

Comment Report

Regional Reliability Standard VAR-501-WECC-3

The Western Electricity Coordinating Council (WECC) thanks all commenters who submitted comments on the proposed Regional Reliability Standard **VAR-501-WECC-3 (Power System Stabilizers)**. The proposal was posted for a 45-day public comment period December 12, 2016 – January 25, 2017. There were five responses, including feedback from approximately five different people from approximately five companies representing five of the 10 Industry Segments as shown in the table on the following pages.

All comments submitted can be reviewed in their original format on the [Regional Reliability Standards Under Development page](#).

If you feel that your comment has been overlooked, please let us know immediately. Our goal is to give every comment serious consideration in this process. If you feel there has been an error or omission, you can contact the Director of Standards, [Howard Gugel](#) at (404) 446-9693.

After a review and consideration of all comments submitted, the drafting team concluded that development of the project was in accord with the WECC Reliability Standards Development Procedures (Procedures) and that the project was developed in an open, inclusive, balanced, and transparent manner – affording the respondents adequate due process.

If you have questions regarding the WECC Reliability Standards Development Procedures or this project, please contact WECC Consultant, [W. Shannon Black](#) at (503) 307-5782.

Index to Questions, Comments, and Responses

1. Do you agree the development of VAR-501-WECC-3 met the “Open” criteria as outlined in this posting? If “No,” please explain in the comment area below.
2. Do you agree the development of VAR-501-WECC-3 met the “Inclusive” criteria as outlined in this posting? If “No,” please explain in the comment area below.
3. Do you agree the development of VAR-501-WECC-3 met the “Balanced” criteria as outlined in this posting? If “No,” please explain in the comment area below.
4. Do you agree the development of VAR-501-WECC-3 met the “Due Process” criteria as outlined in this posting? If “No,” please explain in the comment area below.
5. Do you agree the development of VAR-501-WECC-3 met the “Transparent” criteria as outlined in this posting? If “No,” please explain in the comment area below.

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

Group/Individual		Commenter	Organization	Registered Ballot Body Segment										
				1	2	3	4	5	6	7	8	9	10	
1.	Group	Pamela Hunter	Southern Company on behalf of:	X										
		Katherine Prewitt	Southern Company	X										
		R. Scott Moore	Alabama Power Company			X								
		William D. Schultz	Southern Company					X						
		Jennifer G. Sykes	Southern Company Generation and Energy Marketing						X					
2.	Individual	Laura Nelson	Idaho Power Company	X										
3.	Individual	Bishnu Sapkota	GE Power Systems Energy Consulting										X	
4.	Individual	Richard Jackson	United States Bureau of Reclamation (USBR)	X				X						
5.	Individual	Lynda Kupfer	Puget Sound Energy	X		X			X					

1. Do you agree the development of VAR-501-WECC-3 met the “Open” criteria as outlined in this posting? If “No,” please explain in the comment area below.

Summary Consideration:

The drafting team thanks all respondents for their comments and continued involvement in the standards development process. No changes were made.

Organization	Yes or No	Question 1 Comment
Idaho Power	Yes	
GE Power	Yes	
USBR	Yes	
Puget Sound Energy	Yes	
Southern Company	Yes	

2. Do you agree the development of VAR-501-WECC-3 met the “Inclusive” criteria as outlined in this posting? If “No,” please explain in the comment area below.

Summary Consideration:

Although the comment provided did not address the question, the drafting team believes the issue was addressed in Posting 2. No further changes were made.

Organization	Yes or No	Question 2 Comment
GE Power	No	<p>We have reviewed the proposed standard VAR-501-WECC-3, Power System Stabilizers. In general, the document looks good, however, we see a need for adjustment on the requirement R3 of the document.</p> <p>The requirement R3 states that the final PSS gain should be between 1/3 (10 dB) to 1/2 (6 dB) of the maximum practical gain that could be achieved during PSS commissioning. The maximum practical gain may also be associated with the interactions of the PSS with low-order torsional modes of the turbine-generator unit which may or may not be evaluated during the PSS commissioning test. Accordingly, the PSS gain may need to be kept lower than 1/3 of the maximum practical gain that can be proved during the testing. The reason for this recommendation is to avoid any potential detrimental issues associated with the above-mentioned torsional interactions. So, we would recommend to make adjustment in the statement as follows:</p> <p><i>The final PSS gain should not be greater than 1/3 of the maximum practical gain.</i></p>
<p>The drafting team notes that GE’s comment does not address the question asked regarding an “inclusive” process.</p> <p>The drafting team also notes that GE was not one of 13 entities actively involved and submitting developmental comments during the eight public postings occurring over an 18-month period (July 1, 2014 through January 22, 2016).</p> <p>The drafting team would point GE to its discussion regarding gain taking place in Postings 1, 2, 3, and 8, with specific emphasis on Postings 2 and 3.</p>		
Southern Company	Yes	
Puget Sound	Yes	

Organization	Yes or No	Question 2 Comment
USBR	Yes	
Idaho Power	Yes	

3. Do you agree the development of VAR-501-WECC-3 met the “Balanced” criteria as outlined in this posting? If “No,” please explain in the comment area below.

Summary Consideration:

Organization	Yes or No	Question 3 Comment
GE Power	No	
Please refer to the response in Question 2.		
Puget Sound Energy	Yes	<p>Please clarify the conditions and timing under which an automatic voltage regulator without PSS, or a PSS that cannot meet the tuning requirements in R3 would have to be replaced.</p> <p>Our interpretation for R4 is that only if we were replacing the voltage regulator on an existing exciter would we have to add PSS to a unit that doesn't currently have it.</p> <p>R3.5 provides an exemption for PSS that cannot be tuned but R5 requires repair or replacement within 24 months of determining it cannot be tuned to the standard requirements. Because R3 is effective 5 years after approval for existing systems, would we then have 2 years after that to replace PSS that cannot be tuned to the specifications?</p>
<p>The drafting team appreciates Puget’s response to the question regarding development of the project in a “balanced” fashion.</p> <p>Beyond Puget’s affirmation that the project was developed via a balanced process, the drafting team notes that Puget is requesting an interpretation of the document. Although an interpretation is outside of the scope of this posting, the drafting team would point Puget to the following Responses to Comment in an effort to assist:</p> <ul style="list-style-type: none"> • Posting 1, Western Power Trading Forum • Posting 3, Tacoma • Posting 3, Tri-State • Posting 4, PSCO • Posting 8, Response to Comments for the City of Tacoma, WECC, Colorado Springs Utility 		

The drafting team notes Posting 8 Response to Comment to WECC as follows:

Nothing in this Regional Reliability Standards (RRS) should be construed to require installation of a PSS *solely because* a PSS is not currently installed as of the Effective date of this RRS. Rather, installation is only mandated upon the occurrence of either of the triggering events described in Requirement R4, Bullet 1 or Bullet 2, after the Effective Date of the RRS.

It should be noted that a PSS is neither Transmission nor generation.

As to the Effective Date, the drafting team would point Puget to the following language extracted from the Implementation Plan:

Effective Date

Where approval by an applicable governmental authority is required, VAR-501-WECC-3, Requirements R1, R2, R4, and R5 shall become effective on the first day of the first calendar quarter after the effective date of the applicable governmental authority's order approving the standard, or as otherwise provided for by the applicable governmental authority.

For units placed in first-time service after regulatory approval, Reliability Standard VAR-501-WECC-3, Requirement R3 shall become effective the first day of the first calendar quarter after the effective date of the applicable governmental authority's order approving the standard.

For units placed in service prior to final regulatory approval, Requirement R3 shall become effective the first day of the first calendar quarter that is five years after the effective date of the applicable governmental authority's order approving the standard.

Where approval by an applicable governmental authority is not required, VAR-501-WECC-3, Requirements R1, R2, R4, and R5 shall become effective on the first day of the first calendar quarter after the date the standard is adopted by the NERC Board of Trustees, or as otherwise provided for in that jurisdiction.

For units placed in first-time service after regulatory approval, Reliability Standard VAR-501-WECC-3, Requirement R3 shall become effective the first day of the first calendar quarter after the date the standard is adopted by the NERC Board of Trustees, or as otherwise provided for in that jurisdiction.

For units placed in service prior to final regulatory approval, Requirement R3 shall become effective the first day of the first calendar quarter that is five years after the standard is adopted by the NERC Board of Trustees.

Organization	Yes or No	Question 3 Comment
Southern Company	Yes	<ol style="list-style-type: none"> 1. Redline, page 14, Section Requirement R3, first sentence: What is RRS? Should RSS be RRS (regional reliability standard)? 2. With regard to the draft standard section R3.3: PSS Gain shall be set to between 1/3 and 1/2 of maximum practical gain. <p>The SDT should define “maximum practical gain”. Is this meant to be the gain value resulting in the threshold of instability? In defining the maximum practical gain, one must account for older PSS systems and the newer dual input PSS units using the integral of accelerating power which are stable at significantly higher gains.</p>
<p>The drafting team appreciates Southern’s response to the question regarding development of the project in a “balanced” fashion. An “RRS” is a Regional Reliability Standard.</p> <p>Beyond Southern’s affirmation that the project was developed via a balanced process, the drafting team notes that Southern is requesting an interpretation of the document. Although an interpretation is outside of the scope of this posting, the drafting team would point Southern to the following Responses to Comment and the Guidance and technical Basis of the project that specifically addresses Requirement R3:</p> <ul style="list-style-type: none"> • Posting 2, Kestrel • Posting 8, Colorado Springs Utilities • Guidance and Technical Basis of the document directly addressing requirement R3. <p>Finally, the drafting team would point Southern to the above response to GE and suggest that earlier participation in the process might reap changes that would benefit the entire industry.</p>		
Idaho	Yes	
USB	Yes	

4. Do you agree the development of VAR-501-WECC-3 met the “Due Process” criteria as outlined in this posting? If “No,” please explain in the comment area below.

Summary Consideration:

Organization	Yes or No	Question 4 Comment
USBR	No	<p>In general, Reclamation supports the changes proposed in VAR-501-WECC-3.</p> <p>Reclamation requests that the standard be revised to contain clarifying language regarding the allowance for a PSS to be out of service in R2:</p> <ul style="list-style-type: none"> Is a PSS outage of 30 minutes considered a violation or not? During what interval is “more than 30 minutes” considered a violation – per occurrence, or a total per year? <p>Reclamation suggests that R3 be clarified to state that each Generator Owner shall tune its PSS to meet “ALL” the following criteria:</p> <ul style="list-style-type: none"> (3.1 “and” 3.2 “and” 3.3 “and” 3.4 “OR” 3.5) in order to better align with the VSL for R3 which indicates a violation if ANY of the criteria are not met. <p>R4 by itself can be misinterpreted to mandate installation of PSS on existing generators. To avoid confusion, BOR recommends copying the text of the "Mandate to Install a PSS" section (on page 8 of the Clean version) to a third bullet under R4.</p> <p>R5 may be overly restrictive given procurement issues that entities, especially federal agencies, could experience. The clause “or a plan to repair or replace not to exceed 36 months” should be included to offset the possibility of unforeseen delays that could cause a possible violation beyond the entity's control.</p> <p>In the Evidence Retention section, it is unclear what the phrase "plus calendar current" means.</p>

Organization	Yes or No	Question 4 Comment
		<p>The drafting notes that the USBR’s comments do not address the question of due process.</p> <p>The drafting team notes that opinions on compliance and acceptable evidence are outside of the scope of the question as well as outside of the scope of the drafting team. Compliance questions should be directed to the pertinent enforcement entity. To assuage future concerns of this nature, WECC’s Standards Department has invited WECC’s Compliance Department to assist in the development process to ensure the greatest degree of clarity on compliance matters prior to the actual balloting of a project.</p> <p>As to the structure of Requirement R3, the Bureau suggests an acceptable alternative but not one adding any greater clarity.</p> <p>As to the structure of Requirement R4, all language is in the future tense, not the present or past tense: “connects” not connected, “replaces” not replacing or replaced. See also the above response to Puget Sound.</p> <p>As to the time frame of Requirement R5, the drafting team notes the issue was first addressed in Posting 1 and did not find the Bureau raising the issue thereafter.</p> <p>In an effort to assist the Bureau in its quest, the drafting team would point the Bureau to Response to Comments Posting 1, response to Western Trading Power Forum stating:</p> <p>“To address the concern that a Generator Owner may unreasonably delay repair or replacement of a non-operational PSS, the team has created [the 24-month window].” “The rationale for the 24-month window is that it provides the generator owner an ample window to either procure a replacement part or to purchase and bring operational an [sic] entirely new PSS.” After further considering changes to the 24-month window in Posting 2, the drafting team continued to hold that the 24-month window was acceptable. See Posting 2, Response to Comments, Tacoma.</p> <p>Finally, the drafting team notes that in Posting 4, the Bureau commented:</p> <p>“Reclamation agrees with the 24-month PSS repair or replacement timeframe included in R5.”</p>
Southern	Yes	
Puget Sound	Yes	
GE Power	Yes	
Idaho	Yes	

5. Do you agree the development of VAR-501-WECC-3 met the “Transparent” criteria as outlined in this posting? If “No,” please explain in the comment area below.

Summary Consideration:

Organization	Yes or No	Question 5 Comment
Idaho	Yes	
GE Power	Yes	
USBR	Yes	
Southern	Yes	

End of Report