><b>Response:</b> The VRPC SAR DT thanks you for your comment. The SAR Drafting team agrees with your comment regarding Planning documentation and operations review cycle. We have revised the SAR as in the highlighted sections below:</p> <p>In addition to establishing reactive planning criteria, the standards should require a reactive power support and control plan ('VAR Plan'). The neighboring PC/TPs should review and coordinate plans (e.g. - to ensure coordination of generator voltage schedules, reactive resources, and target voltage levels, etc.) developed by the functional entities involved. This includes functional entity local plans for reactive support and control to maintain local system reliability and within applicable equipment voltage ratings. The RCs, TOPs and other functional entities associated with a neighboring PC/TP's footprint should review and comment, as they deem necessary, on the PC/TP's criteria and VAR Plan. This review cycle should continue on an annual basis. The Standard Drafting Team will develop requirements regarding the conduct of the annual review.</p>		
Electric Market Policy	Yes	
Southern Company	Yes	
Bonneville Power Administration	Yes	
SERC Planning Standards Subcommittee	Yes	

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Organization	Yes or No	Question 2 Comment
Kansas City Power & Light	Yes	
Bulk Planning Department	Yes	
PacifiCorp	Yes	
Xcel Energy	Yes	
Constellation Power Source Generation	Yes	
South Carolina Electric and Gas	Yes	
Pepco Holdings, Inc.	Yes	
Independent Electricity System Operator	Yes	
Entergy	Yes	
AEP	Yes	Again, planning requirements should be confined to TPL-001-1.
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SAR list enumerates standards that address reactive criteria/methods and need to be reviewed and possibly modified when developing changes to VAR-001 and VAR-002. The SAR articulates the required changes without prescribing how best to modify existing standards. The standard drafting team will make specific recommendations for industry comment on how best to modify existing standards.</b></p>		
Generation Project Group, Reliability & Performance Dept, Manitoba Hydro	Yes	Agree with this change.
<p><b>Response: The VRPC SAR DT thanks you for your comment.</b></p>		

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Organization	Yes or No	Question 2 Comment
Progress Energy Florida	Yes	PEF believes that the annual review will depend on the depth of the plan.
<b>Response: The VRPC SAR DT thanks you for your comment.</b>		
GDS Associates	Yes	The initial five year planning horizon was not an efficient requirement since any VAR support projects can be planned and constructed within a year and because the planning shall alter due to the different reactive flows significantly changed from a year to another as determined by annual transmission upgrades and new developments. We support the reconsideration of the five year planning to one year. There should not be any coordination issues as long as each participating entity would make necessary provisions in their expansion, construction and upgrades plan that are to follow the region-specific VAR support criteria.
<b>Response: The VRPC SAR DT thanks you for your comment.</b>		
SERC OC Standards Review Group	Yes	We would not, however; support any shorter cycle time between verification of reactive capability of dynamic resources.
<b>Response: The VRPC SAR DT thanks you for your comment.</b>		
Manitoba Hydro	Yes	With the removal of this statement, existing bulleted Standards in Question 1 can cover a variety of timing reviews, coordination with others and even assessment from a “reasonable future time period” to 5 years with minor modifications for reactive support. For timing, existing example:TOP-002-2 R1 “current plans that are designed to evaluate options and set procedures for reliable operations through a reasonable future time period” For coordination, existing example”TOP-002-2 R2 “operating personnel participate in the system planning and design study process” For timing existing example:PRC-010-0 R1 “at least every 5 years conduct and document an assessment” For coordination, existing example:PRC-010-0 R1.1.1 “Coordinate with other systems and RRO” For timing, existing example:PRC-010-0 R1.1.3 “Review voltage set points and timing”
<b>Response: The VRPC SAR DT thanks you for your comment. Your comments will be forwarded to the standard drafting team who will take your input and, along with other input, make specific recommendations for industry comment on how best to modify existing standards.</b>		

- 3 The revised SAR clarifies that criteria and methodology should be developed to document the required dynamic and static resources but does not specify that this needs to be achieved by defining “reactive clusters”. The documented criteria, methodology and results are to be coordinated with neighboring areas. Do you agree with this change? If not, please explain in the comment area.

**Summary Consideration:** The majority of stakeholders agree that revisions to the SAR add clarity. Some stakeholders expressed concerns that the SAR would result in potentially duplicative standards, that the SAR is vague or too broad in its language. The SAR list enumerates standards that address reactive criteria/methods and need to be reviewed and possibly modified when developing changes to VAR-001 and VAR-002. The SAR articulates the required changes without prescribing how best to modify existing standards. There is no intention of having duplicate requirements between standards. The standard drafting team will make specific recommendations for industry comment on how best to modify existing standards.

Stakeholders also suggested that the SDT be cautious when creating coordination requirements. These requirements should not be to simply coordinate the plans because that is too vague. Rather the requirement should be results/performance based such as review your neighbor’s plan to ensure there are no conflicts in generator voltage schedules. The SAR has been modified to add clarity that future plans be shared with adjacent areas, who may provide comment. The exact detail for comment/coordination will further be developed by the standard drafting team with industry input.

Other stakeholder comments suggested edits to the SAR:

- Add clarity regarding the “review of the plan” with neighboring entities (removed peer review)
- Removed reference to “best practices” and “to avoid equipment damage”
- Add clarity regarding the “Planning documentation and operations review cycle “

We have revised the SAR as in the highlighted sections below to add more specificity:

In addition to establishing reactive planning criteria, the standards should require a reactive power support and control plan (‘VAR Plan’). The neighboring PC/TPs should review and coordinate plans (e.g. - to ensure coordination of generator voltage schedules, reactive resources, and target voltage levels, etc.) developed by the functional entities involved. This includes functional entity local plans for reactive support and control to maintain local system reliability and within applicable equipment voltage ratings. The RCs, TOPs and other functional entities associated with a neighboring PC/TP’s footprint should review and comment, as they deem necessary, on the PC/TP’s criteria and VAR Plan. This review cycle should continue on an annual basis. The Standard Drafting Team will develop requirements regarding the conduct of the annual review.

Organization	Yes or No	Question 3 Comment
PPL		

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Organization	Yes or No	Question 3 Comment
Ameren	No	<p>(1) As in the response to Question #2, the concern here is potentially duplicative standards requirements being developed under both the TPL and VAR standards.</p> <p>(2) Even if the changes are a step in the right direction, the remaining language is still far too vague and provides no clear direction to the SDT. Undoubtedly, this lack of direction as to what should occur with “coordination” will result in many drafts and pages of comments. We suggest that the expected results should be clearly defined.</p>
<p><b>Response:</b> The VRPC SAR DT thanks you for your comment. 1) The SAR list enumerates standards that address reactive criteria/methods and need to be reviewed and possibly modified when developing changes to VAR-001 and VAR-002. The SAR articulates the required changes without prescribing how best to modify existing standards. There is no intention of having duplicate requirements between standards. The standard drafting team will make specific recommendations for industry comment on how best to modify existing standards.</p> <p>2) We have revised the SAR as in the highlighted sections below to add more specificity:</p> <p>In addition to establishing reactive planning criteria, the standards should require a reactive power support and control plan (‘VAR Plan’). The neighboring PC/TPs should review and coordinate plans (e.g. - to ensure coordination of generator voltage schedules, reactive resources, and target voltage levels, etc.) developed by the functional entities involved. This includes functional entity local plans for reactive support and control to maintain local system reliability and within applicable equipment voltage ratings. The RCs, TOPs and other functional entities associated with a neighboring PC/TP’s footprint should review and comment, as they deem necessary, on the PC/TP’s criteria and VAR Plan. This review cycle should continue on an annual basis. The Standard Drafting Team will develop requirements regarding the conduct of the annual review.</p>		
IRC Standards Review Committee	No	<p>(1) We agree with the general concept. However, we ask the drafting team to be cautious when creating coordination requirements. These requirements should not be to simply coordinate the plans because that does not state a desired performance or result. Rather, the requirement should be results/performance based such as review your neighbor’s plan to ensure coordination of generator voltage schedules to meet target voltage levels at critical interfaces. This would emphasize results and performance rather than documentation and methodology. Methodologies relate to “how” something is to be done rather than to “what” is to be done or “what” the required results are to be.</p> <p>(2) The detailed description appears to suggest that there will be an attempt to link Planning criteria to operations and control. A Planner (PC or TP) provides an “assessment” of a given system. The concept that a planner develops a blueprint that will and must be followed applies to a previous industry structure, one that has now changed to allow IPPs and independent transmission owners and operators to have equal access to. We question whether independent owners and operators can be mandated to follow a Planner’s optimal evaluation or proposed plan; or must FERC and NERC depend on state regulations to mandate construction based on the assessments made by planners who show that the only alternative to addressing a problem is</p>



Consideration of Comments on Project 2008-01 — Voltage and Reactive Planning and Control

Organization	Yes or No	Question 3 Comment
		<p>shedding load or opening transmission.</p> <p>(3) The reference to “input from best practices” raises a question on where this SAR may lead. A standard should not attempt to mandate best practice. We suggest the SDT to not translate best practices into standards.</p> <p>(4) We do not understand the meaning of “avoid permanent damage to equipment” and “equipment limits to prevent permanent damage to bulk power equipment”. Is the intent to develop voltage limits (max and min) to prevent equipment damage? If so, this should have already been specified by the equipment owners for the operating entities to observe in developing SOLs and IROLs, and during real time operations. We do not see the need for having a standard to specify voltage control and VAR dispatch requirements in a standard. Further, what constitutes “permanent damage”? And should any other damages be avoided rather than just the “permanent” ones?</p>
<p><b>Response: Thank you for response. The SAR has been modified to add further clarity. 1) wording has been added regarding voltage schedule coordination 2) clarity has been added regarding expectations among all functional entities in a PC/TP area 3) best practice references has been removed 4) references to equipment damage have been removed.</b></p> <p><b>The SAR now reads:</b></p> <p><b>The VAR Standards should require specific functional entities to have a set of system planning and operations planning criteria and methodologies. Planning Coordinators (PCs) and associated Transmission Planners (TPs) should have documented criteria and methodology regarding expectations among all applicable functional entities within the associated Transmission Owner (TO) footprints. Explicit reactive planning criteria may be combined by multiple PC/TPs with other longer term PC/TPs’ planning criteria. However, every neighboring PC and its associated TPs should have a coordinated set of reactive planning criteria. Each PC and its associated TPs should have a set of reactive planning criteria that is reviewed and updated periodically with input from adjacent PCs and their associated TPs and RCs.</b></p> <p><b>In addition to establishing reactive planning criteria, the standards should require a reactive power support and control plan (‘VAR Plan’). The neighboring PC/TPs should review and coordinate plans (e.g. - to ensure coordination of generator voltage schedules, reactive resources, and target voltage levels, etc.) developed by the functional entities involved. This includes functional entity local plans for reactive support and control to maintain local system reliability and within applicable equipment voltage ratings. The RCs, TOPs and other functional entities associated with a neighboring PC/TP’s footprint should review and comment, as they deem necessary, on the PC/TP’s criteria and VAR Plan. This review cycle should continue on an annual basis</b></p>		
Pepco Holdings, Inc.	No	<p>In general, the SAR appears to be taking on something very large, crossing the planning and operating boundaries. As the SAR notes, VAR techniques have considerable variation across the interconnections. This is primarily due to the local nature of VAR support and use. The intent to require a reactive margin is</p>

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Organization	Yes or No	Question 3 Comment
		laudable, but again it is something of a local problem, as the SAR notes. Due to the local nature, it is appropriate to have requirements for LSEs.
<p><b>Response: The VRPC SAR DT thanks you for your comment. This SAR addresses voltage and reactive control issues beyond those contained explicitly in FERC 693 directives in order to maintain grid reliability. The SAR includes direction from the NERC PC and SC in addition to the FERC Order 693 directives.</b></p>		
Midwest ISO Standards Collaborators	No	In general, we agree with the concept. However, we caution the drafting team to be cautious when creating coordination requirements. These requirements should not be to simply coordinate the plans because that is too vague. Rather the requirement should be results/performance based such as review your neighbor's plan to ensure there are no conflicts in generator voltage schedules.
Great River Energy	No	In general, we agree with the concept. However, we caution the drafting team to be cautious when creating coordination requirements. These requirements should not be to simply coordinate the plans because that is too vague. Rather the requirement should be results/performance based such as review your neighbor's plan to ensure there are no conflicts in generator voltage schedules.
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SAR has been modified to add further clarity. The SAR now reads:</b></p> <p><b>The VAR Standards should require specific functional entities to have a set of system planning and operations planning criteria and methodologies. Planning Coordinators (PCs) and associated Transmission Planners (TPs) should have documented criteria and methodology regarding expectations among all applicable functional entities within the associated Transmission Owner (TO) footprints. Explicit reactive planning criteria may be combined by multiple PC/TPs with other longer term PC/TPs' planning criteria. However, every neighboring PC and its associated TPs should have a coordinated set of reactive planning criteria. Each PC and its associated TPs should have a set of reactive planning criteria that is reviewed and updated periodically with input from adjacent PCs and their associated TPs and RCs.</b></p> <p><b>In addition to establishing reactive planning criteria, the standards should require a reactive power support and control plan ('VAR Plan'). The neighboring PC/TPs should review and coordinate plans (e.g. - to ensure coordination of generator voltage schedules, reactive resources, and target voltage levels, etc.) developed by the functional entities involved. This includes functional entity local plans for reactive support and control to maintain local system reliability and within applicable equipment voltage ratings. The RCs, TOPs and other functional entities associated with a neighboring PC/TP's footprint should review and comment, as they deem necessary, on the PC/TP's criteria and VAR Plan. This review cycle should continue on an annual basis.</b></p>		
Northeast Power Coordinating Council	No	The design of the BES varies significantly from one region to another. During the planning horizon, these dynamic and static resources should be evaluated to determine if they are adequate. The analysis should

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Organization	Yes or No	Question 3 Comment
		also be shared with neighboring areas.
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SAR has been modified to add clarity that future plans be shared with adjacent areas.</b></p>		
GDS Associates	No	<p>The reactive support criteria and methodology shall require the participant entities to document their resources, as well as to commit on the documented resources. This will determine a certain level of redundancy that needs to be assured and which can be more emphasized in a further TPL-001 revision if approved. The grid cannot be reliable unless each of the participating entities commit on the resources that they own. The annual VAR support and plan shall be reviewed and coordinate among all participants within the same region based on a detailed criterion. The methodology and the results shall be also made available for review to the neighboring regions; however these should not be required to coordinate. This requirement may trigger peculiar interests and imbalances regarding responsibilities applied towards the participating stakeholders which can emerge from such coordination.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SAR has been modified to add clarity that future plans be shared with adjacent areas, who may provide comment. The exact detail for comment/corrdination will further be developed by the standard drafting team with industry input.</b></p>		
Bonneville Power Administration	No	<p>This is not stated clearly enough to be able to make a response. What criteria and methodology are needed to be developed to document the resources? It is unclear what actions would be required under a 'coordinated' activity and that it needs to be better defined. As an example, the White Paper states "In addition to reactive planning technique documentation, a second set of planning documentation is needed. Multiple Transmission Planning Reactive Clusters (TPRCs) should review and coordinate plans by the functional entities involved in each system state (Section 5). This includes functional entity local plans for reactive support and control to maintain local system reliability and avoid permanent damage to their equipment. Collectively multiple TPRCs need to coordinate documentation of an integrated Five-Year Reactive Support and Control Plan. For purposes of this report, the complete Five-Year Reactive Support and Control Plan will be called the VAR Plan. This VAR Plan could be a collection of documentation from each functional entity, or a single integrated document. Each TPRC needs to have a complete set of documentation.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. Based on industry feedback the current draft of the SAR does not include the requirements for a 5 year plan and also does not contain the concept of reactive clusters.</b></p>		
SERC OC Standards Review	Yes	

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Organization	Yes or No	Question 3 Comment
Group		
Electric Market Policy	Yes	
Southern Company	Yes	
SERC Planning Standards Subcommittee	Yes	
Kansas City Power & Light	Yes	
Bulk Planning Department	Yes	
PacifiCorp	Yes	
Southern Company Transmission	Yes	
Progress Energy Florida	Yes	
Duke Energy	Yes	
Exelon	Yes	
Xcel Energy	Yes	
Constellation Power Source Generation	Yes	
Independent Electricity System Operator	Yes	
Entergy	Yes	

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Organization	Yes or No	Question 3 Comment
AEP	Yes	Again, planning requirements should be confined to TPL-001-1.
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SAR list emunierates standards that address reactive criteria/methods and need to be reviewed and possibly modified when developing changes to VAR-001 and VAR-002. The SAR articulates the required changes without prescribing how best to modify existing standards. The standard drafting team will make specific recommendations for industry comment on how best to modify existing standards.</b></p>		
Generation Project Group, Reliability & Performance Dept, Manitoba Hydro	Yes	Document criteria, methodology and results need to be coordinated with the neighboring areas.
<p><b>Response: The VRPC SAR DT thanks you for your comment.</b></p>		
Manitoba Hydro	Yes	In maintaining voltage limits for interconnections, coordinating and sharing this information is important. Trying to define “reactive clusters” suitable to all entities in the interconnections would be difficult to accomplish and satisfy all needs. VARS do not travel well, but participation by other BA’s or operation of remote “clusters” can influence the cluster in question
<p><b>Response: The VRPC SAR DT thanks you for your comment. Based on industry feedback for the reasons you have cited “reactive clusters” were removed from this draft of the SAR</b></p>		
South Carolina Electric and Gas	Yes	While we do agree that coordination with neighboring areas is important, we believe that the requirement for coordination should be primarily focused on areas near tie lines. The primary criteria, methodology, and results should mainly impact areas internal to a BA as reactive power does not travel long distances. As such, any push for mandatory coordination should focus on coordination of areas of a system that can impact (or burden) neighboring systems (i.e. areas near tie lines).
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SAR drafting team agrees that reactive power does not travel long distances and will forward your thoughts to the Standard Drafting team.</b></p>		

**Consideration of Comments on Project 2008-01 — Voltage and Reactive Planning and Control**

**4 The revised SAR was reworded to include FERC order 693 language to provide clarity to the SAR. Do you agree that this change provides clarity to the SAR? If not, please explain in the comment area.**

**Summary Consideration:** Comments received from stakeholders were positive that the actual language from the FERC Directives be included in the SAR. Overall, there were 19 positive responses and 7 negative responses. Three commenters suggested that the FERC Order 693 Directives did not need to be addressed. The SAR DT team commented that FERC directives must be addressed, and the recent order RR09-6 (Order Directing NERC to Propose Modifications of Electric Reliability Organization Rules of Procedure) indicates FERC’s concern that directives were not being thoroughly vetted and addressed. One comment concerning renewable energy will be passed on to the Standard Drafting Team.

Organization	Yes or No	Question 4 Comment
Kansas City Power & Light	No	<p>1. Many of the concerns expressed regarding the power factor at the interface between an LSE and the transmission grid are included within the Interconnection Facility Agreements established by FAC-001. In addition, many of these interfaces are at voltage levels below 100kv and do not have a material impact on the bulk electric system. Interconnection Facility Agreements address the impact a load has on the transmission system and places appropriate requirements on the LSE to either provide reactive support or to provide for additional reactive support that may need to be implemented in the transmission network depending on the load and the location of that load. It is not necessary to for this SAR to duplicate or address this concern.</p> <p>2. “Controllable Load” is clearly established in the EOP Standards. The Reliability Standards expressly address the use of load to manage voltage and maintain voltages within limits under emergency operating conditions. This includes loads identified as interruptible, demand side management and firm loads that can be manually shed. What other load is there? There is no additional need to clarify this any further or to add another term and any attempts to do so may introduce confusion.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. 1. Your concerns regarding PF at the interface are valid and are included in many interconnection agreements, FERC has directed the ERO to “Address the power factor range at the interface between LSE’s and the transmisison grid”(FERC Order 693, paragraphs 1861, 1862, 1863). Therefore, it is necessary for this DAR Drafting Team to address this concern. 2. Per FERC Order 693, paragraph 1880 direct the ERO to address “Controllable Load”. Therefore, this concern must be addressed by the Drafting Team.</b></p>		
GDS Associates	No	<p>The SAR seems to emerge from FERC Order 693 and is meant to address its directives. The language reflect the scope of the SAR, however Order 693 does not address VERs (Variable Energy Resources) as being less dependent sources of reactive capacity. The Drafting Team should carefully consider Order 693 up to a limited extent, in other words FERC Order 693 language is good to be included but not enough. SAR should introduce renewable energy resource characteristic terms as well. Although it seem a very convoluted effort and maybe beyond the scope, however we consider that there is impractical to consume effort for developing a standard that once is finished needs further adjustments to reflect important industry concerns.</p>

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Organization	Yes or No	Question 4 Comment
<p><b>Response: The VRPC SAR DT thanks you for your comment. To address voltage and reactive control issues beyond the FERC 693 directives in order to maintain grid reliability is prudent. The issues you discuss should be presented to the Standard Drafting Team once draft requirements are presented to the industry through the Standards Development Process. Your comment will be passed on to the drafting team.</b></p>		
Ameren	No	<p>The SAR team should be the filter which provides a synopsis of the additions/changes that MUST be made by the SDT. Order 693 includes several references which appear more like “nice things to look at” rather than direction. We believe that the SAR process should provide more guidance to the SDT rather than recite these items.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SAR Drafting Team spent considerable time discussing how to address FERC Directives. Our concern with the initial Draft SAR and the White Paper was that it was too prescriptive. In effect, the Draft SAR was performing the functional duties of the Standard Drafting Team. On March 18<sup>th</sup>, FERC issued “Order Directing NERC to Propose Modification of Electric Reliability Organization Rules of Procedure”, Docket No. RR09-6. In this order, FERC states their concerns with the NERC standards voting process and ERO rules of procedures in complying with FERC Directives. Therefore, we do not agree with your concern.</b></p>		
Independent Electricity System Operator	No	<p>We agree that the inclusion of FERC Order language provides additional background but do not think the language adds any clarity.</p>
IRC Standards Review Committee	No	<p>We agree that the inclusion of reference to the FERC Order to provide additional background but the language included does not add any clarity. There is some confusion with what the intent is in Order 693. We suggest the SAR require that the standard drafting team work with FERC staff to address the related directives from Order 693. Rather than simply repeating Order 693 directives here, perhaps stating the need to address these directives and referring to the appropriate paragraphs in Order 693 would be sufficient and result in less confusion.</p>
Midwest ISO Standards Collaborators	No	<p>We think there is some confusion with what the intent is in Order 693. However, we are confident that the drafting team working with FERC staff can address the related directives from Order 693. Rather than repeat Order 693 directives here, perhaps stating the need to address these directives and references to the appropriate paragraphs in Order 693 would be sufficient and result in less confusion.</p>
Great River Energy	No	<p>We think there is some confusion with what the intent is in Order 693. However, we are confident that the drafting team working with FERC staff can address the related directives from Order 693. Rather than repeat Order 693 directives here, perhaps stating the need to address these directives and references to the appropriate paragraphs in Order 693 would be sufficient and result in less confusion.</p>

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Organization	Yes or No	Question 4 Comment
<p><b>Response:</b> The VRPC SAR DT thanks you for your comment. The SAR Drafting Team spent considerable time discussing how to address FERC Directives. Our concern with the initial Draft SAR and the White Paper was that it was too prescriptive. In effect, the Draft SAR was performing the functional duties of the Standard Drafting Team. On March 18<sup>th</sup>, FERC issued “Order Directing NERC to Propose Modification of Electric Reliability Organization Rules of Procedure”, Docket No. RR09-6. In this order, FERC states its concerns with the NERC standards voting process and ERO rules of procedures in complying with FERC Directives. The SDT, when formed, is expected, as needed, to meet with FERC staff to gain additional clarity on the intent of the relevant directives.</p>		
SERC OC Standards Review Group	Yes	
Electric Market Policy	Yes	
Southern Company	Yes	
Bonneville Power Administration	Yes	
SERC Planning Standards Subcommittee	Yes	
Bulk Planning Department	Yes	
PacifiCorp	Yes	
Southern Company Transmission	Yes	
Progress Energy Florida	Yes	
Duke Energy	Yes	
Constellation Power Source Generation	Yes	
South Carolina Electric and Gas	Yes	



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Organization	Yes or No	Question 4 Comment
Pepco Holdings, Inc.	Yes	
Entergy	Yes	
Generation Project Group, Reliability & Performance Dept, Manitoba Hydro	Yes	Agree with this change to include FERC order 693.
<b>Response: The VRPC SAR DT thanks you for your comment.</b>		
Exelon	Yes	Agree, and feel it is important to maintain clarity between the VAR and TPL standards
<b>Response: The VRPC SAR DT thanks you for your comment.</b>		
Manitoba Hydro	Yes	FERC order 693 directed “more detailed and definitive requirements on established limits and sufficient reactive resources, identify acceptable margins, voltage instability points and voltage limits in normal and operating conditions. For instance in paragraph 1864 it is suggested that a technical basis is required for these limits and not arbitrary values to prevent undue burdens on others.
<b>Response: The VRPC SAR DT thanks you for your comment.</b>		
AEP	Yes	See our response to #7.
<b>Response: The VRPC SAR DT thanks you for your comment.</b>		
Northeast Power Coordinating Council	Yes	The March 18th FERC order directing NERC to modify the electric reliability rules and procedures is a result of a Drafting Team and industry not following FERC directives. The SAR should direct the DT to address the intent of the Directives in Order 693, and not redefine these directives in the “Brief Description” and “Detailed Description”. The end results could be requirements that while meeting the reliability intent of the Regulator's directive are not necessarily the exact reproduction of the Directive to the letter.
<b>Response: The VRPC SAR DT thanks you for your comment.</b>		

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- 5 The SAR was also revised such that the Transmission Issues Subcommittee “Reactive Support & Control Whitepaper” dated 05/18/2009 is listed as a reference document and clarifies that the SDT should “consider” the whitepaper in developing proposed requirements. Do you agree with this change? If not, please explain in the comment area.

**Summary Consideration:** Most comments agreed with the change. Two commenters expressed concern that specific reference to the Reactive Support & Control Whitepaper could elevate its authority over other relevant resources. Responses to the comments emphasized that this reference was written specifically for the standard development Project 2008-01, but is not intended to restrict the Standard Drafting Team from using other sources.

Organization	Yes or No	Question 5 Comment
Ameren	No	Again, a step in the right direction but not far enough. The inclusion of this citation will lead the SDT to believe that this document carries more weight than other references. The SDT should use their technical expertise to consider all reference sources and put forth a standard based on appropriate reliance on the reference without undue preference to one.
<p><b>Response: The VRPC SAR DT thanks you for your comment. We agree the Standard Drafting Team should use its technical expertise to consider all reference sources during its review and revision of the standards. The Reactive Support and Control White Paper provides some unique guidance. We do not believe listing the Reactive Support and Control White Paper provides this document with any more weight than other references.</b></p>		
Kansas City Power & Light	No	This is a 307 page document and have not had time to read its contents to render a judgment regarding its appropriate use for guidance of this Standard development.
<p><b>Response: The VRPC SAR DT thanks you for your comment. We understand that this is a large document, but much of the content is reference material provided for convenience in one location.</b></p>		
AEP	No	While the SAR has been modified and does not require the SDT to use the whitepaper, AEP feels that referencing a single document implies that SDT must use the document. The SDT can use whatever resource they need to accomplish the objective without the need of a SAR to prompt such action.
<p><b>Response: The VRPC SAR DT thanks you for your comment. We do not feel the listing of the Reactive Support and Control White Paper provides this document with any more weight than other references. It is a compilation of material produced by industry experts and is provided for convenience to the SDT. The Reactive Support and Control White Paper provides some unique guidance.</b></p>		
SERC OC Standards Review	Yes	

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Organization	Yes or No	Question 5 Comment
Group		
Northeast Power Coordinating Council	Yes	
Electric Market Policy	Yes	
Southern Company	Yes	
SERC Planning Standards Subcommittee	Yes	
Bulk Planning Department	Yes	
PacifiCorp	Yes	
Southern Company Transmission	Yes	
Progress Energy Florida	Yes	
Duke Energy	Yes	
Exelon	Yes	
Xcel Energy	Yes	
Constellation Power Source Generation	Yes	
South Carolina Electric and Gas	Yes	
Pepco Holdings, Inc.	Yes	

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Organization	Yes or No	Question 5 Comment
Entergy	Yes	
IRC Standards Review Committee	Yes	<p>(1) We have no issues with the drafting team considering this technical document or any other appropriate technical document. However, we caution the drafting team to not write prescriptive standards that attempt to implement methodologies from these documents and focus only on what the desired performance or result is when writing the requirements.</p> <p>(2) By the time drafting of this standard begins, the industry may have adopted a new standard format which allows for background and guideline materials to be included in the standards either as text boxes, in a guideline/technical basis section or in an appendix. We suggest the SDT consider using one or more of these features as an alternative to a reference document.</p>
Independent Electricity System Operator	Yes	By the time drafting of this standard begins, the industry may have adopted a new standard format which allows for background and guideline materials to be included in the standards either as text boxes, in a guideline/technical basis section or in an appendix. We suggest the SDT consider using these features as an alternative to a reference document.
Midwest ISO Standards Collaborators	Yes	We have no issues with the drafting team considering this technical document or any other appropriate technical document. However, we caution the drafting team to not write prescriptive standards that attempt to implement methodologies from these documents and focus only on what the desired performance or result is when writing the requirements.
Great River Energy	Yes	We have no issues with the drafting team considering this technical document or any other appropriate technical document. However, we caution the drafting team to not write prescriptive standards that attempt to implement methodologies from these documents and focus only on what the desired performance or result is when writing the requirements.
<p><b>Response: The VRPC SAR DT thanks you for your comment. We will provide your comments to the SDT.</b></p>		
Bonneville Power Administration	Yes	Deviations from the white paper recommendations should be clearly explained.
<p><b>Response: The VRPC SAR DT thanks you for your comment.</b></p>		
Manitoba Hydro	Yes	The “whitepaper” contains much information from engineering levels to system operations with real examples, etc. Providing such a reference document will make the creation of new policies less difficult for the various

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Organization	Yes or No	Question 5 Comment
		parties involved.
<b>Response: The VRPC SAR DT thanks you for your comment.</b>		
GDS Associates	Yes	The White Paper offers a good starting point for developing the new VAR standard. While this White Paper seems to be a compelling instrument the Drafting Team shall not restrain in using different other documents such as IEEE / ANSI standards, publications and debates on this complex topic. The Drafting Team shall make clarifications with terms that are taken away from the White Paper such as “[...] the Five-Year Reactive Support and Control Plan [...]” in order to eradicate confusions.
<b>Response: The VRPC SAR DT thanks you for your comment.</b>		

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**6 The revised SAR clarified the need to address the reactive demand and resources needed among bulk power facilities (see revised “Brief Description” section). Do you agree with this change? If not, please explain in the comment area.**

**Summary Consideration:** Most commenters agreed that the SAR needs to address the reactive demand and resources needed among bulk power facilities. However, further clarification is needed.

The SAR addresses reactive and voltage control from Generation, to Transmission to Distribution facilities. These facilities need to be covered to address the reactive demand and resources needed to maintain bulk power system reliability.

The SAR Drafting Team spent considerable time discussing the planning and operating horizons. The VRPC Standard Drafting Team (SDT) will address whether it is appropriate that the VAR Standards are applicable to PC’s, TP’s and RC’s.

The VRPC SDT will propose specific changes to the VAR Standards. The SAR provides sufficient flexibility for the VRPC SDT to make recommendations to the other Drafting Teams. VRPC related topics are directly or indirectly covered in several Standards, however, several gaps and unclear Requirements have been identified. The VRPC SDT will review the Standards listed in the SAR and determine what needs to be changed in the VAR Standards and make recommendations to close the VRPC related gaps in other Standards.

Organization	Yes or No	Question 6 Comment
Northeast Power Coordinating Council	No	The term “among bulk power facilities” should be changed to “needed to control system voltage”. “Among bulk power facilities” is vague and confusing.
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SAR DT felt that sufficient flexibility should be given to the Standard Drafting Team to address all bulk power facilities and not just those needed to control system voltage.</b></p>		
GDS Associates	No	There are confusing statements regarding the inclusion of the new requirements. As reflected in the preamble of SAR there is emphasized the necessity of a new VAR standard that is to address the whole matter of reactive support planning and criteria. However, at the end of “Brief Description” section it appears that there will be requirements spread among current VAR / TPL standards, as well as a new VAR standard. We suggest to reformulate to reflect the assumed intent of a new VAR standard (or a set of new VAR standards) that are to replace the current VAR standards through. New requirements shall not be spread among multiple standards; current standards should change only to reference the requirements as planned to be included in the proposed VAR standard.
<p><b>Response: The VRPC SAR DT thanks you for your comment. We agree that the Drafting Team will only address changes to the VAR Standards, but can make recommendations to the other Drafting Teams if a reliability concern is noted. If other standards (beyond VAR standards) are not included in the SAR, the Standard Drafting team will have to revise the SAR and re-post for comment (per the Standard Development Process) if it is determined that one of these standards needs to be revised. This will cause unnecessary project delays. The Standard drafting team is not obligated to revise the</b></p>		

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Organization	Yes or No	Question 6 Comment
<p>standards listed, only to consider whether revisions are appropriate. The SAR DT believes the scope of standards for potential revision needs to be large enough to allow the Standard Drafting Team the flexibility and latitude to recommend changes to existing standards as appropriate under the scope of the SAR.</p>		
Kansas City Power & Light	No	<p>This SAR should be limited to establishing voltage criteria between operating areas at the Regional level and within the Regional level, between balancing areas. Once that is established the current planning standards and operating standards are sufficient to address themselves to that voltage criteria.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. The concepts you discuss are but a small part of the scope of the SAR. The NERC PC and SC as well as FERC Directives from Order 693 were used to frame the SAR and scope.</b></p>		
Ameren	No	<p>We agree that the concept should be addressed however, it would seem the SAR would be well served to guide the SDT as to which time frame in which this should be addressed, e.g. planning issue or real-time.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SAR DT believes that the standards developed under this SAR should be in both the planning and operating horizon. We envision that the Standard Drafting Team will be the final arbiter in determination of the time frame of specific requirements through the Standard Development Procedure.</b></p>		
IRC Standards Review Committee	No	<p>We agree with the need to address the reactive demand and resources needed to support performance of the BES, but do not understand the meaning of “among bulk power facilities”. We are confused with what the SDT is attempting to address by adding this statement. Much of the scope already implicitly includes reactive demand and reactive resources. For example, one can’t develop a methodology to assess dynamic reactive power supply without addressing reactive demand and reactive resources.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. The scope includes developing a methodology to assess dynamic reactive power supply while addressing reactive demand and reactive resources. This concept does refer to the reactive power consumption of BES facilities as well as the production of reactive power. The SAR DT felt that sufficient flexibility should be given to the Standard Drafting Team to address all bulk power facilities. We envision that the Standard Drafting Team will be the final arbiter in determination of the specific requirements through the Standard Development Process.</b></p>		
Independent Electricity System Operator	No	<p>We agree with the need to address the reactive demand and resources needed to support performance of the BES, but do not understand the meaning of “among bulk power facilities”. Does this refer to the reactive power consumption of BES facilities e.g. lines and transformers? We think this actually creates confusion and requires clarification. Also, in the Industry Need section, the SAR states “The revised standards should address the reactive resource demand needed to control voltages within bulk power facilities.” What does</p>

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Organization	Yes or No	Question 6 Comment
		"within bulk power facilities" mean and is it the same as "among bulk power facilities"?
<p><b>Response: The VRPC SAR DT thanks you for your comment. We have revised the "Industry Needs" section to replace "within" with "among". This concept does refer to the reactive power consumption of BES facilities as well as the production of reactive power. The SAR DT felt that sufficient flexibility should be given to the Standard Drafting Team to address all bulk power facilities. We envision that the Standard Drafting Team will be the final arbiter in determination of the specific requirements through the Standard Development Process.</b></p>		
Duke Energy	No	We believe the phrase "bulk power facilities" should be changed to "Bulk Electric System facilities".
<p><b>Response: The VRPC SAR DT thanks you for your comment. The term "bulk power facilities" replaced the words "transmission, distribution and generation". The VRPC SAR DT believes that we have used the appropriate term to provide sufficient scope to the SAR.</b></p>		
SERC OC Standards Review Group	No	We do not know what this sentence means! "In addition, the standard should require plans that address the reactive load demand, and the reactive resources needed among bulk power facilities." We presume that it means facilities at 100 kv and above, but one reading of this sentence could be that this SAR contemplates the writing of requirements for reactive resource adequacy.
<p><b>Response: The VRPC SAR DT thanks you for your comment. The term "bulk power facilities" replaced the words "transmission, distribution and generation" based on stakeholder comments in a prior posting of the SAR. The VRPC SAR DT believes that we have used the appropriate term to provide sufficient scope to the SAR. The impact of distribution facilities should be included in the scope of the SAR.</b></p>		
Midwest ISO Standards Collaborators	No	We think adding this sentence only adds confusion. Much of the scope already implicitly includes reactive demand and reactive resources. For example, you can't develop a methodology to assess dynamic reactive power supply without addressing reactive demand and reactive resources. We are confused with what the SDT is attempting to address by adding this statement.
Great River Energy	No	We think adding this sentence only adds confusion. Much of the scope already implicitly includes reactive demand and reactive resources. For example, you can't develop a methodology to assess dynamic reactive power supply without addressing reactive demand and reactive resources. We are confused with what the SDT is attempting to address by adding this statement.
<p><b>Response: The VRPC SAR DT thanks you for your comment. The scope includes developing a methodology to assess dynamic reactive power supply while addressing reactive demand and reactive resources. This concept does refer to the reactive power consumption of BES facilities as well as the production of reactive power. The SAR DT felt that sufficient flexibility should be given to the Standard Drafting Team to address all bulk power facilities. We envision that the Standard Drafting Team will be the final arbiter in determination of the specific requirements through the Standard</b></p>		



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Organization	Yes or No	Question 6 Comment
<b>Development Process.</b>		
Pepco Holdings, Inc.	No	While it is appropriate to have planning and operating entities to coordinate, this is already done through PCs and RCs.
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SAR Drafting Team spent considerable time discussing the planning and operating horizons. The SAR DT believes that the standards developed under this SAR should be in both the planning and operating horizon. We envision that the Standard Drafting Team will be the final arbiter in determination of the time frame of specific requirements through the Standard Development Procedure.</b></p>		
Electric Market Policy	Yes	
Southern Company	Yes	
SERC Planning Standards Subcommittee	Yes	
Bulk Planning Department	Yes	
PacifiCorp	Yes	
Southern Company Transmission	Yes	
Progress Energy Florida	Yes	
Xcel Energy	Yes	
Constellation Power Source Generation	Yes	
South Carolina Electric and Gas	Yes	
AEP	Yes	Again, planning requirements should be confined to TPL-001-1.

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Organization	Yes or No	Question 6 Comment
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SAR list enumerates standards that address reactive criteria/methods and need to be reviewed and possibly modified when developing changes to VAR-001 and VAR-002. The SAR articulates the required changes without prescribing how best to modify existing standards. The standard drafting team will make specific recommendations for industry comment on how best to modify existing standards.</b></p>		
<p>Generation Project Group, Reliability &amp; Performance Dept, Manitoba Hydro</p>	<p>Yes</p>	<p>Agree with this change.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment.</b></p>		
<p>Manitoba Hydro</p>	<p>Yes</p>	<p>Studies identify these resources or “lack of” for normal and emergency operations and all local entities, neighbors and RC’s should have documentation to be aware of and manage these resources in all operating states</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment.</b></p>		
<p>Entergy</p>	<p>Yes</p>	<p>Under brief description the statement" the standard should require plans that address the reactive load demand and the reactive resources needed among bulk transmission facilities" is not very clear and needs further clarification</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. The term “bulk power facilities” (not “bulk transmission facilities”) replaced the words “transmission, distribution and generation” based on stakeholder comments in a prior posting of the SAR. The VRPC SAR DT believes that we have used the appropriate term to provide sufficient scope to the SAR. The impact of distribution facilities should be included in the scope of the SAR.</b></p>		
<p>Exelon</p>	<p>Yes</p>	<p>We agree that the reactive demand and resources required among different facilities should be addressed.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment.</b></p>		

**Consideration of Comments on Project 2008-01 — Voltage and Reactive Planning and Control**

**7 The functional entities listed as possible responsibility entities for consideration by the standard drafting team has been revised to include the Balancing Authority and to remove the Resource Planner and Market Operator. Do you agree with this change? If not, please explain in the comment area.**

**Summary Consideration:** Overall there were 26 responses to this question (11 – No, 15 – Yes). The majority of the No votes (7) included concerns related to the applicability of the Balancing Authority in reactive support and control. The SAR team responded that the Balancing Authority may be called upon to place into service appropriate generation resources for reactive support and control when directed/requested and therefore was included as a possible responsible entity for consideration by the standard drafting team.

We have received conflicting comments regarding the applicability to the Resource Planner. The SAR DT has decided to list the Resource Planner as a potential Applicable Entity under this SAR. The Standard Drafting Team will develop any requirements and vet them through the stakeholder process.

Several entities went outside the scope of the question and commented on other functional entities that have been included as “possible responsible entities” in the SAR. The SAR team reiterated that the responsible entity list in the SAR is just a suggestion, and the actual responsible entity list will be developed by the Standard Drafting Team. Stakeholders will have a chance to comment during the standards development process.

Organization	Yes or No	Question 7 Comment
Exelon	No	<p>Agree with removing the Resource Planner and the Market Operator. We are unsure of the role that the BA will be expected to fulfill. There is only one reference in the VAR section of 693 to a BA and it is not directing the BA to perform a function or to be added as an applicable entity in the standard. Please clarify the BA role. Will they have a requirement to recognize reactive transfer limits?</p>
<p><b>Response:</b> The VRPC SAR DT thanks you for your comment. In the first posting of the SAR, commenters suggested adding the Balancing Authority (BA): “the Balancing Authority may have a small role such as following the directive of a Transmission Operator or Reliability Coordinator to adjust generation patterns to allow more VAR output from generators or to bring off-line generators on-line for VAR support.”</p> <p>We understand that the BA’s primary responsibility is to balance real power energy and demand. However, BA was included as a <i>possible</i> responsible entity for consideration by the standard drafting team as the BA has the responsibility of implementing generation commitment and dispatch schedule and is aware of the generating reactive resources available in the area/region. The BA can place into service appropriate generation resources for reactive power support and voltage control when directed/requested by its Reliability Coordinator or Transmission Operator. The standards developed under this SAR will determine specific BA requirements if appropriate.</p> <p>We have received conflicting comments regarding the applicability to the Resource Planner. The SAR DT has decided to list the Resource Planner as a potential Applicable Entity under this SAR. The Standard Drafting Team will develop any requirements and vet them through the stakeholder process.</p>		

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Organization	Yes or No	Question 7 Comment
Electric Market Policy	No	<p>BA should be responsible for balancing energy and demand only. Transmission functional (TP, TSP, DP) entities bear responsibility with planning and provision of reactive power. Generator and load functional entities are responsible for providing or procuring reactive to/from these transmission entities.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. . In the first posting of the SAR, commenters suggested adding the BA: “the Balancing Authority may have a small role such as following the directive of a Transmission Operator or Reliability Coordinator to adjust generation patterns to allow more VAR output from generators or to bring off-line generators on-line for VAR support.”</b></p> <p><b>We understand that the BA’s primary responsibility is to balance real power energy and demand. However, the BA was included as a <i>possible</i> responsible entity for consideration by the standard drafting team as the BA has the responsibility of implementing generation commitment and dispatch schedule and is aware of the generating reactive resources available in the area/region. The BA can place into service appropriate generation resources for reactive power support and voltage control when directed/requested by RC/TOP. The standards developed under this SAR will determine specific BA requirements if appropriate.</b></p>		
Constellation Power Source Generation	No	<p>Constellation agrees with the inclusion of the BA and the removal of the Resource Planner and Market Operator. However, the applicability of the GO should be removed, as the GOP would be the functional entity most concerned with voltage and reactive power schedules and short term planning.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. The Generator Owner “Owns and maintains generation facilities” and it may be responsible for planning considerations under this SAR. The standards developed under this SAR will determine specific GO requirements if appropriate.</b></p> <p><b>We have received conflicting comments regarding the applicability to the Resource Planner. The SAR DT has decided to list the Resource Planner as a potential Applicable Entity under this SAR. The Standard Drafting Team will develop any requirements and vet them through the stakeholder process.</b></p>		
Pepco Holdings, Inc.	No	<p>Existing standards and the functional model say the BA is responsible for real power balance and TOP for reactive power balance. While the BA may be responsible for procuring services for the TOP, they are not responsible for reactive power balance.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. In the first posting of the SAR, commenters suggested adding the BA: “the Balancing Authority may have a small role such as following the directive of a Transmission Operator or Reliability Coordinator to adjust generation patterns to allow more VAR output from generators or to bring off-line generators on-line for VAR support.”</b></p> <p><b>We understand that the BA’s primary responsibility is to balance real power energy and demand. However, the BA was included as a possible responsible entity for consideration by the standard drafting team as the BA has the responsibility of implementing generation commitment and</b></p>		

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Organization	Yes or No	Question 7 Comment
<p><b>dispatch schedule and is aware of the generating resources available in the area/region. The BA can place into service appropriate generation resources for reactive power support and voltage control when directed/requested by RC/TOP. The standards developed under this SAR will determine specific BA requirements if appropriate.</b></p>		
Kansas City Power & Light	No	<p>The Balancing Authority has obligations to plan for, meet and balance load and generation. It is the Transmission Operator that has the reliability obligations to manage voltage, including mandating the Balancing Authority place into service generating resources necessary for reactive support and the BA has the obligation to follow those directives. All these are clearly stated in the Reliability Standards.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. In the first posting of the SAR, commenters suggested adding the BA: “the Balancing Authority may have a small role such as following the directive of a Transmission Operator or Reliability Coordinator to adjust generation patterns to allow more VAR output from generators or to bring off-line generators on-line for VAR support.”</b></p> <p><b>We understand that the BA’s primary responsibility is to balance real power energy and demand. However, the BA was included as a possible responsible entity for consideration by the standard drafting team as the BA has the responsibility of implementing generation commitment and dispatch schedule and is aware of the generating resources available in the area/region. The BA can place into service appropriate generation resources for reactive power support and voltage control when directed/requested by RC/TOP. The standards developed under this SAR will determine specific BA requirements if appropriate.</b></p>		
AEP	No	<p>The following functions need to be removed from the scope of the SAR; PSE, LSE and DP. AEP does not see how these functions add to reliability support with respect to reactive power management on the BES. In fact, we disagree with the current application of the PSE function in the current version of VAR-001 as this is a service provided by the Transmission Service Provider to the PSE without any action on behalf of the PSE. Expanding requirements such as this to the LSE and DP functions will continue to cause unnecessary confusion.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. These entities are included in the SAR to address the scope of this project as directed by the NERC PC and SC as well as FERC directives. The standards developed under this SAR will determine specific PSE, LSE or DP requirements if appropriate.</b></p>		
Ameren	No	<p>The functional model and recent NERC Standard Interpretations, make it clear that the BA is responsible for the real power balance. This standard is for reactive power. To the extent that the real power balance needs to be affected on behalf of reactive power, the TOP working through the RC can effectuate this.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. In the first posting of the SAR, commenters suggested adding the BA: “the Balancing Authority may have a small role such as following the directive of a Transmission Operator or Reliability Coordinator to adjust generation patterns to</b></p>		

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Organization	Yes or No	Question 7 Comment
<p>allow more VAR output from generators or to bring off-line generators on-line for VAR support.”</p> <p>We understand that the BA’s primary responsibility is to balance real power energy and demand. However, the BA was included as a possible responsible entity for consideration by the standard drafting team as the BA has the responsibility of implementing generation commitment and dispatch schedule and is aware of the generating resources available in the area/region. The BA can place into service appropriate generation resources for reactive power support and voltage control when directed/requested by its Reliability Coordinator or Transmission Operator. The standards developed under this SAR will determine specific BA requirements if appropriate.</p>		
Manitoba Hydro	No	<p>TOP-002-2 R2 “operating personnel participate in the system planning and design study process” is clearly interpreted to include the Balancing Authority. There is no explanation as to why the Resource Planner and Market Operator were removed. They don’t appear to be removed due to “confidentiality agreements”, but these two entities are RC functions. It seems necessary that the Resource Planner should be included as one of their functions for the long term planning of resources. The Marker Operator is also an RC function and can remain removed as their function is to determine if commercial functions impact reliability.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. The Resource Planner was removed from the SAR based on stakeholder comments received on a prior posting of the SAR. We have received conflicting comments regarding the applicability to the Resource Planner. The SAR DT has decided to list the Resource Planner as a potential Applicable Entity under this SAR. The Standard Drafting Team will develop any requirements and vet them through the stakeholder process.</b></p>		
IRC Standards Review Committee	No	<p>We do not believe the BA has a role in reactive power planning and that the BA has a limited role in reactive power operation. The limited role of the BA is to include within its operations plan the instructions that the TOP has provided to the BA so that voltage and reactive power control may be effected in real-time operations as specified by the TOP. Further, the TOP works with the GOP when real power adjustments must be made so that more reactive power may be supplied to ensure we do not end up in EEA operations.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. In the first posting of the SAR, commenters suggested adding the BA: “the Balancing Authority may have a small role such as following the directive of a Transmission Operator or Reliability Coordinator to adjust generation patterns to allow more VAR output from generators or to bring off-line generators on-line for VAR support.”</b></p> <p>We understand that the BA’s primary responsibility is to balance real power energy and demand. However, the BA was included as a possible responsible entity for consideration by the standard drafting team as the BA has the responsibility of implementing generation commitment and dispatch schedule and is aware of the generating resources available in the area/region. The BA can place into service appropriate generation resources for reactive power support and voltage control when directed/requested by its Reliability Coordinator or Transmission Operator. The standards developed under this SAR will determine specific BA requirements if appropriate.</p>		

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Organization	Yes or No	Question 7 Comment
SERC OC Standards Review Group	No	We do not think the BA has a role in reactive power, therefore remove the BA. Also, we do believe that the Resource Planner has a role in reactive resource planning and should be retained.
<p><b>Response: The VRPC SAR DT thanks you for your comment. In the first posting of the SAR, commenters suggested adding the BA: “the Balancing Authority may have a small role such as following the directive of a Transmission Operator or Reliability Coordinator to adjust generation patterns to allow more VAR output from generators or to bring off-line generators on-line for VAR support.”</b></p> <p><b>We understand that the BA’s primary responsibility is to balance real power energy and demand. However, the BA was included as a possible responsible entity for consideration by the standard drafting team as the BA has the responsibility of implementing generation commitment and dispatch schedule and is aware of the generating resources available in the area/region. The BA can place into service appropriate generation resources for reactive power support and voltage control when directed/requested by its Reliability Coordinator or Transmission Operator. The standards developed under this SAR will determine specific BA requirements if appropriate.</b></p> <p><b>The Resource Planner was removed from the SAR based on stakeholder comments received on a prior posting of the SAR. The SDT believes that Resource Planner has a primary responsibility for developing plans for generation MW capacity and has returned the Resource Planner to the list of possible applicable entities. The Transmisison Planner is responsible for voltage and reactive power planning.</b></p>		
Progress Energy Florida	No	While PEF agrees the Resource Planner does not need their own resource VAR plan, they do need to provide input to the VAR plan. PEF do not agree with the removal of the Resource Planner from the functional entities list.
<p><b>Response: The VRPC SAR DT thanks you for your comment. The Resource Planner was removed from the SAR based on stakeholder comments received on a prior posting of the SAR. We have received conflicting comments regarding the applicability to the Resource Planner. The SAR DT has decided to list the Resource Planner as a potential Applicable Entity under this SAR. The Standard Drafting Team will develop any requirements and vet them through the stakeholder process.</b></p>		
Northeast Power Coordinating Council	Yes	
Southern Company	Yes	
Bonneville Power Administration	Yes	
SERC Planning Standards Subcommittee	Yes	

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Organization	Yes or No	Question 7 Comment
Bulk Planning Department	Yes	
PacifiCorp	Yes	
Southern Company Transmission	Yes	
Duke Energy	Yes	
South Carolina Electric and Gas	Yes	
Independent Electricity System Operator	Yes	
Entergy	Yes	
Generation Project Group, Reliability & Performance Dept, Manitoba Hydro	Yes	Agree that balancing authority should be included.
<b>Response: The VRPC SAR DT thanks you for your comment.</b>		
GDS Associates	Yes	We agree with the change.
<b>Response: The VRPC SAR DT thanks you for your comment.</b>		
Midwest ISO Standards Collaborators	Yes	We do not believe the BA has a role in reactive power planning or operation. We have checked yes only to the extent that the TOP must work with the BA when real power cuts must be made to supply more reactive power to ensure we do not end up in an EEA as a result.
Great River Energy	Yes	We do not believe the BA has a role in reactive power planning or operation. We have checked yes only to the extent that the TOP must work with the BA when real power cuts must be made to supply more reactive power to ensure we do not end up in an EEA as a result.
<b>Response: The VRPC SAR DT thanks you for your comment. In the first posting of the SAR, commenters suggested adding the BA: “the Balancing</b>		



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Organization	Yes or No	Question 7 Comment
		<p>Authority may have a small role such as following the directive of a Transmission Operator or Reliability Coordinator to adjust generation patterns to allow more VAR output from generators or to bring off-line generators on-line for VAR support.”</p> <p>We understand that the BA’s primary responsibility is to balance real power energy and demand. However, the BA was included as a possible responsible entity for consideration by the standard drafting team as the BA has the responsibility of implementing generation commitment and dispatch schedule and is aware of the generating resources available in the area/region. The BA can place into service appropriate generation resources for reactive power support and voltage control when directed/requested by its Reliability Coordinator or Transmission Operator. The standards developed under this SAR will determine specific BA requirements if appropriate.</p>

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**8 If you have any other comments on the SAR that you haven’t already provided in response to the previous questions, please provide them here.**

**Summary Consideration:** Several stakeholders provided comments regarding the breadth of scope of the SAR (long of list of related standards), which echoed comments submitted in response to other questions asked with the second draft of the SAR. The SAR DT notes that if the listed standards are not included in the SAR, the Standard Drafting team may have to revise the SAR and re-post for comment (per the Standard Development Process) if it is determined that one of these standards needs to be revised. This will cause unnecessary project delays. The Standard drafting team is not obligated to revise the listed standards, only to consider whether revisions are appropriate. The SAR DT believes the scope of standards for potential revision needs to be large enough to allow the Standard Drafting Team the flexibility and latitude to recommend changes to existing standards as appropriate under the scope of the SAR.

Several commenters provided specific comments or suggestions for standard revisions. These are not appropriate to include in the SAR, however the SAR DT will forward these comments to the SDT for its consideration in the development of specific requirements.

Other commenters had concerns regarding the potential to develop redundant requirements under this SAR. The SAR DT recognizes that the SDT will need to coordinate with other standard development projects to ensure that there is no redundancy.

Commenters also had concerns that requirements written under this SAR may be too prescriptive. The SAR indicates there should be requirements to document the criteria and methodology for dynamic reactive power resources. The SDT will develop requirements based on the SAR which should avoid being overly prescriptive to allow individual compliance with the requirements. The SAR DT encourages stakeholders to keep abreast of development of requirements and provide comments to the SDT.

Organization	Question 8 Comment
IRC Standards Review Committee	<p>(1) In general, we believe this SAR requires much refinement. As written, it is too broad and attempts to accomplish too many changes that are not specifically related to reactive power. We suggest the drafting team refocus this SAR on the VAR standards only. Many of the standards that are included in this SAR such as TOP and TPL are already undergoing revision. Any changes that are needed to these should have been provided through the comment periods.</p> <p>(2) We are also concerned that there are several statements that do not appear to recognize the current state of the standards. In the detailed section, there is the following sentence. “The requirements in the existing standards need to be more specific in defining voltage and reactive power schedules.” VAR-001-1 R4 states, “Each Transmission Operator shall specify a voltage or Reactive Power schedule at the interconnection between the generator facility and the Transmission Owner’s facilities to be maintained by each generator. The Transmission Operator shall provide the voltage or Reactive Power schedule to the associated Generator Operator and direct the Generator Operator to comply with the schedule in automatic voltage control mode (AVR in service and controlling voltage).” This is very specific. It is not clear to us how it can be any more specific.</p>

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Organization	Question 8 Comment
	<p>(3) In the Detailed Description section, there is another statement that does not appear to recognize the current state of the standards. “The standard should include requirements for the Transmission Operator (TOP) and Reliability Coordinator (RC) to monitor and take action if reactive power or voltage falls outside identified limits.” There are already several requirements that require the TOP to monitor voltage and SOLs/IROLs and to respond to bring the transmission system back within limits. There are also requirements that bind the functional entities operating under the TOP to follow their direction. These requirements include VAR-001-1 R1, R2, R4, R8 and R12. Furthermore, there are many requirements in the IROL standards that require the RC to monitor voltage limits, SOLs and IROLs and to direct action to bring the transmission system back within limits. They further bind the entities under the RC to follow their direction. These include IRO-001-1.1 R3 and R8; IRO-004-1 R1, R6, and R7; IRO-004-2 R1; IRO-005-2 R1 and R17; IRO-005-3 R1; IRO-009-1 R1, R2, and R4; IRO-014-1 R1. We remind the drafting team that SOLs and IROLs should and do include voltage limits. If the requirements, contained in these standards, are not considered by the SDT to be sufficient with regard to identifying voltage-related SOLs and IROLs, then the SDT should consider whether revisions should be proposed to the appropriate FAC standard(s) that describe the requirement for SOL/IROL determination methodologies. However, a technical basis for such revisions must be provided.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. Please refer to FERC Order 693, paragraph 1880. The scope of this SAR, at a minimum, has to address all of these issues. Additional SAR scope was provided by the NERC PC and SC.</b></p> <p><b>(1) If a potentially related standard is not listed in the SAR, the Standard Drafting team will have to revise the SAR and re-post for comment (per the Standard Development Process) if it is later determined that that standard needs to be revised. This will cause unnecessary project delays. The Standard drafting team is not obligated to revise the listed standards, only to consider whether revisions are appropriate. The SAR DT believes the scope of standards for potential revision needs to be large enough to allow the Standard Drafting Team the flexibility and latitude to recommend changes to existing standards.</b></p> <p><b>(2) The review will involve the standards which contain references to voltage and or reactive control. The SAR makes it clear that the intent is to ensure the requirements are not duplicated in multiple standards and to work with other Projects and SDT Teams. We believe this recognizes the current state of the standards. While the VAR standards do have specificity they do not provide adequate requirements needed for reliable reactive power such as coordination among the reactive resources planning areas, establishing limits, or acceptable margins above voltage stability points.</b></p> <p><b>(3) The Standard Drafting Team should review the requirements that you mention to ensure that they are compatible with any other requirements developed under this SAR. FAC-010 and FAC-011 have been added to the SAR for consideration under this project. We will forward your comment to the Standard Drafting Team for their consideration.</b></p>	
GDS Associates	<ol style="list-style-type: none"> <li>1. Adding definition to Voltage Stability</li> <li>2. Adding clarity on the extent of planning topology and magnitude of reactive resources due to the impact of reactive flow on the grid; planned reactive resources and solutions adopted to be considered based on various considerations not only</li> </ol>

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Organization	Question 8 Comment
	<p>voltage criteria (may be included in an updated version of the “White Paper”).</p> <p>3. Adding clarity on the extent of “coordination” among the neighboring regions.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment.</b></p> <p><b>(1) The addition of a definition of voltage stability could be a consideration for the Standards Drafting Team. We will forward this comment to the SDT for their consideration. GDC Associates should review the work of the SDT to ensure the comments are addressed.</b></p> <p><b>(2) It would be within the expectations of the SAR DT that the SDT would add clarity as described in your comments within the reactive resource planning area.</b></p> <p><b>(3) It would be within the expectations of the SAR DT that the SDT would add clarity on the coordination among the reactive resource planning area which in turn which may also expand to neighboring regions depending on the size of the reactive resource planning areas.</b></p>	
Southern Company	<ol style="list-style-type: none"> <li>1. We recommend the following changes to VAR-002:</li> <li>2. Section 4- Applicability: a. Include for GO/GOP for units/plants deemed significant by the TOP. b. Add TOP Requirement R1: The current wording of R1 and R3 overlap and R3 covers AVR status and reactive limitations. These two requirements need to be revised to eliminate this overlap and recognize that reactive limitations exist due to equipment issues. The proposed modifications are: R1. The Generator Operator shall operate each generator connected (excluding start-up and shut down) to the Bulk Electric System in the automatic voltage control mode (automatic voltage regulator in service and controlling voltage) and if required, Power System Stabilizer in service unless the Generator Operator has notified the Transmission Operator.R1.1. Each GOP shall notify its associated TOP of any status change of an AVR and/or required PSS lasting longer than 30 minutes. Real time status indication to the TOP is an acceptable means of notification. R1.2. At the request of a GOP, the TOP shall evaluate and if deemed acceptable grant notification exemption to units that are not equipped with functioning AVRs or units with a capacity factor less than or equal to 5%.R3. Each Generator Operator shall notify its associated Transmission Operator of any of the following: R3.1. A capability change on any generator Reactive Power resource, including generator cooling problems, shorted rotor turns, etc. Depending on the nature of the problem it may take some time to fully assess the reactive impact. The GOP should notify the TOP once the capability impact has been identified. Additionally, the Measures should be revised to reflect the changes to R1 and R3 proposed above: M1. The Generator Operator shall have evidence to show that it notified its associated Transmission Operator any time it failed to operate a generator in the automatic voltage control mode for more than 30 minutes as specified in Requirement 1.M4. The Generator Operator shall have evidence it notified its associated Transmission Operator of any of the changes identified in Requirement 3. Finally, the Levels of Non-Compliance are too arbitrary and should be applied on a plant by plant basis verses a fleet basis (see suggested changes below) even if the scope of the standard is restricted to significant facilities.2. Levels of Non-Compliance for Generator Operator2.1. Level 1: There shall be a</li> </ol>

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Organization	Question 8 Comment
	<p>Level 1 non-compliance if any of the following conditions exist: 2.1.1 Any plant with two incidents of failing to notify the Transmission Operator as identified in R1.1, R3.1, R3.2 or R5.1.2.1.2 Any plant with two incidents of failing to maintain a voltage or reactive power schedule (R2). 2.2. Level 2: There shall be a Level 2 non-compliance if any of the following conditions exist: 2.2.1 Any plant with more than two but less than five incidents of failing to notify the Transmission Operator as identified in R1, R3.1, R3.2 or R5.1.2.2.2 Any plant with more than two but less than five incidents of failing to maintain a voltage or reactive power schedule (R2). 2.3. Level 3: There shall be a Level 3 non-compliance if any of the following conditions exist: 2.3.1 Any plant with more than five but less than ten incidents of failing to notify the Transmission Operator as identified in R1, R3.1, R3.2 or R5.1.2.3.2 Any plant with more than five but less than ten incidents of failing to maintain a voltage or reactive power schedule (R2). 2.4. Level 4: There shall be a Level 4 non-compliance if any of the following conditions exist: 2.4.1 Failed to comply with the Transmission Operator's directives as identified in R2.2.4.2 Any plant with ten or more incidents of failing to notify the Transmission Operator as identified in R1, R3.1, R3.2 or R5.1.2.4.3 Any plant with ten or more incidents of failing to maintain a voltage or reactive power schedule (R2).</p> <p>2. SAR -5 last paragraph and SAR-18 (Global Improvements): Will the format of VAR-001 and VAR-002 be changed to match that of the recently posted FAC-003 draft standard that includes a background section, definitions, shaded definition examples, measures shown just after each requirement, guidelines and technical basis, etc.?</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. 1). These comments are too specific to include in the SAR. We will forward your comment to the SDT for their consideration. 2). Any standard developed under this SAR will conform to the standard format which will likely include the information you mention.</b></p>	
Manitoba Hydro	Comments as per individual question.
Generation Project Group, Reliability & Performance Dept, Manitoba Hydro	Do not have additional questions.
Ameren	In addition to the comments in response to Q 1-8, a major concern remains regarding the reactive power support and control plan (VAR Plan) described in the SAR, and possible redundancy with corrective plans specified in the TPL standards and voltage schedule documents already developed. It is not clear how potentially burdensome requirements for peer review of the VAR plans and criteria would be handled - potential actions could range from acknowledgement of receipt of a neighboring entity's plans, to requirement for neighbor approval of VAR plans and criteria, with review to be performed annually.
<p><b>Response: The VRPC SAR DT thanks you for your comment. The review and modification of the existing VAR Standards will also involve the</b></p>	

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	<p>standards which contain references to voltage and or reactive control. The SAR makes it clear that the intent is to ensure the requirements are not duplicated in multiple standards and to work other Projects and SDT Teams. The resulting requirements should focus on reliability without becoming unnecessarily burdensome. The SDT will work with the industry in specifying requirements relating to review of VAR plans. Note that “peer review” was removed from the revised SAR. Ameren is encouraged to comment on the SDT products as they evolve to ensure your concerns are addressed.</p>
<p>Great River Energy</p>	<p>In general, we believe this SAR requires much refinement. As written, it is too broad and attempts to accomplish too many changes that are not specifically related to reactive power. We suggest the drafting team refocus this SAR on the VAR standards only. Many of the standards that are included in this SAR such as TOP and TPL are already undergoing revision. Any changes that are needed to these should have been provided through the comment periods.</p> <p>We are also concerned that there are several statements that do not appear to recognize the current state of the standards. In the detailed section, there is the following sentence. “The requirements in the existing standards need to be more specific in defining voltage and reactive power schedules.” VAR-001-1 R4 states, “Each Transmission Operator shall specify a voltage or Reactive Power schedule at the interconnection between the generator facility and the Transmission Owner’s facilities to be maintained by each generator. The Transmission Operator shall provide the voltage or Reactive Power schedule to the associated Generator Operator and direct the Generator Operator to comply with the schedule in automatic voltage control mode (AVR in service and controlling voltage).” This is very specific. It is not clear to us how it can be any more specific.</p> <p>In the Detailed Description section, there is another statement that does not appear to recognize the current state of the standards. “The standard should include requirements for the Transmission Operator (TOP) and Reliability Coordinator (RC) to monitor and take action if reactive power or voltage falls outside identified limits.” There are already several requirements that require the TOP to monitor voltage and SOLs/IROLs and to respond to bring the transmission system back within limits. There are also requirements that bind the functional entities operating under the TOP to follow their direction. These requirements include VAR-001-1 R1, R2, R4, R8 and R12. Furthermore, there are many requirements in the IROL standards that require the RC to monitor voltage limits, SOLs and IROLs and to direct action to bring the transmission system back within limits. They further bind the entities under the RC to follow their direction. These include IRO-001-1.1 R3 and R8; IRO-004-1 R1, R6, and R7; IRO-004-2 R1; IRO-005-2 R1 and R17; IRO-005-3 R1; IRO-009-1 R1, R2, and R4; IRO-014-1 R1. We remind the drafting team that SOLs and IROLs should and do include voltage limits.</p>
<p>Kansas City Power &amp; Light</p>	<p>In general, we believe this SAR requires much refinement. As written, it is too broad and attempts to accomplish too many changes that are not specifically related to reactive power. We suggest the drafting team refocus this SAR on the VAR standards only. Many of the standards that are included in this SAR such as TOP and TPL are already undergoing revision. Any changes that are needed to these should have been provided through the comment periods.</p> <p>We are also concerned that there are several statements that do not appear to recognize the current state of the</p>

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Organization	Question 8 Comment
	<p>standards. In the detailed section, there is the following sentence. “The requirements in the existing standards need to be more specific in defining voltage and reactive power schedules.” VAR-001-1 R4 states, “Each Transmission Operator shall specify a voltage or Reactive Power schedule at the interconnection between the generator facility and the Transmission Owner’s facilities to be maintained by each generator. The Transmission Operator shall provide the voltage or Reactive Power schedule to the associated Generator Operator and direct the Generator Operator to comply with the schedule in automatic voltage control mode (AVR in service and controlling voltage).” This is very specific. It is not clear to us how it can be any more specific.</p> <p>In the Detailed Description section, there is another statement that does not appear to recognize the current state of the standards. “The standard should include requirements for the Transmission Operator (TOP) and Reliability Coordinator (RC) to monitor and take action if reactive power or voltage falls outside identified limits.” There are already several requirements that require the TOP to monitor voltage and SOLs/IROLs and to respond to bring the transmission system back within limits. There are also requirements that bind the functional entities operating under the TOP to follow their direction. These requirements include VAR-001-1 R1, R2, R4, R8 and R12. Furthermore, there are many requirements in the IROL standards that require the RC to monitor voltage limits, SOLs and IROLs and to direct action to bring the transmission system back within limits. They further bind the entities under the RC to follow their direction. These include IRO-001-1.1 R3 and R8; IRO-004-1 R1, R6, and R7; IRO-004-2 R1; IRO-005-2 R1 and R17; IRO-005-3 R1; IRO-009-1 R1, R2, and R4; IRO-014-1 R1. We remind the drafting team that SOLs and IROLs should and do include voltage limits.</p>
Midwest ISO Standards Collaborators	<p>In general, we believe this SAR requires much refinement. As written, it is too broad and attempts to accomplish too many changes that are not specifically related to reactive power. We suggest the drafting team refocus this SAR on the VAR standards only. Many of the standards that are included in this SAR such as TOP and TPL are already undergoing revision. Any changes that are needed to these should have been provided through the comment periods.</p> <p>We are also concerned that there are several statements that do not appear to recognize the current state of the standards. In the detailed section, there is the following sentence. “The requirements in the existing standards need to be more specific in defining voltage and reactive power schedules.” VAR-001-1 R4 states, “Each Transmission Operator shall specify a voltage or Reactive Power schedule at the interconnection between the generator facility and the Transmission Owner’s facilities to be maintained by each generator. The Transmission Operator shall provide the voltage or Reactive Power schedule to the associated Generator Operator and direct the Generator Operator to comply with the schedule in automatic voltage control mode (AVR in service and controlling voltage).” This is very specific. It is not clear to us how it can be any more specific.</p> <p>In the Detailed Description section, there is another statement that does not appear to recognize the current state of the standards. “The standard should include requirements for the Transmission Operator (TOP) and Reliability Coordinator (RC) to monitor and take action if reactive power or voltage falls outside identified limits.” There are already several requirements that require the TOP to monitor voltage and SOLs/IROLs and to respond to bring the transmission system</p>

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	<p>back within limits. There are also requirements that bind the functional entities operating under the TOP to follow their direction. These requirements include VAR-001-1 R1, R2, R4, R8 and R12. Furthermore, there are many requirements in the IROL standards that require the RC to monitor voltage limits, SOLs and IROLs and to direct action to bring the transmission system back within limits. They further bind the entities under the RC to follow their direction. These include IRO-001-1.1 R3 and R8; IRO-004-1 R1, R6, and R7; IRO-004-2 R1; IRO-005-2 R1 and R17; IRO-005-3 R1; IRO-009-1 R1, R2, and R4; IRO-014-1 R1. We remind the drafting team that SOLs and IROLs should and do include voltage limits.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. Please refer to FERC Order 693, paragraph 1880. The scope of this SAR, at a minimum, has to address all of these issues. Additional SAR scope was provided by the NERC PC and SC.</b></p> <p><b>1) If a potentially related standard is not listed in the SAR, the Standard Drafting team will have to revise the SAR and re-post for comment (per the Standard Development Process) if it is later determined that that standard needs to be revised. This will cause unnecessary project delays. The Standard drafting team is not obligated to revise the listed standards, only to consider whether revisions are appropriate. The SAR DT believes the scope of standards for potential revision needs to be large enough to allow the Standard Drafting Team the flexibility and latitude to recommend changes to existing standards.</b></p> <p><b>(2) The review will involve the standards which contain references to voltage and or reactive control. The SAR makes it clear that the intent is to ensure the requirements are not duplicated in multiple standards and to work with other Projects and SDT Teams. We believe this recognizes the current state of the standards. While the VAR standards do have specificity they do not provide adequate requirements needed for reliable reactive power such as coordination among the reactive resources planning areas, establishing limits, or acceptable margins above voltage stability points.</b></p> <p><b>(3) The Standard Drafting Team should review the requirements that you mention to ensure that they are compatible with any other requirements developed under this SAR. FAC-010 and FAC-011 have been added to the SAR for consideration under this project. We will forward your comment to the Standard Drafting Team for their consideration.</b></p>	
<p>SERC OC Standards Review Group</p>	<p>No comment - see disclaimer below "The comments expressed herein represent a consensus of the views of the above named members of the SERC OC Standards Review group only and should not be construed as the position of SERC Reliability Corporation, its board or its officers."</p>
<p><b>Response: The VRPC SAR DT thanks you for your previous comments.</b></p>	
<p>Bulk Planning Department</p>	<p>Order 693 requires "the Reliability Standard (to) benefit from having more defined requirements that clearly define what voltage limits are used and how much reactive resources are needed to ensure voltage instability will not occur under normal and emergency conditions." Reactive resource requirements vary widely by location and by system conditions. There is no feasible way to "ensure voltage instability will not occur under ... emergency conditions" without extravagant reactive resource margins. As with all standards there should be no ambiguity regarding who is responsible for what. If more than one functional entity is responsible for meeting a requirement, the pieces of the requirement should be clearly</p>



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	associated with the responsible entity. Thanks.
<p><b>Response: The VRPC SAR DT thanks you for your comment. The development of the specific requirements will be the function of the SDT. The SAR DT believes this can be successfully developed. Ambiguity regarding responsibility would make the resulting standard difficult to enforce.</b></p>	
South Carolina Electric and Gas	Page SAR-4 of the "Detailed Description" section states "The standard should include a requirement for peer review of the VAR Plans and their associated criteria." However, FERC Order 693 only directs that there should be a peer review of the methodology for determining dynamic var requirements by the Reliability Coordinator. Consequently, we believe that the SAR over reaches what is directed by FERC.
<p><b>Response: The VRPC SAR DT thanks you for your comment. In FERC Order 693 the Commission noted that it “believes that it is important to include the reliability coordinator as an applicable entity to assure that adequate voltage and reactive resources are being maintained.” This does not limit review of the VAR Plan to the reliability coordinators. The SAR DT believes that reviews can be very beneficial in the coordination of reactive support among the reactive support planning areas. The specific requirement for review will be developed by the SDT – the SAR was revised to remove the specific reference to “peer review.”</b></p>	
SERC Planning Standards Subcommittee	The comments expressed herein represent a consensus of the views of the above named members of the SERC Planning Standards Subcommittee only and should not be construed as the position of SERC Reliability Corporation, its board or its officers.
<p><b>Response: The VRPC SAR DT thanks you for your previous comment.</b></p>	
Northeast Power Coordinating Council	The concepts put forth in the SAR appear to be inconsistent. The statement “Reactive power needs vary significantly based on system characteristics, and because reactive power needs to be supplied locally, it may not be appropriate to establish a continent-wide reactive reserve requirement” is followed by the statement “The local supply and reactive power requirements must be analyzed and documented on a local level, possibly consisting of an area the size of a TP or smaller, up to a Reliability Coordinator footprint or multiple neighboring PCs/TPs” advocating a wider area reactive power reserve requirement. The additional statement “The requirements in the existing standards need to be more specific in defining voltage and reactive power schedules” leans towards the local consideration. “The standard should include requirements for the Transmission Operator (TOP) and Reliability Coordinator (RC) to monitor and take action if reactive power or voltage falls outside identified limits” is already addressed in TOP and IRO standards.
<p><b>Response: The VRPC SAR DT thanks you for your comment. The reference to neighboring PCs/TPs in the SAR was not intended to become a reactive power reserve requirement and the SAR acknowledges that there should not be a continent-wide reactive reserve requirement. The neighboring PCs/TPs reference was intended to allow for flexibility in the size of the reactive planning area. The review of the VAR Standards will</b></p>	

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<p><b>also involve the standards which contain references to voltage and / or reactive control. The SAR makes it clear that the intent is to ensure the requirements are not duplicated in multiple standards and to work other Projects and SDT Teams.</b></p>	
<p>Constellation Power Source Generation</p>	<p>The current draft of VAR-001-1a allows a TOP to only provide a reactive schedule to the generator while the generator must maintain the AVR in the voltage control mode. R4 of VAR-001-1a states: Each Transmission Operator shall specify a voltage or Reactive Power schedule at the interconnection between the generator facility and the Transmission Owner's facilities to be maintained by each generator. The Transmission Operator shall provide the voltage or Reactive Power schedule to the associated Generator Operator and direct the Generator Operator to comply with the schedule in automatic voltage control mode (AVR in service and controlling voltage). If the generator is required to keep the AVR in the auto voltage mode then the TOP should be required to provide a voltage schedule. If the generator must control to a reactive schedule with the AVR in the voltage control mode then the generator operator must be constantly adjusting the AVR setting to control to constant VAR's. This practice is not the best practice for reliable operation of the grid. Doesn't this increase the potential for a voltage collapse? The generator should be allowed to operate the AVR in the mode that matches the schedule provided by the TOP.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. The specific requirements in the VAR standard will be reviewed by the SDT. We will forward your comment to the Standard Drafting Team for their consideration.</b></p>	
<p>Bonneville Power Administration</p>	<p>The February 23rd document of Consideration of Comments, especially questions #2 and #4, include Summary Consideration responses of "Most/Many Stakeholders agreed.....", which appears to be misleading. The majority of respondents are in disagreement and have sound justification for this position.</p>
<p><b>Response: Thank you for your comment. The VRPC SAR DT has no intention of misleading stakeholders. The first set of comments did include many stakeholders who voted "no" with comments that the VRPC SAR DT considered to be justified and ultimately accepted and included in the revised SAR. The SAR was revised and posted and the second round of comments and those comments DO indicate that most/many stakeholders agree.</b></p>	
<p>Independent Electricity System Operator</p>	<p>The periodicity of review of the reactive power planning criteria as well as a definition of the "local" area to be analyzed for determining reactive reserve requirements are unspecified. We assume that the SDT will consider criteria for establishing these.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SDT will establish requirements based on the SAR which may address this issue. The SAR DT encourages you to keep abreast of development of requirements and provide comments to the SDT.</b></p>	
<p>PPL</p>	<p>The SAR appears to recognize two very important aspects of Reactive Power Planning:</p>

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	<p>1) The need for the transmission planner to assure enough reactive is available under all conditions.</p> <p>1a. The TOP establishes the voltage ranges at all buses.</p> <p>1b. Generators can only provide so many MVar and therefore may not be able to control voltage at any given bus.</p> <p>1c. Load power factors may need to be dealt with in a distribution planning document so the load power factor is within a range.</p> <p>2) The need for the TOP/GOP to have clear directions for voltage control.</p> <p>2a. The SAR should address the possible existing conflict between VAR-001-1 R4 that appears to state voltage schedules will be issued at the point of interconnect (POI) and VAR-002-1 R2 that appears to say the generator must control the generator bus voltage.</p> <p>2b. The SAR should attempt to document how and who will convert a voltage schedule at the POI to an AVR setpoint at the generator terminals.</p> <p>PPL encourages the SAR drafting team to visit with the VAR-001-WECC-1 drafting team that is attempting to define how the TOP and GOP will always arrive at a voltage setpoint for the generator AVR rather than a power factor or MVar schedule. The WECC also addresses the use of outside MVar control loops to balance MVar production by many machines trying to hold voltage at one bus and converting power factor and MVar schedules into voltage schedules. PPL also encourages the VAR SAR DT to see how the peer review features of the OATT-Attachment K will benefit the new VAR standards.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. The specific requirements concerning responsibilities for voltage control will be developed by the SDT in response to the SAR. The SAR DT encourages you to keep abreast of development of requirements and provide comments to the SDT. We will forward your comments to the SDT for their consideration.</b></p>	
Pepco Holdings, Inc.	There is a large array of operating and planning solutions to reactive support and the standards should not prescribe how this is done.
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SAR indicates there should be requirements to document the criteria and methodology for dynamic reactive power resources. The SDT will develop standards based on the SAR which should avoid being overly prescriptive to allow individual compliance with the requirements. The SAR DT encourages you to keep abreast of development of requirements and provide comments to the SDT.</b></p>	
Electric Market Policy	Though we don't disagree that FERC Order 693 directed NERC to address LSE in these standards, we don't see the necessity of doing so in a reliability standard. It is our belief that this is already covered, or could be included, in other

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	agreements between the load serving entity and its interconnection provider.
<p><b>Response: The VRPC SAR DT thanks you for your comment. The SDT has an obligation to address FERC Directives. The SDT will develop standards based on the SAR. The SAR DT encourages you to keep abreast of development of requirements and provide comments to the SDT.</b></p>	
AEP	<p>While we do not disagree in principle with a need to better define reliability objectives and practices involving voltage control and reactive resources, planning and operating entities already must define voltage control and reactive resource objectives and practices in order to comply with existing standards. For example, Transmission Planners already need to define and coordinate voltage criteria, ensure reactive resource sufficiency, and define, where appropriate, margins against voltage collapse in order to comply. Having voltage control and reactive resource criteria and methods may not explicitly be required by TPL standards, but compliance cannot be achieved without them. The drafting team has not made a convincing case that planning and operating standards currently existing and in the process of being revised, such as TPL-001-1, are somehow inadequate to achieve acceptable voltage control and coordination, and sufficiency of reactive resources. The scope of this SAR should remain TOP, GOP and GO. Requirements for entities outside that scope should be left to drafting teams assigned to TPL, TOP or other categories of standards.</p>
<p><b>Response: The VRPC SAR DT thanks you for your comment. The responsibilities will be determined by the SDT. The scope was expanded to ensure flexibility in the determination of requirements by the SDT. The Commission expressed concern that the technical requirements in the existing standards are not sufficiently defined. In addition the Commission ordered that the ERO should modify VAR-001-1 to include reliability coordinators as applicable entities and include a new requirement(s) that identifies the reliability coordinator’s monitoring responsibilities."</b></p>	