

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please use this form to submit comments on the Phase III & IV Drafting Team's third draft of the second set of Phase III & IV Standards. Comments must be submitted by **April 15, 2006**. You must submit the completed form by e-mailing it to sarcomm@nerc.com with the words "Phase III & IV Standard Comments" in the subject line. If you have questions, please contact Mark Ladrow at mark.ladrow@nerc.net or 609.452.8060.

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Do use more than one form if responses do not fit in the spaces provided.
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Do not use numbering or bullets in any data field.
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Do not submit a response in an unprotected copy of this form.

Individual Commenter Information	
(Complete this page for comments from one organization or individual.)	
Name:	Mark Ringhausen
Organization:	Old Dominion Electric Cooperative
Telephone:	804-290-2194
E-mail:	mringhausen@odec.com
NERC Region	Registered Ballot Body Segment
<input type="checkbox"/> ERCOT	<input type="checkbox"/> 1 — Transmission Owners
<input type="checkbox"/> FRCC	<input type="checkbox"/> 2 — RTOs, ISOs, Regional Reliability Councils
<input type="checkbox"/> MAPP	<input type="checkbox"/> 3 — Load-serving Entities
<input type="checkbox"/> NPCC	<input checked="" type="checkbox"/> 4 — Transmission-dependent Utilities
<input checked="" type="checkbox"/> RFC	<input type="checkbox"/> 5 — Electric Generators
<input checked="" type="checkbox"/> SERC	<input type="checkbox"/> 6 — Electricity Brokers, Aggregators, and Marketers
<input type="checkbox"/> SPP	<input type="checkbox"/> 7 — Large Electricity End Users
<input type="checkbox"/> WECC	<input type="checkbox"/> 8 — Small Electricity End Users
<input type="checkbox"/> NA — Not Applicable	<input type="checkbox"/> 9 — Federal, State, Provincial Regulatory or other Government Entities

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Background:

The Phase III & IV drafting team divided its Standards into two sets, and most of the standards have moved forward to balloting. The drafting team is posting VAR-001, VAR-002, and VAR-003 for another comment period to improve consensus on these standards.

VAR-001	Voltage and Reactive Control
VAR-002	Generator Operation for Maintaining Network Voltage Schedules
VAR-003	Assessment of Reactive Power Resources

VAR-001 and VAR-002 are companion standards – there are requirements in VAR-001 for Transmission Operators to perform certain tasks in conjunction with Generator Operators – and there are requirements in VAR-002 for Generator Operators to perform certain tasks in conjunction with Transmission Operators. VAR-001 is an already approved Version 0 Standard – and the requirements in VAR-001 that were assigned to the Generator Operator were moved into VAR-002.

The drafting team made changes to both VAR-001 and VAR-002 to better align the tasks with the entities that are responsible for those tasks and to ensure measures are applied such that entities should not need to invest in additional resources solely to make it easy to measure compliance. The drafting team also made other changes as suggested by stakeholders, to improve clarity of intent and to ensure that the measures and levels of non-compliance align with the modified requirements. To simplify the review process, the drafting team has posted both a clean version of each of the standards as well as a 'red line' to show the changes from the second posting. Here is a summary of the major changes made to the requirements in VAR-001 and VAR-002:

- Added the following requirement to VAR-001 to address concerns that wind generators be considered collectively as a 'plant' rather than as single 'units':

R3. The Transmission Operator shall identify aggregated generating units required to comply as a plant rather than as individual generators.

- Modified VAR-001 R5 as follows to clarify the intent that the TOP maintain communication with the Generator Operator and provide the Generator Operator with specific directives, if needed. (There is a corresponding requirement in VAR-002 that requires the Generator Operator to comply with the TOP's directives.)

R5. Each Transmission Operator shall specify a voltage or Reactive Power schedule to be maintained by each non-exempt 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.

R5.1 If a Transmission Operator identifies a Generator Operator that is not following its assigned voltage or Reactive Power schedule, the Transmission Operator shall notify the Generator Operator that the schedule is not being met and shall obtain reasons for deviation from the schedule.

- Removed references to 'synchronous' generators. (VAR-001 and VAR-002)
- Removed the VAR-002 requirement to notify the TOP of instances of not adhering to the voltage schedule – this was not practical since the Generator Operator may not know that it is not complying with the schedule.
- Added a new Requirement 2.2 in VAR-002 to clarify that the Generator Operator is expected to comply with the TOP's directives relative to making changes in output:

R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

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- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
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The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule)?

Yes

No

Comments:

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments: Revise R.2 by deleting [acquire sufficient] and replacing with [manage available]. The requirements in R5 and R7.1 pertain to Transmission Operators. As R4 is currently written, it is not clear what the generator is exempted from.

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments:

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments: M2 should be deleted since it is sufficiently covered by M3.

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

No

Comments: As currently written TPL-001 and TPL-002 do not cover requirement R1 in VAR-003. If the requirements in TPL-001 and TPL-002 were expanded to include R1 of VAR-003, we would then agree with deleting VAR-003.

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments:

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Individual Commenter Information	
(Complete this page for comments from one organization or individual.)	
Name:	Greg Mason
Organization:	Dynegy
Telephone:	217 872-2301
E-mail:	gregor.mason@dynegy.com
NERC Region	Registered Ballot Body Segment
<input checked="" type="checkbox"/> ERCOT	<input type="checkbox"/> 1 — Transmission Owners
<input type="checkbox"/> FRCC	<input type="checkbox"/> 2 — RTOs, ISOs, Regional Reliability Councils
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The drafting team made changes to both VAR-001 and VAR-002 to better align the tasks with the entities that are responsible for those tasks and to ensure measures are applied such that entities should not need to invest in additional resources solely to make it easy to measure compliance. The drafting team also made other changes as suggested by stakeholders, to improve clarity of intent and to ensure that the measures and levels of non-compliance align with the modified requirements. To simplify the review process, the drafting team has posted both a clean version of each of the standards as well as a 'red line' to show the changes from the second posting. Here is a summary of the major changes made to the requirements in VAR-001 and VAR-002:

- Added the following requirement to VAR-001 to address concerns that wind generators be considered collectively as a 'plant' rather than as single 'units':

R3. The Transmission Operator shall identify aggregated generating units required to comply as a plant rather than as individual generators.

- Modified VAR-001 R5 as follows to clarify the intent that the TOP maintain communication with the Generator Operator and provide the Generator Operator with specific directives, if needed. (There is a corresponding requirement in VAR-002 that requires the Generator Operator to comply with the TOP's directives.)

R5. Each Transmission Operator shall specify a voltage or Reactive Power schedule to be maintained by each non-exempt 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.

R5.1 If a Transmission Operator identifies a Generator Operator that is not following its assigned voltage or Reactive Power schedule, the Transmission Operator shall notify the Generator Operator that the schedule is not being met and shall obtain reasons for deviation from the schedule.

- Removed references to 'synchronous' generators. (VAR-001 and VAR-002)
- Removed the VAR-002 requirement to notify the TOP of instances of not adhering to the voltage schedule – this was not practical since the Generator Operator may not know that it is not complying with the schedule.
- Added a new Requirement 2.2 in VAR-002 to clarify that the Generator Operator is expected to comply with the TOP's directives relative to making changes in output:

R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

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- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
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The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

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1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?)

Yes

No

Comments:

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments:

1. R5 This requirement needs to be modified to state that a voltage schedule must be a range of voltage(not a specific point voltage) and that the voltage schedule should take into account voltage measuring accuracy and the dynamics of system voltage. The response from the Phase III-IV Standard Drafting Team(on this previous comment) that the standard doesn't prevent the TOP from including a tolerance band in the schedule misses the point. The voltage schedule must be a range of voltage(and not a specific point voltage) for the Generation Operator to maintain the voltage schedule and thus comply with the R2 provisions of VAR-002-1(i.e. a single point voltage schedule cannot be routinely maintained due to system dynamics).

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments: Yes, conceptually. However, per my comments on VAR-002-1 below, the times in D2.1.1-D2.4.1 need to be lengthened.

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments:

1.R1 needs to be modified to replace the wording "otherwise approved by " with " it has otherwise notified" to be consistent with R3 (which requires "notification" of the TO and not "approval" of the TO) and the practicalities of system operation. Obtaining "approval" of the Transmission Operator before the voltage regulator is taken off automatic voltage control mode may not always be possible given equipment failures and priorities of real time operations.

2. R2.2. The wording "voltage output" needs to be replaced with " unit or plant voltage" since generators have var "output" and not "voltage output".

3. R2.2. The 5 minute system response requirement to change voltage to a new level in accordance with a TO request is simply too short and is not likely to be physically or practically attainable in many instances. The 5 minute requirement needs to be replaced by a more reasonably achievable timeframe of 15 minutes.

4. M1 Consistent with comment #1, the wording "received approval of " in M1 needs to be replaced with "notified". Also, with this change, M1 really needs to be deleted as it is redundant to M4.

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5. D2 Consistent with comment #3, the times specified in 2.1.1,2.2.1,2.3. 1 and 2.4.1 need to be changed to 20 minutes, 25 minutes, 30 minutes and 35 minutes,respectively.

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

No

Comments:

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

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R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

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- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
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The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

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Yes

No

Comments:

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments: Revise R.2 by deleting [acquire sufficient] and replacing with [manage available]. The requirements in R5 and R7.1 pertain to Transmission Operators. As R4 is currently written, it is not clear what the generator is exempted from.

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments:

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments: M2 should be deleted since it is sufficiently covered by M3.

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

No

Comments: As currently written TPL-001 and TPL-002 do not cover requirement R1 in VAR-003. If the requirements in TPL-001 and TPL-002 were expanded to include R1 of VAR-003, we would then agree with deleting VAR-003.

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

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VAR-002	Generator Operation for Maintaining Network Voltage Schedules
VAR-003	Assessment of Reactive Power Resources

VAR-001 and VAR-002 are companion standards – there are requirements in VAR-001 for Transmission Operators to perform certain tasks in conjunction with Generator Operators – and there are requirements in VAR-002 for Generator Operators to perform certain tasks in conjunction with Transmission Operators. VAR-001 is an already approved Version 0 Standard – and the requirements in VAR-001 that were assigned to the Generator Operator were moved into VAR-002.

The drafting team made changes to both VAR-001 and VAR-002 to better align the tasks with the entities that are responsible for those tasks and to ensure measures are applied such that entities should not need to invest in additional resources solely to make it easy to measure compliance. The drafting team also made other changes as suggested by stakeholders, to improve clarity of intent and to ensure that the measures and levels of non-compliance align with the modified requirements. To simplify the review process, the drafting team has posted both a clean version of each of the standards as well as a 'red line' to show the changes from the second posting. Here is a summary of the major changes made to the requirements in VAR-001 and VAR-002:

- Added the following requirement to VAR-001 to address concerns that wind generators be considered collectively as a 'plant' rather than as single 'units':

R3. The Transmission Operator shall identify aggregated generating units required to comply as a plant rather than as individual generators.

- Modified VAR-001 R5 as follows to clarify the intent that the TOP maintain communication with the Generator Operator and provide the Generator Operator with specific directives, if needed. (There is a corresponding requirement in VAR-002 that requires the Generator Operator to comply with the TOP's directives.)

R5. Each Transmission Operator shall specify a voltage or Reactive Power schedule to be maintained by each non-exempt 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.

R5.1 If a Transmission Operator identifies a Generator Operator that is not following its assigned voltage or Reactive Power schedule, the Transmission Operator shall notify the Generator Operator that the schedule is not being met and shall obtain reasons for deviation from the schedule.

- Removed references to 'synchronous' generators. (VAR-001 and VAR-002)
- Removed the VAR-002 requirement to notify the TOP of instances of not adhering to the voltage schedule – this was not practical since the Generator Operator may not know that it is not complying with the schedule.
- Added a new Requirement 2.2 in VAR-002 to clarify that the Generator Operator is expected to comply with the TOP's directives relative to making changes in output:

R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)

The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?)

Yes

No

Comments:

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments: VAR-001 contains requirements that are already included in other standards and does not provide measures for many of the requirements. The drafting team should review each requirement (R1-R13) and ensure that the requirements are not already included in another standard and ensure that each requirement is well defined with appropriate measures.

In Measure M4 - the words "transformer tap change" should be "transformer tap" (delete the word "change" to make wording consistent with D.2.2.2)..

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments:

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments:

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

No

Comments: VAR-003 is not needed because it duplicates requirements in TPL-001 and TPL-002.

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments: After the requirements of VAR-001 are reviewed and modified, VAR-001 should be re-submitted for industry comments.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please use this form to submit comments on the Phase III & IV Drafting Team’s third draft of the second set of Phase III & IV Standards. Comments must be submitted by **April 15, 2006**. You must submit the completed form by e-mailing it to sarcomm@nerc.com with the words “Phase III & IV Standard Comments” in the subject line. If you have questions, please contact Mark Ladrow at mark.ladrow@nerc.net or 609.452.8060.

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Individual Commenter Information		
(Complete this page for comments from one organization or individual.)		
Name:	John W. Shaffer	
Organization:	Florida Power & Light Co.	
Telephone:	(305) 442-5765	
E-mail:	john_w_shaffer@fpl.com	
NERC Region		Registered Ballot Body Segment
<input type="checkbox"/> ERCOT	<input checked="" type="checkbox"/>	1 — Transmission Owners
<input checked="" type="checkbox"/> FRCC	<input type="checkbox"/>	2 — RTOs, ISOs, Regional Reliability Councils
<input type="checkbox"/> MAPP	<input type="checkbox"/>	3 — Load-serving Entities
<input type="checkbox"/> NPCC	<input type="checkbox"/>	4 — Transmission-dependent Utilities
<input type="checkbox"/> RFC	<input type="checkbox"/>	5 — Electric Generators
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<input type="checkbox"/> SPP	<input type="checkbox"/>	7 — Large Electricity End Users
<input type="checkbox"/> WECC	<input type="checkbox"/>	8 — Small Electricity End Users
<input type="checkbox"/> NA — Not Applicable	<input type="checkbox"/>	9 — Federal, State, Provincial Regulatory or other Government Entities

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Background:

The Phase III & IV drafting team divided its Standards into two sets, and most of the standards have moved forward to balloting. The drafting team is posting VAR-001, VAR-002, and VAR-003 for another comment period to improve consensus on these standards.

VAR-001	Voltage and Reactive Control
VAR-002	Generator Operation for Maintaining Network Voltage Schedules
VAR-003	Assessment of Reactive Power Resources

VAR-001 and VAR-002 are companion standards – there are requirements in VAR-001 for Transmission Operators to perform certain tasks in conjunction with Generator Operators – and there are requirements in VAR-002 for Generator Operators to perform certain tasks in conjunction with Transmission Operators. VAR-001 is an already approved Version 0 Standard – and the requirements in VAR-001 that were assigned to the Generator Operator were moved into VAR-002.

The drafting team made changes to both VAR-001 and VAR-002 to better align the tasks with the entities that are responsible for those tasks and to ensure measures are applied such that entities should not need to invest in additional resources solely to make it easy to measure compliance. The drafting team also made other changes as suggested by stakeholders, to improve clarity of intent and to ensure that the measures and levels of non-compliance align with the modified requirements. To simplify the review process, the drafting team has posted both a clean version of each of the standards as well as a 'red line' to show the changes from the second posting. Here is a summary of the major changes made to the requirements in VAR-001 and VAR-002:

- Added the following requirement to VAR-001 to address concerns that wind generators be considered collectively as a 'plant' rather than as single 'units':

R3. The Transmission Operator shall identify aggregated generating units required to comply as a plant rather than as individual generators.

- Modified VAR-001 R5 as follows to clarify the intent that the TOP maintain communication with the Generator Operator and provide the Generator Operator with specific directives, if needed. (There is a corresponding requirement in VAR-002 that requires the Generator Operator to comply with the TOP's directives.)

R5. Each Transmission Operator shall specify a voltage or Reactive Power schedule to be maintained by each non-exempt 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.

R5.1 If a Transmission Operator identifies a Generator Operator that is not following its assigned voltage or Reactive Power schedule, the Transmission Operator shall notify the Generator Operator that the schedule is not being met and shall obtain reasons for deviation from the schedule.

- Removed references to 'synchronous' generators. (VAR-001 and VAR-002)
- Removed the VAR-002 requirement to notify the TOP of instances of not adhering to the voltage schedule – this was not practical since the Generator Operator may not know that it is not complying with the schedule.
- Added a new Requirement 2.2 in VAR-002 to clarify that the Generator Operator is expected to comply with the TOP's directives relative to making changes in output:

R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)

The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?)

Yes

No

Comments:

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments: The issues of establishing a voltage schedule, monitoring voltage regulator status and coordinating generating plant transformer taps addressed in Requirements R.5, R.7 and R.12 are important and should be brought into the Standards framework. There are 10 other Requirements in the draft VAR-001 that are difficult to measure or are redundant to other NERC Reliability Standards. VAR-001 needs to be rewritten so that it is similar and parallel to VAR-002.

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments:

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments:

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

No

Comments: VAR-003 is not needed because it duplicates requirements in TPL-001 and TPL-002.

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments: After the requirements of VAR-001 are reviewed and modified, VAR-001 should be re-submitted for industry comments.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please use this form to submit comments on the Phase III & IV Drafting Team’s third draft of the second set of Phase III & IV Standards. Comments must be submitted by **April 15, 2006**. You must submit the completed form by e-mailing it to sarcomm@nerc.com with the words “Phase III & IV Standard Comments” in the subject line. If you have questions, please contact Mark Ladrow at mark.ladrow@nerc.net or 609.452.8060.

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Do not submit a response in an unprotected copy of this form.

Individual Commenter Information	
(Complete this page for comments from one organization or individual.)	
Name:	Michael C. Calimano
Organization:	New York Independent System Operator
Telephone:	518-356-6129
E-mail:	mcalimano@nyiso.com
NERC Region	Registered Ballot Body Segment
<input type="checkbox"/> ERCOT	<input type="checkbox"/> 1 — Transmission Owners
<input type="checkbox"/> FRCC	<input checked="" type="checkbox"/> 2 — RTOs, ISOs, Regional Reliability Councils
<input type="checkbox"/> MAPP	<input type="checkbox"/> 3 — Load-serving Entities
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Comment Form for Draft Three of Set Two of Phase III & IV Standards

Background:

The Phase III & IV drafting team divided its Standards into two sets, and most of the standards have moved forward to balloting. The drafting team is posting VAR-001, VAR-002, and VAR-003 for another comment period to improve consensus on these standards.

VAR-001	Voltage and Reactive Control
VAR-002	Generator Operation for Maintaining Network Voltage Schedules
VAR-003	Assessment of Reactive Power Resources

VAR-001 and VAR-002 are companion standards – there are requirements in VAR-001 for Transmission Operators to perform certain tasks in conjunction with Generator Operators – and there are requirements in VAR-002 for Generator Operators to perform certain tasks in conjunction with Transmission Operators. VAR-001 is an already approved Version 0 Standard – and the requirements in VAR-001 that were assigned to the Generator Operator were moved into VAR-002.

The drafting team made changes to both VAR-001 and VAR-002 to better align the tasks with the entities that are responsible for those tasks and to ensure measures are applied such that entities should not need to invest in additional resources solely to make it easy to measure compliance. The drafting team also made other changes as suggested by stakeholders, to improve clarity of intent and to ensure that the measures and levels of non-compliance align with the modified requirements. To simplify the review process, the drafting team has posted both a clean version of each of the standards as well as a ‘red line’ to show the changes from the second posting. Here is a summary of the major changes made to the requirements in VAR-001 and VAR-002:

- Added the following requirement to VAR-001 to address concerns that wind generators be considered collectively as a ‘plant’ rather than as single ‘units’:

R3. The Transmission Operator shall identify aggregated generating units required to comply as a plant rather than as individual generators.

- Modified VAR-001 R5 as follows to clarify the intent that the TOP maintain communication with the Generator Operator and provide the Generator Operator with specific directives, if needed. (There is a corresponding requirement in VAR-002 that requires the Generator Operator to comply with the TOP’s directives.)

R5. Each Transmission Operator shall specify a voltage or Reactive Power schedule to be maintained by each non-exempt 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.

R5.1 If a Transmission Operator identifies a Generator Operator that is not following its assigned voltage or Reactive Power schedule, the Transmission Operator shall notify the Generator Operator that the schedule is not being met and shall obtain reasons for deviation from the schedule.

- Removed references to ‘synchronous’ generators. (VAR-001 and VAR-002)
- Removed the VAR-002 requirement to notify the TOP of instances of not adhering to the voltage schedule – this was not practical since the Generator Operator may not know that it is not complying with the schedule.
- Added a new Requirement 2.2 in VAR-002 to clarify that the Generator Operator is expected to comply with the TOP’s directives relative to making changes in output:

R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)

The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?

Yes

No

Comments: The NYISO would like to comment that:

(i) Specific to R3 in VAR-001, it is unclear to us, as to what specifically it is that the aggregated generating units are required to comply with. We assume that it is the voltage or reactive power schedule that these aggregated generating units are required to comply with. If this assumption is correct, some of the R5 requirements should be either stipulated before R3 or R3 added as a sub-requirement of R5 as appropriate. Please clarify.

(ii) R3 as written may conflict with R5. The former requires that the aggregated generating units be required to comply as a plant rather than individual generators. The latter, however, requires that the TOP specify a voltage or reactive power schedule to be maintained by each non-exempt generator (rather than as a plant). The two requirements need to be consistent.

(iii) Measure M1 (for compliance with R5) may need to be revised according to any changes made in response to Comment (ii), above.

(iv) See Item 2 below. Also, the additional sub-requirement 5.1 is not appropriate. It adds another requirement (and possible non-compliance) on the TOP that isn't necessary. In R5 the TOP directs the generator action; in VAR-002 R2 and R3 the generator operator is required to keep the TOP informed about any changes in reactive. R5.1 basically says if the TOP told the GOP to do something and then doesn't go back and re-tell him again, then the TOP is non-compliant. Delete R5.1

(v) The requirement to not deviate from schedule also requires the need to identify what level of deviation is acceptable. It would not seem appropriate to have no deviation as most voltage control systems are subject to gains or droop that would cause voltages to deviate to some degree.

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments: The NYISO would like to comment that the standard in its current form for VAR-001-1 does not follow the convention of assigning a specific measurement for each requirement in the standard. There are thirteen requirements and only four measurements. The standard should be edited to follow the convention as it will ensure that the requirements are more clear, defineable and measurable.

R2, as written, gives the impression that it is the Transmission Operator's responsibility to ensure that resources are added to the system to meet reactive power needs, rather than the Transmission Operator's responsibility to assess the needs of the system and to secure and commit available resources to meet the reactive power needs for reliable operation. R2 should require that TOP's shall assure the reactive resource are available for normal and emergency conditions.

The intent of R3 is unclear. Is it included to prevent the reactive power output of a specific generator within a plant from being directly negated by the actions of another generator within the same plant? i.e. increased reactive power output at one generator being absorbed at another.

The status of power system stabilizers described in R7 is not a voltage and reactive control issue, and should be removed from the standard.

R11 and R13 address topics regarding operation of the transmission system that are covered in the TOP group of standards, and should be removed from this standards.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments: The Levels of non-compliance are defining new requirements by including times which are different than the standard. The non-compliance evaluation must only be performed on the standard. If 5 minutes were to stay in this standard (and I hope it does not) then there shall be only one non-compliance: is it level 1 or level 4?

Although the standard has six measures, non-compliance is not assessed on M1 or M3.

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments: The NYISO would like to comment:

(i) Ref. our general concern and comment (ii) on Question 2, above. If the requirement to report power system stabilizer status is indeed removed as suggested from VAR-001, then R3.1 in VAR-002 would need to be revised accordingly.

(ii) Also reference Comment (iv) to Question 2, above.

(iii) R2 Suggest using the term 'required by' instead of 'directed by' the Transmission Operator to better reflect practical applications where TOP defines reactive power capabilities and AVR performance criterion that generating units or aggregated plants are obligated to adhere to.

(iv) In R2, What is the technical justification of 5 minutes? Inclusion of arbitrary times in NERC standards must be avoided. Monitoring compliance against an arbitrarily time is usually a meaningless exercise and time consuming effort. In the event of a mishap, the investigation team will determine the appropriateness and timeliness of the operator's actions. Further, the 5 minutes would be insufficient to implement and report a schedule change for generation facilities that are remotely controlled and reactive power is ramped via SCADA controls. Facilities such as these may not be able to comply within 5 minutes. A 10 minute requirement would seem more appropriate.

(v) R3.2 and 3.1 should be combined. This could be easily accomplished by removing the word "generator" from 3.1 and removing all of 3.2

(vi) One reactive element we do not see in this standard is the need to communicate any changes in reactive capability of a resource (its output may not change but auxiliary equipment may restrict full capability).

(vii) R4 and R5 and all their sub-requirements do not belong in a standard for maintaining network voltage schedules. It, like the similar statements in VAR-001 belong in a planning type standard and not here

(viii) M3 measures the same thing as M2.

(ix) Unsure of how this standard will be evaluated. It contains elements that would suggest that information must be periodically collected but then it appears that the TOP will be evaluated through an Audit. For this standard to go forward it needs to be revised either as a documentation standard or as a routine data collection standard.

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Yes

No

Comments:

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments: These Standards need to include not only voltage schedules and reactive power schedules but also include the voltage control mode which uses voltage ranges and reactive ranges, and not specific voltage schedules.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

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Individual Commenter Information		
(Complete this page for comments from one organization or individual.)		
Name:	Dave Darden	
Organization:	Tampa Electric Company	
Telephone:	813-630-6272	
E-mail:	dhdarden@tecoenergy.com	
NERC Region	Registered Ballot Body Segment	
<input type="checkbox"/> ERCOT	<input checked="" type="checkbox"/>	1 — Transmission Owners
<input checked="" type="checkbox"/> FRCC	<input type="checkbox"/>	2 — RTOs, ISOs, Regional Reliability Councils
<input type="checkbox"/> MAPP	<input type="checkbox"/>	3 — Load-serving Entities
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<input type="checkbox"/> SPP	<input type="checkbox"/>	7 — Large Electricity End Users
<input type="checkbox"/> WECC	<input type="checkbox"/>	8 — Small Electricity End Users
<input type="checkbox"/> NA — Not Applicable	<input type="checkbox"/>	9 — Federal, State, Provincial Regulatory or other Government Entities

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Background:

The Phase III & IV drafting team divided its Standards into two sets, and most of the standards have moved forward to balloting. The drafting team is posting VAR-001, VAR-002, and VAR-003 for another comment period to improve consensus on these standards.

VAR-001	Voltage and Reactive Control
VAR-002	Generator Operation for Maintaining Network Voltage Schedules
VAR-003	Assessment of Reactive Power Resources

VAR-001 and VAR-002 are companion standards – there are requirements in VAR-001 for Transmission Operators to perform certain tasks in conjunction with Generator Operators – and there are requirements in VAR-002 for Generator Operators to perform certain tasks in conjunction with Transmission Operators. VAR-001 is an already approved Version 0 Standard – and the requirements in VAR-001 that were assigned to the Generator Operator were moved into VAR-002.

The drafting team made changes to both VAR-001 and VAR-002 to better align the tasks with the entities that are responsible for those tasks and to ensure measures are applied such that entities should not need to invest in additional resources solely to make it easy to measure compliance. The drafting team also made other changes as suggested by stakeholders, to improve clarity of intent and to ensure that the measures and levels of non-compliance align with the modified requirements. To simplify the review process, the drafting team has posted both a clean version of each of the standards as well as a 'red line' to show the changes from the second posting. Here is a summary of the major changes made to the requirements in VAR-001 and VAR-002:

- Added the following requirement to VAR-001 to address concerns that wind generators be considered collectively as a 'plant' rather than as single 'units':

R3. The Transmission Operator shall identify aggregated generating units required to comply as a plant rather than as individual generators.

- Modified VAR-001 R5 as follows to clarify the intent that the TOP maintain communication with the Generator Operator and provide the Generator Operator with specific directives, if needed. (There is a corresponding requirement in VAR-002 that requires the Generator Operator to comply with the TOP's directives.)

R5. Each Transmission Operator shall specify a voltage or Reactive Power schedule to be maintained by each non-exempt 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.

R5.1 If a Transmission Operator identifies a Generator Operator that is not following its assigned voltage or Reactive Power schedule, the Transmission Operator shall notify the Generator Operator that the schedule is not being met and shall obtain reasons for deviation from the schedule.

- Removed references to 'synchronous' generators. (VAR-001 and VAR-002)
- Removed the VAR-002 requirement to notify the TOP of instances of not adhering to the voltage schedule – this was not practical since the Generator Operator may not know that it is not complying with the schedule.
- Added a new Requirement 2.2 in VAR-002 to clarify that the Generator Operator is expected to comply with the TOP's directives relative to making changes in output:

R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)

The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?)

Yes

No

Comments:

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments: C.M4 transformer tap change should be transformer tap (delete the word change to make wording consistent with D.2.2.2).

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments:

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments:

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

No

Comments:

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments:

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please use this form to submit comments on the Phase III & IV Drafting Team’s third draft of the second set of Phase III & IV Standards. Comments must be submitted by **April 15, 2006**. You must submit the completed form by e-mailing it to sarcomm@nerc.com with the words “Phase III & IV Standard Comments” in the subject line. If you have questions, please contact Mark Ladrow at mark.ladrow@nerc.net or 609.452.8060.

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Individual Commenter Information		
(Complete this page for comments from one organization or individual.)		
Name:	William J. Smith	
Organization:	Allegheny Power	
Telephone:	(724) 838-6552	
E-mail:	wsmith1@alleghenypower.com	
NERC Region		Registered Ballot Body Segment
<input type="checkbox"/> ERCOT	<input checked="" type="checkbox"/>	1 — Transmission Owners
<input type="checkbox"/> FRCC	<input type="checkbox"/>	2 — RTOs, ISOs, Regional Reliability Councils
<input type="checkbox"/> MAPP	<input type="checkbox"/>	3 — Load-serving Entities
<input type="checkbox"/> NPCC	<input type="checkbox"/>	4 — Transmission-dependent Utilities
<input checked="" type="checkbox"/> RFC	<input type="checkbox"/>	5 — Electric Generators
<input type="checkbox"/> SERC	<input type="checkbox"/>	6 — Electricity Brokers, Aggregators, and Marketers
<input type="checkbox"/> SPP	<input type="checkbox"/>	7 — Large Electricity End Users
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<input type="checkbox"/> NA — Not Applicable	<input type="checkbox"/>	9 — Federal, State, Provincial Regulatory or other Government Entities

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Background:

The Phase III & IV drafting team divided its Standards into two sets, and most of the standards have moved forward to balloting. The drafting team is posting VAR-001, VAR-002, and VAR-003 for another comment period to improve consensus on these standards.

VAR-001	Voltage and Reactive Control
VAR-002	Generator Operation for Maintaining Network Voltage Schedules
VAR-003	Assessment of Reactive Power Resources

VAR-001 and VAR-002 are companion standards – there are requirements in VAR-001 for Transmission Operators to perform certain tasks in conjunction with Generator Operators – and there are requirements in VAR-002 for Generator Operators to perform certain tasks in conjunction with Transmission Operators. VAR-001 is an already approved Version 0 Standard – and the requirements in VAR-001 that were assigned to the Generator Operator were moved into VAR-002.

The drafting team made changes to both VAR-001 and VAR-002 to better align the tasks with the entities that are responsible for those tasks and to ensure measures are applied such that entities should not need to invest in additional resources solely to make it easy to measure compliance. The drafting team also made other changes as suggested by stakeholders, to improve clarity of intent and to ensure that the measures and levels of non-compliance align with the modified requirements. To simplify the review process, the drafting team has posted both a clean version of each of the standards as well as a 'red line' to show the changes from the second posting. Here is a summary of the major changes made to the requirements in VAR-001 and VAR-002:

- Added the following requirement to VAR-001 to address concerns that wind generators be considered collectively as a 'plant' rather than as single 'units':

R3. The Transmission Operator shall identify aggregated generating units required to comply as a plant rather than as individual generators.

- Modified VAR-001 R5 as follows to clarify the intent that the TOP maintain communication with the Generator Operator and provide the Generator Operator with specific directives, if needed. (There is a corresponding requirement in VAR-002 that requires the Generator Operator to comply with the TOP's directives.)

R5. Each Transmission Operator shall specify a voltage or Reactive Power schedule to be maintained by each non-exempt 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.

R5.1 If a Transmission Operator identifies a Generator Operator that is not following its assigned voltage or Reactive Power schedule, the Transmission Operator shall notify the Generator Operator that the schedule is not being met and shall obtain reasons for deviation from the schedule.

- Removed references to 'synchronous' generators. (VAR-001 and VAR-002)
- Removed the VAR-002 requirement to notify the TOP of instances of not adhering to the voltage schedule – this was not practical since the Generator Operator may not know that it is not complying with the schedule.
- Added a new Requirement 2.2 in VAR-002 to clarify that the Generator Operator is expected to comply with the TOP's directives relative to making changes in output:

R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)

The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?)

Yes

No

Comments:

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments: NERC defines a System Operating Limit as the value (such as MW, MVar, Amperes, Frequency or Volts) that satisfies the most limiting of the prescribed operating criteria for a specified system configuration to ensure operation within acceptable reliability criteria. System Operating Limits are based upon certain operating criteria. These include, but are not limited to:

- * Facility Ratings (Applicable pre- and post-Contingency equipment or facility ratings)
- * Transient Stability Ratings (Applicable pre- and post-Contingency Stability Limits)
- * Voltage Stability Ratings (Applicable pre- and post-Contingency Voltage Stability)
- * System Voltage Limits (Applicable pre- and post-Contingency Voltage Limits)

NERC defines a Schedule is defined as: (Verb) To set up a plan or arrangement for an Interchange Transaction. (Noun) An Interchange Schedule.

VAR-001 implies a voltage schedule is a System Operating Limit, however it does not fit the definition and would only be accurate if the schedule were the range between the high and low voltage limits. This would not be a desirable range for operation and consequently companies adopt 'voltage schedules' which are desirable but which are not Operating Limits. Deviation from a schedule of this type would not constitute unreliable operations and there should be no 'penalty' associated with the deviation. This standard should begin by clearly defining a Voltage Schedule and eliminate the confusion.

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments:

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments: The Purpose section states that the purpose of this standard is 'To ensure generators provide reactive... within applicable Facility Ratings. Although this is true, this statement either intentionally or unintentionally, through its wording, does not address maintaining voltage levels and or Reactive Power schedules specified by the Transmission Operator.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

No

Comments:

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments:

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Individual Commenter Information	
(Complete this page for comments from one organization or individual.)	
Name:	Deborah M. Linke
Organization:	U.S. Bureau of Reclamation
Telephone:	303-445-2923
E-mail:	dlinke@do.usbr.gov
NERC Region	Registered Ballot Body Segment
<input type="checkbox"/> ERCOT	<input type="checkbox"/> 1 — Transmission Owners
<input type="checkbox"/> FRCC	<input type="checkbox"/> 2 — RTOs, ISOs, Regional Reliability Councils
<input type="checkbox"/> MAPP	<input type="checkbox"/> 3 — Load-serving Entities
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<input checked="" type="checkbox"/> WECC	<input type="checkbox"/> 8 — Small Electricity End Users
<input type="checkbox"/> NA — Not Applicable	<input type="checkbox"/> 9 — Federal, State, Provincial Regulatory or other Government Entities

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Background:

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VAR-001	Voltage and Reactive Control
VAR-002	Generator Operation for Maintaining Network Voltage Schedules
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The drafting team made changes to both VAR-001 and VAR-002 to better align the tasks with the entities that are responsible for those tasks and to ensure measures are applied such that entities should not need to invest in additional resources solely to make it easy to measure compliance. The drafting team also made other changes as suggested by stakeholders, to improve clarity of intent and to ensure that the measures and levels of non-compliance align with the modified requirements. To simplify the review process, the drafting team has posted both a clean version of each of the standards as well as a 'red line' to show the changes from the second posting. Here is a summary of the major changes made to the requirements in VAR-001 and VAR-002:

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R3. The Transmission Operator shall identify aggregated generating units required to comply as a plant rather than as individual generators.

- Modified VAR-001 R5 as follows to clarify the intent that the TOP maintain communication with the Generator Operator and provide the Generator Operator with specific directives, if needed. (There is a corresponding requirement in VAR-002 that requires the Generator Operator to comply with the TOP's directives.)

R5. Each Transmission Operator shall specify a voltage or Reactive Power schedule to be maintained by each non-exempt 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.

R5.1 If a Transmission Operator identifies a Generator Operator that is not following its assigned voltage or Reactive Power schedule, the Transmission Operator shall notify the Generator Operator that the schedule is not being met and shall obtain reasons for deviation from the schedule.

- Removed references to 'synchronous' generators. (VAR-001 and VAR-002)
- Removed the VAR-002 requirement to notify the TOP of instances of not adhering to the voltage schedule – this was not practical since the Generator Operator may not know that it is not complying with the schedule.
- Added a new Requirement 2.2 in VAR-002 to clarify that the Generator Operator is expected to comply with the TOP's directives relative to making changes in output:

R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
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The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?)

Yes

No

Comments:

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments: R2. We disagree with other comments made that "acquire sufficient reactive resources" should be replaced with "manage available reactive resources". Manage available reactive resources makes it sound as if the Transmission Operator is a passive agent with respect to assessing and obtaining an adequate supply of reactive resources. The NERC Functional Model tasks the Transmission Operator with maintaining reliability of the transmission area and maintaining defined voltage profiles. Ahead of time responsibilities include:

Determines amount required and arranges for Interconnected Operations Services from Generator Owners to ensure voltage support (e.g. reactive supply from generation resources) in coordination with the Reliability Authority.

Real time responsibilities include:

Deploys reactive resources from Transmission Owners and generation Owners as interconnected Operations Services to maintain acceptable voltage profiles.

We believe the proposed change will dilute these responsibilities.

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments: R2.2 requires the Generator Operator to adjust voltage levels when directed to do so by the Transmission Operator, within 5 minutes. For large plants with many generators (e.g. large hydro plants that may have 16 or more generators) that must make the adjustments manually, it is not physically possible for the operators to implement the voltage change in 5 minutes. We recommend a longer time allowance for larger plants to make adjustments, e.g. 20-30 minutes.

The time frames described in the Levels of Non-Compliance will need to be adjusted to provide for the longer time frames allowed to make the adjustments. However we believe this compliance metric, on a practical level, will be overly onerous to apply. It presumes someone is timing the generator operator and documenting how long it took to make the voltage adjustments as directed by the Transmission Operator. From an operational standpoint this approach does not seem practical.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments: R1. requires operation with AVR controlling voltage for generators connected to the "interconnected transmission system". "Interconnected transmission system" is not defined by this standard or in the NERC Glossary. We recommend Bulk Electric System which is defined in the NERC Glossary be used in lieu of "interconnected transmission system".

R2. requires the Generator Operator to provide voltage support as directed by the Transmission Operator within the rating of the facility. This sounds as if the Generator Operator is obligated to provide any and all reactive capability available if directed. This language is in contrast to the situation described in the NERC Functional Model. Per the Functional Model, a prime task of the Generator Operator is to "operate generators to provide energy or Interconnected Operations Services per contracts or arrangements." Voltage support is one of several Interconnected Operations Services or ancillary services a generator is capable of providing. However, except in emergencies, this support is provided per the conditions of the contract or arrangements. The Generator Operator is obligated to deliver on the contracts or arrangements made with the Transmission Operator. R2. should be modified to reflect the Generator Operator's obligation to provide the ancillary services as prearranged. We recommend changing R2. to read: Unless exempted by the Transmission Operator, each Generator Operator shall maintain the generator voltage or Reactive Power output (in accordance with contracts or arrangements) as directed by the transmission operator. We believe it is implied that the Generator Operator will not enter into agreements or contracts to provide ancillary services outside the applicable rating of the facility; the Generator Operator is the entity responsible for the safe and reliable operation of the facility.

R3.1 requires the Generator Operator to notify the Transmission Operator of a change in status of the voltage regulator or power system stabilizer. Since this standard does not include the requirement for a power system stabilizer the notification of its status seems out of place in this standard. We suggest all references to power system stabilizer be removed from this standard.

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

No

Comments: We believe this standard should be retained. Standards TPL-001 and TPL-002 do not address an in-depth assessment of reactive resources or available margin and we believe this assessment is very important to support reliability. To harmonize this standard with VAR-001-1 we recommend that it apply to the Transmission Operator rather than the Transmission Planner. Per VAR-001-1 the Transmission Operator is responsible for acquiring sufficient reactive resources; it follows that the Transmission Operator must employ some method to assess the adequacy of resources and determine that an adequate margin exists.

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments:

Comment Form for Draft Three of Set Two of Phase III & IV Standards

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Individual Commenter Information		
(Complete this page for comments from one organization or individual.)		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		Registered Ballot Body Segment
<input type="checkbox"/> ERCOT	<input type="checkbox"/>	1 — Transmission Owners
<input type="checkbox"/> FRCC	<input type="checkbox"/>	2 — RTOs, ISOs, Regional Reliability Councils
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Comment Form for Draft Three of Set Two of Phase III & IV Standards

Background:

The Phase III & IV drafting team divided its Standards into two sets, and most of the standards have moved forward to balloting. The drafting team is posting VAR-001, VAR-002, and VAR-003 for another comment period to improve consensus on these standards.

VAR-001	Voltage and Reactive Control
VAR-002	Generator Operation for Maintaining Network Voltage Schedules
VAR-003	Assessment of Reactive Power Resources

VAR-001 and VAR-002 are companion standards – there are requirements in VAR-001 for Transmission Operators to perform certain tasks in conjunction with Generator Operators – and there are requirements in VAR-002 for Generator Operators to perform certain tasks in conjunction with Transmission Operators. VAR-001 is an already approved Version 0 Standard – and the requirements in VAR-001 that were assigned to the Generator Operator were moved into VAR-002.

The drafting team made changes to both VAR-001 and VAR-002 to better align the tasks with the entities that are responsible for those tasks and to ensure measures are applied such that entities should not need to invest in additional resources solely to make it easy to measure compliance. The drafting team also made other changes as suggested by stakeholders, to improve clarity of intent and to ensure that the measures and levels of non-compliance align with the modified requirements. To simplify the review process, the drafting team has posted both a clean version of each of the standards as well as a 'red line' to show the changes from the second posting. Here is a summary of the major changes made to the requirements in VAR-001 and VAR-002:

- Added the following requirement to VAR-001 to address concerns that wind generators be considered collectively as a 'plant' rather than as single 'units':

R3. The Transmission Operator shall identify aggregated generating units required to comply as a plant rather than as individual generators.

- Modified VAR-001 R5 as follows to clarify the intent that the TOP maintain communication with the Generator Operator and provide the Generator Operator with specific directives, if needed. (There is a corresponding requirement in VAR-002 that requires the Generator Operator to comply with the TOP's directives.)

R5. Each Transmission Operator shall specify a voltage or Reactive Power schedule to be maintained by each non-exempt 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.

R5.1 If a Transmission Operator identifies a Generator Operator that is not following its assigned voltage or Reactive Power schedule, the Transmission Operator shall notify the Generator Operator that the schedule is not being met and shall obtain reasons for deviation from the schedule.

- Removed references to 'synchronous' generators. (VAR-001 and VAR-002)
- Removed the VAR-002 requirement to notify the TOP of instances of not adhering to the voltage schedule – this was not practical since the Generator Operator may not know that it is not complying with the schedule.
- Added a new Requirement 2.2 in VAR-002 to clarify that the Generator Operator is expected to comply with the TOP's directives relative to making changes in output:

R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)

The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?)

Yes

No

Comments:

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments: In certain cases where a non-jurisdictional Generator is owned by the same Entity as the TOP function, there may not be a voltage/reactive schedule to follow (if Interconnection Agreement does not exist).

Additionally, in certain cases, the Generator Operator (GOP) does not see or record voltages at the same location as the Transmission Operator (TOP). This will result in discrepancies in the voltages seen by the GOP and the TOP. In an effort to better comply with requirement (R5.1), the GOP should be privileged to voltage data (high-side bus voltage of the GSU) as seen by the TOP.

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments:

1. Non-compliance needs to be clearly stated to be on a unit basis. For example, Ten or more incidents.. should be for a given unit.

2. There could be some concern with a couple of the Measures. For example, some generating plants may not have the means to record/log the voltage levels in which to prove the GO 'shall have evidence' that it did or did not comply. Most of the evidence to comply with the Measures cover items related to routine operations but, should a reportable event occur, these generating units may need to rely on the Transmisison Operator's voltage data to show they did make attempts to comply. Having voltage data as explained in question 2 would help the GOP.

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments:

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

Comment Form for Draft Three of Set Two of Phase III & IV Standards

No

Comments:

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments:

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please use this form to submit comments on the Phase III & IV Drafting Team's third draft of the second set of Phase III & IV Standards. Comments must be submitted by **April 15, 2006**. You must submit the completed form by e-mailing it to sarcomm@nerc.com with the words "Phase III & IV Standard Comments" in the subject line. If you have questions, please contact Mark Ladrow at mark.ladrow@nerc.net or 609.452.8060.

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Do use more than one form if responses do not fit in the spaces provided.
Do submit any formatted text or markups in a separate WORD file.

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Do not use quotation marks in any data field.
Do not submit a response in an unprotected copy of this form.

Individual Commenter Information (Complete this page for comments from one organization or individual.)		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		Registered Ballot Body Segment
<input type="checkbox"/> ERCOT	<input type="checkbox"/>	1 — Transmission Owners
<input type="checkbox"/> FRCC	<input type="checkbox"/>	2 — RTOs, ISOs, Regional Reliability Councils
<input type="checkbox"/> MAPP	<input type="checkbox"/>	3 — Load-serving Entities
<input type="checkbox"/> NPCC	<input type="checkbox"/>	4 — Transmission-dependent Utilities
<input type="checkbox"/> RFC	<input type="checkbox"/>	5 — Electric Generators
<input type="checkbox"/> SERC	<input type="checkbox"/>	6 — Electricity Brokers, Aggregators, and Marketers
<input type="checkbox"/> SPP	<input type="checkbox"/>	7 — Large Electricity End Users
<input type="checkbox"/> WECC	<input type="checkbox"/>	8 — Small Electricity End Users
<input type="checkbox"/> NA — Not Applicable	<input type="checkbox"/>	9 — Federal, State, Provincial Regulatory or other Government Entities

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Background:

The Phase III & IV drafting team divided its Standards into two sets, and most of the standards have moved forward to balloting. The drafting team is posting VAR-001, VAR-002, and VAR-003 for another comment period to improve consensus on these standards.

VAR-001	Voltage and Reactive Control
VAR-002	Generator Operation for Maintaining Network Voltage Schedules
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The drafting team made changes to both VAR-001 and VAR-002 to better align the tasks with the entities that are responsible for those tasks and to ensure measures are applied such that entities should not need to invest in additional resources solely to make it easy to measure compliance. The drafting team also made other changes as suggested by stakeholders, to improve clarity of intent and to ensure that the measures and levels of non-compliance align with the modified requirements. To simplify the review process, the drafting team has posted both a clean version of each of the standards as well as a 'red line' to show the changes from the second posting. Here is a summary of the major changes made to the requirements in VAR-001 and VAR-002:

- Added the following requirement to VAR-001 to address concerns that wind generators be considered collectively as a 'plant' rather than as single 'units':

R3. The Transmission Operator shall identify aggregated generating units required to comply as a plant rather than as individual generators.

- Modified VAR-001 R5 as follows to clarify the intent that the TOP maintain communication with the Generator Operator and provide the Generator Operator with specific directives, if needed. (There is a corresponding requirement in VAR-002 that requires the Generator Operator to comply with the TOP's directives.)

R5. Each Transmission Operator shall specify a voltage or Reactive Power schedule to be maintained by each non-exempt 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.

R5.1 If a Transmission Operator identifies a Generator Operator that is not following its assigned voltage or Reactive Power schedule, the Transmission Operator shall notify the Generator Operator that the schedule is not being met and shall obtain reasons for deviation from the schedule.

- Removed references to 'synchronous' generators. (VAR-001 and VAR-002)
- Removed the VAR-002 requirement to notify the TOP of instances of not adhering to the voltage schedule – this was not practical since the Generator Operator may not know that it is not complying with the schedule.
- Added a new Requirement 2.2 in VAR-002 to clarify that the Generator Operator is expected to comply with the TOP's directives relative to making changes in output:

R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)

The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?)

Yes

No

Comments: This requirement (R5.1), while well-intentioned, does not seem to recognize that a Transmission Operator may not have a reliability need to take corrective action for every voltage schedule deviation that occurs, unless that deviation is outside of some range from the desired voltage set-point. On those occasions when system conditions are different than those forecast at the time the voltage schedule was established, it may actually enhance the reliability of a local area to have one or more plants deviate by some amount from their _normal_ voltage schedule for that time period. The Transmission Operator should be allowed to establish some formal criteria or bandwidth around a voltage set-point for which no compliance violation would exist, or otherwise be allowed to exercise some discretion in determining whether or not the observed deviation presents a risk to transmission system reliability.

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments: Requirement R6 seems to be a duplicate requirement of the ancillary services provisions as specified in Part I, Section 3 ("Ancillary Services") of the FERC pro-forma Open Access Transmission Tariff (OATT). The drafting team needs to ensure that no conflicts exist between requirement R6 and the reactive power provisions of any other FERC-approved OATT, both now and in the future as tariffs are modified (for those entities under FERC jurisdiction).

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments: Non-compliance needs to be clearly stated as applicable on a generating unit or switchyard voltage basis. For example, -Ten or more incidents... should be for a given unit or kV level at the plant.

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments: Requirements and associated measures in VAR-001 (R5) and VAR-002 (R2) should be coordinated to allow for an occasional notification by the TOP to the GOP that a voltage schedule is not being met, that does not require extensive documentation by either entity. In many cases the deviation from schedule is a result of incomplete or inaccurate voltage readings available to the Generator Operator from the (high-side) transmission bus. In other cases, the deviation may not be any cause for concern (see comments in response to Question 1). For these standards to become more effective, every Generator Operator should be required to have a voltmeter in their plant control room that displays the transmission switchyard bus voltage(s).

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Yes

No

Comments:

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments:

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Individual Commenter Information (Complete this page for comments from one organization or individual.)		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		Registered Ballot Body Segment
<input type="checkbox"/> ERCOT	<input type="checkbox"/>	1 — Transmission Owners
<input type="checkbox"/> FRCC	<input type="checkbox"/>	2 — RTOs, ISOs, Regional Reliability Councils
<input type="checkbox"/> MAPP	<input type="checkbox"/>	3 — Load-serving Entities
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<input type="checkbox"/> RFC	<input type="checkbox"/>	5 — Electric Generators
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<input type="checkbox"/> SPP	<input type="checkbox"/>	7 — Large Electricity End Users
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- Added the following requirement to VAR-001 to address concerns that wind generators be considered collectively as a 'plant' rather than as single 'units':

R3. The Transmission Operator shall identify aggregated generating units required to comply as a plant rather than as individual generators.

- Modified VAR-001 R5 as follows to clarify the intent that the TOP maintain communication with the Generator Operator and provide the Generator Operator with specific directives, if needed. (There is a corresponding requirement in VAR-002 that requires the Generator Operator to comply with the TOP's directives.)

R5. Each Transmission Operator shall specify a voltage or Reactive Power schedule to be maintained by each non-exempt 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.

R5.1 If a Transmission Operator identifies a Generator Operator that is not following its assigned voltage or Reactive Power schedule, the Transmission Operator shall notify the Generator Operator that the schedule is not being met and shall obtain reasons for deviation from the schedule.

- Removed references to 'synchronous' generators. (VAR-001 and VAR-002)
- Removed the VAR-002 requirement to notify the TOP of instances of not adhering to the voltage schedule – this was not practical since the Generator Operator may not know that it is not complying with the schedule.
- Added a new Requirement 2.2 in VAR-002 to clarify that the Generator Operator is expected to comply with the TOP's directives relative to making changes in output:

R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
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The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

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Please Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?

Yes

No

Comments: (i) Specific to R3 in VAR-001, it is unclear to us, as to what specifically it is that the aggregated generating units are required to comply with. We assume that it is the voltage or reactive power schedule that these aggregated generating units are required to comply with. If this assumption is correct, some of the R5 requirements should be either stipulated before R3 or R3 added as a sub-requirement of R5 as appropriate. Please clarify.

(ii) R3 as written may conflict with R5. The former requires that the aggregated generating units be required to comply as a plant rather than individual generators. The latter, however, requires that the TOP specify a voltage or reactive power schedule to be maintained by each non-exempt generator (rather than as a plant). The two requirements need to be consistent.

(iii) Measure M1 (for compliance with R5) may need to be revised according to any changes made in response to Comment (ii), above.

(iv) See Item 2 below. Also, the additional sub-requirement 5.1 is not appropriate. It adds another requirement (and possible non-compliance) on the TOP that isn't necessary. In R5 the TOP directs the generator action; in VAR-002 R2 and R3 the generator operator is required to keep the TOP informed about any changes in reactive. R5.1 basically says if the TOP told the GOP to do something and then doesn't go back and re-tell him again, then the TOP is non-compliant. Delete R5.1

(v) The requirement to not deviate from schedule also requires the need to identify what level of deviation is acceptable. It would not seem appropriate to have no deviation as most voltage control system are subject to gains or droop that would cause voltages to deviate to some degree.

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments: While we recognize that the scope of the standard drafting team (SDT) is limited to the Standard Authorization Request (SAR), it is nonetheless tasked with 3 key activities that we view as paramount, which we believe were not adequately executed during the last round of commenting. They are:

a) tasked to translate reliability requirements from the phase III and IV standards;

b) tasked to "resolve technical comments" as necessary to achieve consensus but not introduce new reliability requirements; and

c) tasked to develop the requirements and "measures" within these phase III and IV standards

In the context of the above tasks in particular b) and c) we offer the following:

(i) In our view, requirement R1, which requires development of formal policies and procedures for monitoring and control voltage level and MVAR flows, is one of the more critical requirements, to ensure system reliability related to voltage performance. Yet there are no measures to assess TOP's compliance with this requirement. We suggest that appropriate measures be developed for this requirement before this standard proceeds to balloting.

Remove M1 or re-word it to reflect what is needed in R 1

Comment Form for Draft Three of Set Two of Phase III & IV Standards

- (ii) Specific to R7; while we recognize the significance of and the need for a TOP to know the status of power system stabilizers, we fail to understand this need from a voltage control perspective for which this standard is designed. Please clarify or remove this from R7.
- (iii) The term "acquire" in requirement R2 has the connotation a TOP is required to "PURCHASE" reactive resources. While, it is our view the obligation of the TOP is to "assure" sufficient reactive resources are available. This is accomplished through the appropriate planning of the system (TPL series of standards) and the operational planning processes (TOP-002). We suggest changing the requirement accordingly to read "assure sufficient reactive resources are available within its Area..." R2 and R6 seem to say the same thing, only one of these entities should be held accountable
- (iv) R5; The use of the term "Schedule" seems to preclude the option of TOPs establishing and using pre-defined reactive power capability and AVR performance criterion for generator operators to adhere to. The IRC recommends the requirement be revised to read "Each Transmission Operator shall specify voltage or reactive schedules to be maintained by or reactive power capability/AVR performance criterion for each non-exempt generator or aggregated plant". Similar changes are required throughout VAR-001 and VAR-002.
- (v) R8 and R9 appear to be relatively similar. Suggest combining.
- (vi) R11; While we agree with the statement "IROL violations must be corrected within 30 minutes", we question the appropriateness of its inclusion in this standard rather than just referencing existing NERC standards? R11 should be eliminated since it is already covered in standards TOP-001, 002, 003, 004, and 007. Similarly, Requirement R13, while true, is also addressed by TOP-007 R3.
- (vii) Requirement 10 duplicates the intent of R2. Both requirements address first contingency condition. R1 also addresses normal conditions and should therefore be retained. R10.1 is incorrect. Unlike MW reserves, reactive needs to be locational specific and not dispersed throughout the system (which is what R10.1 infers). R1 is clear that the system must be acceptable for normal and contingency conditions and therefore includes the need for local reactive.
- (viii) Requirement 3 is not needed. If the concern is that individual units may not be able to comply, then the existing requirements should be re-written to allow individual or plant response. and I think we need to clarify the intent. Perhaps words like ... So voltage schedules and reactive power schedules (not sure what this is) are assisting the system and resources are not fighting each other.
- (ix) R4 (and all of its sub-requirements 4.1 and 4.2) are not appropriate in this standard. A NERC standard shouldn't have individual TOPs developing their own unique set of exclusion criteria. If this is a NERC standard then all generators or plants should have the same criteria.
- (x) R12 This requirement does not belong here in a voltage control standard. If this requirement is needed, it should be included in another standard and the decision to modify a generator fixed tap setting needs to be in coordination with the TOP's transmission planner, planning authority, and resource planner.
- (xi) Also the standard is not complete. As presented, it has 18 requirements or sub-requirements and only five of these requirements are measured (M1 evaluates both R5 and R5.1). Each requirement either needs to have a measure or a description as to why it isn't being measured (evaluated in another standard; not measurable as written; or suggest that it be eliminated). Each measure would then be expected to have at least one or more levels of non-compliance, which this and VAR-002 do not.
- (xii) Level 4 non-compliance: should be that the voltage or reactive power schedules were not provided to the "Generator Operators" (not owners).

Comment Form for Draft Three of Set Two of Phase III & IV Standards

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments: The Levels of non-compliance are defining new requirements by including times which are different than the standard. The non-compliance evaluation must only be performed on the standard. If 5 minutes were to stay in this standard (and I hope it does not) then there shall be only one non-compliance: is it level 1 or level 4?

Although the standard has six measures, non-compliance is not assessed on M1 or M3.

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments:

(i) Ref. our general concern and comment (ii) on Question 2, above. If the requirement to report power system stabilizer status is indeed removed as suggested from VAR-001, then R3.1 in VAR-002 would need to be revised accordingly.

(ii) Also reference Comment (iv) to Question 2, above.

(iii) R2 Suggest using the term 'required by' instead of 'directed by' the Transmission Operator to better reflect practical applications where TOP defines reactive power capabilities and AVR performance criterion that generating units or aggregated plants are obligated to adhere to.

(iv) In R2, What is the technical justification of 5 minutes? Inclusion of arbitrary times in NERC standards must be avoided. Monitoring compliance against an arbitrarily time is usually a meaningless exercise and time consuming effort. In the event of a mishap, the investigation team will determine the appropriateness and timeliness of the operator's actions. Further, the 5 minutes would be insufficient to implement and report a schedule change for generation facilities that are remotely controlled and reactive power is ramped via SCADA controls. Facilities such as these may not be able to comply within 5 minutes. A 10 minute requirement would seem more appropriate.

(v) R3.2 and 3.1 should be combined. This could be easily accomplished by removing the word "generator" from 3.1 and removing all of 3.2

(vi) One reactive element we do not see in this standard is the need to communicate any changes in reactive capability of a resource (its output may not change but auxillary equipment may restrict full capability).

(vii) R4 and R5 and all their sub-requirements do not belong in a standard for maintaining network voltage schedules. It, like the similar statements in VAR-001 belong in a planning type standard and not here

(viii) M3 measures the same thing as M2.

(ix) Unsure of how this standard will be evaluated. It contains elements that would suggest that information must be periodically collected but then it appears that the TOP will be evaluated through an Audit. For this standard to go forward it needs to be revised either as a documentation standard or as a routine data collection standard.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

No

Comments:

(i) We generally agree with the deletion of VAR-003. However, while the general intent of the requirements in VAR-003 is covered by TPL-001 and TPL-002, specific requirements are not fully duplicated in these two latter standards. We suggest that the specific VAR-003 requirements be put in a place-holder for consideration in future review of TPL-001 and TPL-002.

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments:

(i) These Standards need to include not only voltage schedules and reactive power schedules but also include the voltage control mode which uses voltage ranges and not specific voltage schedules.

(ii) Remove words such as "sufficient"

Comment Form for Draft Three of Set Two of Phase III & IV Standards

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Individual Commenter Information	
(Complete this page for comments from one organization or individual.)	
Name:	Carol L. Krysevig
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Telephone:	(724) 830-5432
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NERC Region	Registered Ballot Body Segment
<input type="checkbox"/> ERCOT	<input type="checkbox"/> 1 — Transmission Owners
<input type="checkbox"/> FRCC	<input type="checkbox"/> 2 — RTOs, ISOs, Regional Reliability Councils
<input type="checkbox"/> MAPP	<input type="checkbox"/> 3 — Load-serving Entities
<input type="checkbox"/> NPCC	<input type="checkbox"/> 4 — Transmission-dependent Utilities
<input checked="" type="checkbox"/> RFC	<input checked="" type="checkbox"/> 5 — Electric Generators
<input checked="" type="checkbox"/> SERC	<input checked="" type="checkbox"/> 5 — Electric Generators
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<input type="checkbox"/> WECC	<input type="checkbox"/> 7 — Large Electricity End Users
<input type="checkbox"/> NA — Not Applicable	<input type="checkbox"/> 8 — Small Electricity End Users
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Comment Form for Draft Three of Set Two of Phase III & IV Standards

Background:

The Phase III & IV drafting team divided its Standards into two sets, and most of the standards have moved forward to balloting. The drafting team is posting VAR-001, VAR-002, and VAR-003 for another comment period to improve consensus on these standards.

VAR-001	Voltage and Reactive Control
VAR-002	Generator Operation for Maintaining Network Voltage Schedules
VAR-003	Assessment of Reactive Power Resources

VAR-001 and VAR-002 are companion standards – there are requirements in VAR-001 for Transmission Operators to perform certain tasks in conjunction with Generator Operators – and there are requirements in VAR-002 for Generator Operators to perform certain tasks in conjunction with Transmission Operators. VAR-001 is an already approved Version 0 Standard – and the requirements in VAR-001 that were assigned to the Generator Operator were moved into VAR-002.

The drafting team made changes to both VAR-001 and VAR-002 to better align the tasks with the entities that are responsible for those tasks and to ensure measures are applied such that entities should not need to invest in additional resources solely to make it easy to measure compliance. The drafting team also made other changes as suggested by stakeholders, to improve clarity of intent and to ensure that the measures and levels of non-compliance align with the modified requirements. To simplify the review process, the drafting team has posted both a clean version of each of the standards as well as a 'red line' to show the changes from the second posting. Here is a summary of the major changes made to the requirements in VAR-001 and VAR-002:

- Added the following requirement to VAR-001 to address concerns that wind generators be considered collectively as a 'plant' rather than as single 'units':

R3. The Transmission Operator shall identify aggregated generating units required to comply as a plant rather than as individual generators.

- Modified VAR-001 R5 as follows to clarify the intent that the TOP maintain communication with the Generator Operator and provide the Generator Operator with specific directives, if needed. (There is a corresponding requirement in VAR-002 that requires the Generator Operator to comply with the TOP's directives.)

R5. Each Transmission Operator shall specify a voltage or Reactive Power schedule to be maintained by each non-exempt 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.

R5.1 If a Transmission Operator identifies a Generator Operator that is not following its assigned voltage or Reactive Power schedule, the Transmission Operator shall notify the Generator Operator that the schedule is not being met and shall obtain reasons for deviation from the schedule.

- Removed references to 'synchronous' generators. (VAR-001 and VAR-002)
- Removed the VAR-002 requirement to notify the TOP of instances of not adhering to the voltage schedule – this was not practical since the Generator Operator may not know that it is not complying with the schedule.
- Added a new Requirement 2.2 in VAR-002 to clarify that the Generator Operator is expected to comply with the TOP's directives relative to making changes in output:

R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)

The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?)

Yes

No

Comments:

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments:

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments: Compliance statement 2.1.1 does not agree with Requirement 2.2, 5 minutes versus 10 minutes.

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments: Requirement R2 was modified to include a confusing footnote. If at least one example was given of how the capability could change due to manual control, it may make the footnote worthwhile. As it now stands, it raises more issues than it settles.

Requirement R2.2 sets a 5 minute time limit for a response, and in a perfect world when dealing with only one unit it may be adequate. However, in a multiple unit plant under normal workload an operator may be hard pressed to identify and report a problem within 5 minutes. A minimum response time of 10 minutes should be set.

Each listed Measure requires "evidence", has "evidence" been defined anywhere? Would documentation of a telephone communication in the Operator's log be considered adequate evidence or will some other format be required?

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

No

Comments:

Comment Form for Draft Three of Set Two of Phase III & IV Standards

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments:

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Individual Commenter Information		
(Complete this page for comments from one organization or individual.)		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		Registered Ballot Body Segment
<input type="checkbox"/> ERCOT	<input type="checkbox"/>	1 — Transmission Owners
<input type="checkbox"/> FRCC	<input type="checkbox"/>	2 — RTOs, ISOs, Regional Reliability Councils
<input type="checkbox"/> MAPP	<input type="checkbox"/>	3 — Load-serving Entities
<input type="checkbox"/> NPCC	<input type="checkbox"/>	4 — Transmission-dependent Utilities
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Comment Form for Draft Three of Set Two of Phase III & IV Standards

Background:

The Phase III & IV drafting team divided its Standards into two sets, and most of the standards have moved forward to balloting. The drafting team is posting VAR-001, VAR-002, and VAR-003 for another comment period to improve consensus on these standards.

VAR-001	Voltage and Reactive Control
VAR-002	Generator Operation for Maintaining Network Voltage Schedules
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The drafting team made changes to both VAR-001 and VAR-002 to better align the tasks with the entities that are responsible for those tasks and to ensure measures are applied such that entities should not need to invest in additional resources solely to make it easy to measure compliance. The drafting team also made other changes as suggested by stakeholders, to improve clarity of intent and to ensure that the measures and levels of non-compliance align with the modified requirements. To simplify the review process, the drafting team has posted both a clean version of each of the standards as well as a 'red line' to show the changes from the second posting. Here is a summary of the major changes made to the requirements in VAR-001 and VAR-002:

- Added the following requirement to VAR-001 to address concerns that wind generators be considered collectively as a 'plant' rather than as single 'units':

R3. The Transmission Operator shall identify aggregated generating units required to comply as a plant rather than as individual generators.

- Modified VAR-001 R5 as follows to clarify the intent that the TOP maintain communication with the Generator Operator and provide the Generator Operator with specific directives, if needed. (There is a corresponding requirement in VAR-002 that requires the Generator Operator to comply with the TOP's directives.)

R5. Each Transmission Operator shall specify a voltage or Reactive Power schedule to be maintained by each non-exempt 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.

R5.1 If a Transmission Operator identifies a Generator Operator that is not following its assigned voltage or Reactive Power schedule, the Transmission Operator shall notify the Generator Operator that the schedule is not being met and shall obtain reasons for deviation from the schedule.

- Removed references to 'synchronous' generators. (VAR-001 and VAR-002)
- Removed the VAR-002 requirement to notify the TOP of instances of not adhering to the voltage schedule – this was not practical since the Generator Operator may not know that it is not complying with the schedule.
- Added a new Requirement 2.2 in VAR-002 to clarify that the Generator Operator is expected to comply with the TOP's directives relative to making changes in output:

R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
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The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?)

Yes

No

Comments:

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments: In general, the SES feels that this draft of VAR-001 while improved, is still not ready to be balloted. Our concern is over vague requirements such as R3, where the TOP is not required to have a criteria for aggregation and a lack of measurements required for each Requirement. This draft of VAR-001 has 13 requirements yet only 4 measurements (of which, the SES does not find a strong link between reliability and the requirements of M2 and M4). The SES supports the approach proposed by the Compliance Elements Standard Drafting Team (CESDT) that states for each requirement, there should be at least one corresponding measure (the proposed VAR-002-1 has a measure for each requirement). The SES feels that if each SDT gave more consideration to the 'how' and 'what' to measure with regards to each requirement as the CESDT proposes; the language around each requirement should be improved, ie. less wordy or less vague.

Specific Concerns:

R2. The SES raised this concern in previous comments. The SES believes that R9 best satisfies the intent of R2 and therefore R2 should be deleted. The TOP can only operate the reactive resources that actually exist in their area regardless of whether the amount of resources installed and operational is adequate. How does the TOP "acquire sufficient reactive resources" if the existing resources are not adequate? The SES would like for the SDT to clarify who is responsible for "acquiring" these resources. As R2 is currently written, the SES believes the responsible party for acquiring sufficient reactive resources lies with the Transmission Planner and/or the Transmission Owner. However, if the wording of this standard is retained as is, the SES recommends the TOP be required to complete an operational study to verify that the voltage levels are protected under normal and contingency conditions.

R3. As noted above, the SES believes that the TOP should have a formal criteria for determining which generating units may be aggregated as a plant in addition to the notification requirement. Also, the SES asks the SDT to give consideration to defining "Plant" and recommends adding "with the requirements of this standard" after "to comply".

R7.1 add the words 'non-exempt' before Generator Operator to be consistent with R5.

R9 & R10. The SES recommends the SDT consider adding the contingency requirement of R10 to R9 and then delete R10.

R13. As written, R13 implies that R2 will not be complied with. The SES recommends the SDT revise R13 by deleting the phrase "when reactive resources are insufficient".

Measures. Discussed in previous paragraph.

Levels of Non-Compliance: In general, the SES is concerned that for 13 requirements, there is only a scant 6 items which comprise non-compliance. We believe each Requirement should be assigned a level or levels of Non-compliance, much like our recommendation on Measures. The SES believes the proposed non-compliance levels proposed in VAR-001 appear to be sketchy

Comment Form for Draft Three of Set Two of Phase III & IV Standards

at best. Also, specifically, the SES recommends that 2.3.1 be revised to be a Level 4 Non-Compliance and that the current Level 4 Non-Compliance item be revised to be a Level 3 Non-Compliance. The reasoning behind this is the SES believes that the non-existence of Voltage and Reactive Power Schedules is more detrimental than not having documentation showing the TOP has communicated the schedules to the GOPs.

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments:

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments: The SES recommends the SDT change the notification requirement in R3 (M4 and subsequent Levels of Non-Compliance) for Generating Operators to notify its Transmission Operator regarding changes in the status of the generating unit's reactive capabilities to allow each Region to set its own notification (time) requirement, but in no instances should the time limit exceed 30 minutes.

R3.2: The SES recommends this Requirement be revised to read: "Any change on any Reactive Power resource under the Generator Operator's control and the expected duration of the change." The SES is also concerned that in a cursory review of the existing Version 0 and Phase III/IV standards, we found no requirement that Generator Operators are to keep others informed of a change in any status which has the effect of limiting the generating units overall capability and operational status. We recognize that VAR-002 is proposed to deal with a generating unit's voltage and reactive capability; so therefore, we welcome any thoughts of the SDT on this. We believe this proposed change to R3.2 begins to address our concern.

R5.1: The GO should provide "written" technical justification as to why the GO can not comply with the TOP's transformer tap specifications.

M2 & M3: M2 and M3 appear to be somewhat identical in requirement. The SES recommends that M2 and M3 be combined into a single measure M2, thereby allowing the deletion of M3, and the renumbering of the remaining Measurements.

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

No

Comments: The SES agrees that VAR-003 duplicates requirements already approved in TPL-001 and TPL-002 and therefore, VAR-003 should be deleted.

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments:

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Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		Registered Ballot Body Segment
<input type="checkbox"/> ERCOT	<input type="checkbox"/>	1 — Transmission Owners
<input type="checkbox"/> FRCC	<input type="checkbox"/>	2 — RTOs, ISOs, Regional Reliability Councils
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R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)

The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?)

Yes

No

Comments:

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments: Generally, there appears to be a disproportionate quantity of compliance measures to requirements; i.e., 13+ requirements vs. 4 measures. In addition, the measures and compliance sections appear incomplete in that they the measures don't appear to encompass the requirements.

Revise R2. replace 'acquire sufficient' with 'manage available'.

Revise R5.1. replace 'obtain' with 'request'.

Revise R7.1 replace 'direct' with 'monitor the Generator Operator's performance to ensure proper voltage and reactive schedules are maintained.'.

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments: Levels of Non-Compliance: Limiting non-compliance to only those situations where the Generator Operator fails to comply with the Transmission Operator's directive implies that the Generator Operator is non-compliant only when the Transmission Operator notifies or calls. The non-compliance should be expanded to include any time the voltage schedule is not maintained..

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments: VAR-002, R2.2; '5 min' time requirement for the Generator Operator to comply with the Transmission Operator's directive doesn't appear to be reasonably achievable. Depending upon what might be transpiring concurrently in the plant, e.g., nuclear events, the Generator Operator may not be able to comply with a 5 minute requirement. 10 minutes might be minimally achievable and Generator Operators would prefer 20-30 minutes.

In R4.1, M5, C 3.1.2 & C 3.1.3; Delete 'auxiliary transformers'. The reason is that it is the responsibility of the power plant to ensure adequate downstream voltages from equipment supplied from auxiliary transformers. Auxiliary transformers are generally a load on the system and the Transmission Operators should not have to know about its tap settings, impedance, etc.

M1; If the Voltage Regulator fails, requiring the Generator Operator to obtain approval from the Transmission Operator appears redundant. It may be more appropriate to require the Generator Operator to maintain evidence that it notified the Transmission Operator when the Voltage Regulator fails or malfunctions.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

M1; Delete 'approval' and substitute 'acknowledgement'.

M2; Since most plants only have strip chart recorders that are very inaccurate, it would difficult for all plants to have 'sufficiently accurate evidence' that the voltage schedule was met. The compliance monitor should consider instrument accuracy in evaluating compliance.

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

No

Comments: TPL-001 & 2 do not sufficiently cover R1 in VAR-003. Inclusion of R1 of VAR-003 in TPL-001 & 2 would correct the existing gap and in that case, VAR-003 could be deleted.

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments: Generally, there appears to be a inordinate burden of responsibility for maintaining Voltage & Reactive Schedule on the Transmission Operators rather than the Generator Operators.

VAR-001 & VAR-002 appear to need additional consideration and review prior to balloting.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please use this form to submit comments on the Phase III & IV Drafting Team’s third draft of the second set of Phase III & IV Standards. Comments must be submitted by **April 15, 2006**. You must submit the completed form by e-mailing it to sarcomm@nerc.com with the words “Phase III & IV Standard Comments” in the subject line. If you have questions, please contact Mark Ladrow at mark.ladrow@nerc.net or 609.452.8060.

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DO: **Do** enter text only, with no formatting or styles added.
Do use punctuation and capitalization as needed (except quotations).
Do use more than one form if responses do not fit in the spaces provided.
Do submit any formatted text or markups in a separate WORD file.

DO NOT: **Do not** insert tabs or paragraph returns in any data field.
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Do not use quotation marks in any data field.
Do not submit a response in an unprotected copy of this form.

Individual Commenter Information		
(Complete this page for comments from one organization or individual.)		
Name:	Jason Shaver	
Organization:	American Transmission Company LLC	
Telephone:	262 506 6885	
E-mail:	jshaver@atcllc.com	
NERC Region		Registered Ballot Body Segment
<input type="checkbox"/> ERCOT	<input checked="" type="checkbox"/>	1 — Transmission Owners
<input type="checkbox"/> FRCC	<input type="checkbox"/>	2 — RTOs, ISOs, Regional Reliability Councils
<input type="checkbox"/> MAPP	<input type="checkbox"/>	3 — Load-serving Entities
<input type="checkbox"/> NPCC	<input type="checkbox"/>	4 — Transmission-dependent Utilities
<input checked="" type="checkbox"/> RFC	<input type="checkbox"/>	5 — Electric Generators
<input type="checkbox"/> SERC	<input type="checkbox"/>	6 — Electricity Brokers, Aggregators, and Marketers
<input type="checkbox"/> SPP	<input type="checkbox"/>	7 — Large Electricity End Users
<input type="checkbox"/> WECC	<input type="checkbox"/>	8 — Small Electricity End Users
<input type="checkbox"/> NA — Not Applicable	<input type="checkbox"/>	9 — Federal, State, Provincial Regulatory or other Government Entities

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Background:

The Phase III & IV drafting team divided its Standards into two sets, and most of the standards have moved forward to balloting. The drafting team is posting VAR-001, VAR-002, and VAR-003 for another comment period to improve consensus on these standards.

VAR-001	Voltage and Reactive Control
VAR-002	Generator Operation for Maintaining Network Voltage Schedules
VAR-003	Assessment of Reactive Power Resources

VAR-001 and VAR-002 are companion standards – there are requirements in VAR-001 for Transmission Operators to perform certain tasks in conjunction with Generator Operators – and there are requirements in VAR-002 for Generator Operators to perform certain tasks in conjunction with Transmission Operators. VAR-001 is an already approved Version 0 Standard – and the requirements in VAR-001 that were assigned to the Generator Operator were moved into VAR-002.

The drafting team made changes to both VAR-001 and VAR-002 to better align the tasks with the entities that are responsible for those tasks and to ensure measures are applied such that entities should not need to invest in additional resources solely to make it easy to measure compliance. The drafting team also made other changes as suggested by stakeholders, to improve clarity of intent and to ensure that the measures and levels of non-compliance align with the modified requirements. To simplify the review process, the drafting team has posted both a clean version of each of the standards as well as a 'red line' to show the changes from the second posting. Here is a summary of the major changes made to the requirements in VAR-001 and VAR-002:

- Added the following requirement to VAR-001 to address concerns that wind generators be considered collectively as a 'plant' rather than as single 'units':

R3. The Transmission Operator shall identify aggregated generating units required to comply as a plant rather than as individual generators.

- Modified VAR-001 R5 as follows to clarify the intent that the TOP maintain communication with the Generator Operator and provide the Generator Operator with specific directives, if needed. (There is a corresponding requirement in VAR-002 that requires the Generator Operator to comply with the TOP's directives.)

R5. Each Transmission Operator shall specify a voltage or Reactive Power schedule to be maintained by each non-exempt 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.

R5.1 If a Transmission Operator identifies a Generator Operator that is not following its assigned voltage or Reactive Power schedule, the Transmission Operator shall notify the Generator Operator that the schedule is not being met and shall obtain reasons for deviation from the schedule.

- Removed references to 'synchronous' generators. (VAR-001 and VAR-002)
- Removed the VAR-002 requirement to notify the TOP of instances of not adhering to the voltage schedule – this was not practical since the Generator Operator may not know that it is not complying with the schedule.
- Added a new Requirement 2.2 in VAR-002 to clarify that the Generator Operator is expected to comply with the TOP's directives relative to making changes in output:

R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)

The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?

Yes

No

Comments: ATC does not agree with the additional requirements or language in requirements 5, 5.1 and measure 1. First, the SDT has expanded on the scope of the SAR to inject new requirements and measures. The SAR allowed the SDT to clarify existing requirements and measures, but did not give them the ability to add new requirements or measure. The additional language in requirements 5 and 5.1 is really an expansion of the requirement not clarifying language. Second, Requirement 5.1 only requires a Transmission Operator to determine a reason for why a generator/plant is not satisfying its voltage or Reactive Power schedule, and they only have to do that if they noticed the problem. ATC feels that these additions are not needed for the reliable operations of the BES.

ATC suggests the following changes to requirement 5.

"Each Transmission Operator shall specify an interconnection voltage or Reactive Power schedule to be maintained. The Transmission Operator shall provide the interconnection voltage or Reactive Power schedule to the associated Generator Operator." ATC feels that with the addition of the word "interconnection" is encompassing enough to cover both an individual unit or plant. By making this change the SDT can remove requirement 3 because the Generator Operator and Transmission Operator will determine the interconnection voltage or Reactive Power schedule. The schedule will identify if it is an individual unit or plant that is required to comply.

ATC suggests that requirement 5.1 be deleted.

Lastly, requirement 4 specifically states that generators or plants that are exempt are not required to meet requirement 5. If that is the case then the statement "...by each non-exempt generator", which appears in the SDT draft, is not needed. This type of redundancy is not need and makes the standard harder to interpret.

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments: Since requirement 2 lacks an associate measure, ATC feel that the SDT should remove this requirement from the standard. ATC is concerned with any requirement that lack specific measures detailing how an entity can demonstrate compliance. In addition, ATC feels that the SDT has expanded beyond the scope of the SAR with this requirement.

Although the SDT is attempting to establish a noble requirement, lack of specifics leaves Transmission Operators vulnerable to volatile interpretation of the requirement. What would an Transmission Operator show to an auditor that it has "acquire sufficient reactive resources"? A look at the existing measures would offer nothing in answering that question. If the SDT feels that this requirement is needed a SAR should be drafted that would allow for a more complete standard to be written.

Comment on Levels of Non-Compliance:

Level 3 is too drastic of a compliance level for failing to perform 2.3.2. Although ATC has requested that requirement 5.1 which is the requirement associated with 2.3.2, be removed from this standard failing to perform this action should not fall to a level 3 non-compliance. If the SDT chooses to keep requirement 5.1 then ATC request that failing to perform 5.1 should be a level 1 non-compliance. Requirement 5.1 states that only if a Transmission Operator sees a voltage or Reactive Power schedule not being meet they have to get a reason from the Generator Operator of why. A level 3 seems to be to drastic of non-compliance level for failure to obtain a reason. A Transmission Operator is completely exempt from 2.3.2 if they do not notice the voltage or Reactive Power schedule was not being satisfied.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments:

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments: ATC has requested that Requirement 5.1 be removed from the VAR-001. Please see comment in questions 1. In reference to requirement 5.1 could the SDT provide some insight on why a similar requirement was not required of the Generator Operator?

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

No

Comments: ATC does not agree with our fellow stakeholders that VAR-003 is covered in TPL-001, TPL-002 and TPL-003. VAR-003 requires that a Transmission Planner and Planning Authority establish a method and criteria for assessing adequate static and dynamic Reactive Power requirements. TPL-001 thru 003 only states that the two entities include Reactive Power resources to ensure that adequate reactive resources are available to meet system performance. TPL-001 thru 003 lacks the clarity to require a Transmission Planner and Planning Authority to create a method and criteria in both static and dynamic studies to assess adequate reactive resources. VAR-003 provides this clarity to TPL-001 thru 003.

ATC requests that the SDT keep VAR-003 and if concerned about its likelihood of passage separate the three standards into two ballots. First ballot would be for VAR-001 and VAR-002. Second ballot would be for VAR-003.

VAR-003 has many positive attributes that should not be lost because a handful of stakeholders have asked that it be drop because of a perceived duplication. ATC request that the SDT allow VAR-003 to be balloted on by all entities before a premature removal.

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments:

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please use this form to submit comments on the Phase III & IV Drafting Team’s third draft of the second set of Phase III & IV Standards. Comments must be submitted by **April 15, 2006**. You must submit the completed form by e-mailing it to sarcomm@nerc.com with the words “Phase III & IV Standard Comments” in the subject line. If you have questions, please contact Mark Ladrow at mark.ladrow@nerc.net or 609.452.8060.

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Do not use quotation marks in any data field.
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Individual Commenter Information	
(Complete this page for comments from one organization or individual.)	
Name:	Ron Falsetti
Organization:	IESO
Telephone:	905-855-6187
E-mail:	ron.falsetti@ieso.ca
NERC Region	Registered Ballot Body Segment
<input type="checkbox"/> ERCOT	<input type="checkbox"/> 1 — Transmission Owners
<input type="checkbox"/> FRCC	<input checked="" type="checkbox"/> 2 — RTOs, ISOs, Regional Reliability Councils
<input type="checkbox"/> MAPP	<input type="checkbox"/> 3 — Load-serving Entities
<input checked="" type="checkbox"/> NPCC	<input type="checkbox"/> 4 — Transmission-dependent Utilities
<input type="checkbox"/> RFC	<input type="checkbox"/> 5 — Electric Generators
<input type="checkbox"/> SERC	<input type="checkbox"/> 6 — Electricity Brokers, Aggregators, and Marketers
<input type="checkbox"/> SPP	<input type="checkbox"/> 7 — Large Electricity End Users
<input type="checkbox"/> WECC	<input type="checkbox"/> 8 — Small Electricity End Users
<input type="checkbox"/> NA — Not Applicable	<input type="checkbox"/> 9 — Federal, State, Provincial Regulatory or other Government Entities

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Background:

The Phase III & IV drafting team divided its Standards into two sets, and most of the standards have moved forward to balloting. The drafting team is posting VAR-001, VAR-002, and VAR-003 for another comment period to improve consensus on these standards.

VAR-001	Voltage and Reactive Control
VAR-002	Generator Operation for Maintaining Network Voltage Schedules
VAR-003	Assessment of Reactive Power Resources

VAR-001 and VAR-002 are companion standards – there are requirements in VAR-001 for Transmission Operators to perform certain tasks in conjunction with Generator Operators – and there are requirements in VAR-002 for Generator Operators to perform certain tasks in conjunction with Transmission Operators. VAR-001 is an already approved Version 0 Standard – and the requirements in VAR-001 that were assigned to the Generator Operator were moved into VAR-002.

The drafting team made changes to both VAR-001 and VAR-002 to better align the tasks with the entities that are responsible for those tasks and to ensure measures are applied such that entities should not need to invest in additional resources solely to make it easy to measure compliance. The drafting team also made other changes as suggested by stakeholders, to improve clarity of intent and to ensure that the measures and levels of non-compliance align with the modified requirements. To simplify the review process, the drafting team has posted both a clean version of each of the standards as well as a 'red line' to show the changes from the second posting. Here is a summary of the major changes made to the requirements in VAR-001 and VAR-002:

- Added the following requirement to VAR-001 to address concerns that wind generators be considered collectively as a 'plant' rather than as single 'units':

R3. The Transmission Operator shall identify aggregated generating units required to comply as a plant rather than as individual generators.

- Modified VAR-001 R5 as follows to clarify the intent that the TOP maintain communication with the Generator Operator and provide the Generator Operator with specific directives, if needed. (There is a corresponding requirement in VAR-002 that requires the Generator Operator to comply with the TOP's directives.)

R5. Each Transmission Operator shall specify a voltage or Reactive Power schedule to be maintained by each non-exempt 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.

R5.1 If a Transmission Operator identifies a Generator Operator that is not following its assigned voltage or Reactive Power schedule, the Transmission Operator shall notify the Generator Operator that the schedule is not being met and shall obtain reasons for deviation from the schedule.

- Removed references to 'synchronous' generators. (VAR-001 and VAR-002)
- Removed the VAR-002 requirement to notify the TOP of instances of not adhering to the voltage schedule – this was not practical since the Generator Operator may not know that it is not complying with the schedule.
- Added a new Requirement 2.2 in VAR-002 to clarify that the Generator Operator is expected to comply with the TOP's directives relative to making changes in output:

R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)

The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?)

Yes

No

Comments: (i) Specific to R3 in VAR-001, it is unclear to us, as to what specifically it is that the aggregated generating units are required to comply with. We assume that it is the voltage or reactive power schedule that these aggregated generating units are required to comply with. If this assumption is correct, some of the R5 requirements should be either stipulated before R3 or R3 added as a sub-requirement of R5 as appropriate. Please clarify.

(ii) R3 as written may conflict with R5. The former requires that the aggregated generating units be required to comply as a plant rather than individual generators. The latter, however, requires that the TOP specify a voltage or reactive power schedule to be maintained by each non-exempt generator (rather than as a plant). The two requirements need to be consistent.

(iii) Measure M1 (for compliance with R5) may need to be revised according to any changes made in response to Comment (ii), above.

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments: While the IESO recognizes that the scope of the standard drafting team (SDT) is limited to the Standard Authorization Request (SAR), it is nonetheless tasked with 3 key activities that we view as paramount, which we believe were not adequately executed during the last round of commenting. They are:

a) tasked to translate reliability requirements from the phase III and IV standards;

b) tasked to "resolve technical comments" as necessary to achieve consensus but not introduce new reliability requirements; and

c) tasked to develop the requirements and "measures" within these phase III and IV standards

In the context of the above tasks in particular b) and c) we offer the following:

(i) In our view, requirement R1, which requires development of formal policies and procedures for monitoring and control voltage level and MVAR flows, is one of the more critical requirements, to ensure system reliability related to voltage performance. Yet there are no measures to assess TOP's compliance with this requirement. We suggest that appropriate measures be developed for this requirement before this standard proceeds to balloting.

(ii) Specific to R7; while we recognize the significance of and the need for a TOP to know the status of power system stabilizers, we fail to understand this need from a voltage control perspective to which this standard is designed for. Please clarify or remove this from R7.

(iii) The term "acquire" in requirement R2 has the connotation a TOP is required to "PURCHASE" reactive resources. While, it is our view the obligation of the TOP is to "assure" sufficient reactive resources are available. This is accomplished through the appropriate planning of the system (TPL series of standards) and the operational planning processes (TOP-002). We suggest changing the requirement accordingly to read "assure sufficient reactive resources are available within its Area..."

(iv) R5; The use of the term "Schedule" seems to preclude the option of TOPs establishing and using pre-defined reactive power capability and AVR performance criterion for generator

Comment Form for Draft Three of Set Two of Phase III & IV Standards

operators to adhere to. The IESO recommends the requirement be revised to read "Each Transmission Operator shall specify voltage or reactive schedules to be maintained by or reactive power capability/AVR performance criterion for each non-exempt generator or aggregated plant". Similar changes are required throughout VAR-001 and VAR-002.

(v) R8 and R9 appear to be relatively similar. Suggest combining.

(vi) R11; While we agree with the statement "IROL violations must be corrected within 30 minutes", we question the appropriateness of its inclusion in this standard rather than just referencing standard TOP-007? If it is to remain it should state "return its transmission system to within IROL as soon as possible, but not longer than 30 minutes" to be consistent with TOP-007.

Similarly, Requirement R13 while true is also addressed by TOP-007 R3.

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments: The Levels of non-compliance are defining new requirements by including times which are different than the standard. The non-compliance evaluation must only be performed on the standard. If 5 minutes were to stay in this standard (and I hope it does not) then there shall be only one non-compliance: is it level 1 or level 4?

Although the standard has six measures, non-compliance is not assessed on M1 or M3.

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments: (i)Ref. our general Comment and comment (ii) on Question 2, above, if the requirement to report power system stabilizer status is removed from VAR-001, then R3.1 in VAR-002 would need to be revised accordingly.

(ii) Also reference Comment (iv) to Question 2, above.

(iii) R3.2 and 3.1 should be combined. This could be easily accomplished by removing the word "generator" from 3.1 and removing all of 3.2

(iv) One reactive element we do not see in this standard is the need to communicate any changes in reactive capability of a resource (its output may not change but auxillary equipment may restrict full capability).

(v) M3 measures the same thing as M2.

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

No

Comments: We generally agree with the deletion of VAR-003. However, while the general intent of the requirements in VAR-003 is covered by TPL-001 and TPL-002, specific requirements are not fully duplicated in these two latter standards. We suggest that the specific VAR-003 requirements be put in a place-holder for consideration in future review of TPL-001 and TPL-002.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments: (i) These Standards need to include not only voltage schedules and reactive power schedules but also include the voltage control mode which uses voltage ranges and not specific voltage schedules.

(ii) Remove words such as "sufficient"

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please use this form to submit comments on the Phase III & IV Drafting Team's third draft of the second set of Phase III & IV Standards. Comments must be submitted by **April 15, 2006**. You must submit the completed form by e-mailing it to sarcomm@nerc.com with the words "Phase III & IV Standard Comments" in the subject line. If you have questions, please contact Mark Ladrow at mark.ladrow@nerc.net or 609.452.8060.

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Do use more than one form if responses do not fit in the spaces provided.
Do submit any formatted text or markups in a separate WORD file.

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Do not use quotation marks in any data field.
Do not submit a response in an unprotected copy of this form.

Individual Commenter Information (Complete this page for comments from one organization or individual.)		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		Registered Ballot Body Segment
<input type="checkbox"/> ERCOT	<input type="checkbox"/>	1 — Transmission Owners
<input type="checkbox"/> FRCC	<input type="checkbox"/>	2 — RTOs, ISOs, Regional Reliability Councils
<input type="checkbox"/> MAPP	<input type="checkbox"/>	3 — Load-serving Entities
<input type="checkbox"/> NPCC	<input type="checkbox"/>	4 — Transmission-dependent Utilities
<input type="checkbox"/> RFC	<input type="checkbox"/>	5 — Electric Generators
<input type="checkbox"/> SERC	<input type="checkbox"/>	6 — Electricity Brokers, Aggregators, and Marketers
<input type="checkbox"/> SPP	<input type="checkbox"/>	7 — Large Electricity End Users
<input type="checkbox"/> WECC	<input type="checkbox"/>	8 — Small Electricity End Users
<input type="checkbox"/> NA — Not Applicable	<input type="checkbox"/>	9 — Federal, State, Provincial Regulatory or other Government Entities

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Group Comments (Complete this page if comments are from a group.)
 Group Name: **Midwest Reliability Organization (MRO)**
 Lead Contact: Ken Goldsmith
 Contact Organization: MRO (Alliant Energy)
 Contact Segment: 2
 Contact Telephone: 319-786-4167
 Contact E-mail: kengoldsmith@alliantenergy.com

Additional Member Name	Additional Member Organization	Region*	Segment*
Terry Bilke	MISO	MRO	2
Robert Coish	MHEB	MRO	2
Alan Boesch	NPPD	MRO	2
Dennis Florom	LES	MRO	2
Todd Gosnell	OPPD	MRO	2
Wayne Guttormson	SPC	MRO	2
Jim Maenner	WPS	MRO	2
Darrick Moe, Chair	WAPA	MRO	2
Pam Oreschnick	XEL	MRO	2
Dave Rudolph	BEPC	MRO	2
Tom Mielnik	MEC	MRO	2
Dick Pursley	GRE	MRO	2
Joe Knight, Secretary	MRO	MRO	2
27 additional MRO member	Companies not named above	MRO	2

* If more than one Region or Segment applies, indicate the best fit for the purpose of these comments. Regional acronyms and segment numbers are shown on prior page.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Background:

The Phase III & IV drafting team divided its Standards into two sets, and most of the standards have moved forward to balloting. The drafting team is posting VAR-001, VAR-002, and VAR-003 for another comment period to improve consensus on these standards.

VAR-001	Voltage and Reactive Control
VAR-002	Generator Operation for Maintaining Network Voltage Schedules
VAR-003	Assessment of Reactive Power Resources

VAR-001 and VAR-002 are companion standards – there are requirements in VAR-001 for Transmission Operators to perform certain tasks in conjunction with Generator Operators – and there are requirements in VAR-002 for Generator Operators to perform certain tasks in conjunction with Transmission Operators. VAR-001 is an already approved Version 0 Standard – and the requirements in VAR-001 that were assigned to the Generator Operator were moved into VAR-002.

The drafting team made changes to both VAR-001 and VAR-002 to better align the tasks with the entities that are responsible for those tasks and to ensure measures are applied such that entities should not need to invest in additional resources solely to make it easy to measure compliance. The drafting team also made other changes as suggested by stakeholders, to improve clarity of intent and to ensure that the measures and levels of non-compliance align with the modified requirements. To simplify the review process, the drafting team has posted both a clean version of each of the standards as well as a 'red line' to show the changes from the second posting. Here is a summary of the major changes made to the requirements in VAR-001 and VAR-002:

- Added the following requirement to VAR-001 to address concerns that wind generators be considered collectively as a 'plant' rather than as single 'units':

R3. The Transmission Operator shall identify aggregated generating units required to comply as a plant rather than as individual generators.

- Modified VAR-001 R5 as follows to clarify the intent that the TOP maintain communication with the Generator Operator and provide the Generator Operator with specific directives, if needed. (There is a corresponding requirement in VAR-002 that requires the Generator Operator to comply with the TOP's directives.)

R5. Each Transmission Operator shall specify a voltage or Reactive Power schedule to be maintained by each non-exempt 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.

R5.1 If a Transmission Operator identifies a Generator Operator that is not following its assigned voltage or Reactive Power schedule, the Transmission Operator shall notify the Generator Operator that the schedule is not being met and shall obtain reasons for deviation from the schedule.

- Removed references to 'synchronous' generators. (VAR-001 and VAR-002)
- Removed the VAR-002 requirement to notify the TOP of instances of not adhering to the voltage schedule – this was not practical since the Generator Operator may not know that it is not complying with the schedule.
- Added a new Requirement 2.2 in VAR-002 to clarify that the Generator Operator is expected to comply with the TOP's directives relative to making changes in output:

R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)

The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?)

Yes

No

Comments:

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments: Level 3 Non-Compliance (2.3.1) could be misinterpreted to mean that voltage and Reactive Power schedules did not exist for any generators, which the MRO does not think is the intent. For those schedules that do exist, the MRO assumes that they were also communicated. If this is the intent, then it should be made clear.

R11 is redundant to requirements in other standards and should be deleted from this standard. If however R11 is retained, the MRO believes that a Measurement corresponding to R11 needs to be added.

The MRO believes that R6 is covered in the Transmission Owner's tariff agreement, as such it is a business practice and should be removed. The MRO recommends that the SDT refer this issue to the NERC SAC. If the SAC decides to remove R6, then the PSE should be removed as an applicable entity from the standard.

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments: The MRO commends the SDT for clarifying the Non-Compliance Levels. Specifically relating to how the Non-Compliance levels for the Generator Owner were identified separately from the Generator Operator.

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments: There is inconsistency between R5 and R5.1. R5 refers to the Generator Owner and R5.1 refers to the Generator Operator, the requirements should refer to the same entity.

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

No

Comments:

Comment Form for Draft Three of Set Two of Phase III & IV Standards

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments:

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Individual Commenter Information (Complete this page for comments from one organization or individual.)		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		Registered Ballot Body Segment
<input type="checkbox"/> ERCOT	<input type="checkbox"/>	1 — Transmission Owners
<input type="checkbox"/> FRCC	<input type="checkbox"/>	2 — RTOs, ISOs, Regional Reliability Councils
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Comment Form for Draft Three of Set Two of Phase III & IV Standards

Background:

The Phase III & IV drafting team divided its Standards into two sets, and most of the standards have moved forward to balloting. The drafting team is posting VAR-001, VAR-002, and VAR-003 for another comment period to improve consensus on these standards.

VAR-001	Voltage and Reactive Control
VAR-002	Generator Operation for Maintaining Network Voltage Schedules
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The drafting team made changes to both VAR-001 and VAR-002 to better align the tasks with the entities that are responsible for those tasks and to ensure measures are applied such that entities should not need to invest in additional resources solely to make it easy to measure compliance. The drafting team also made other changes as suggested by stakeholders, to improve clarity of intent and to ensure that the measures and levels of non-compliance align with the modified requirements. To simplify the review process, the drafting team has posted both a clean version of each of the standards as well as a 'red line' to show the changes from the second posting. Here is a summary of the major changes made to the requirements in VAR-001 and VAR-002:

- Added the following requirement to VAR-001 to address concerns that wind generators be considered collectively as a 'plant' rather than as single 'units':

R3. The Transmission Operator shall identify aggregated generating units required to comply as a plant rather than as individual generators.

- Modified VAR-001 R5 as follows to clarify the intent that the TOP maintain communication with the Generator Operator and provide the Generator Operator with specific directives, if needed. (There is a corresponding requirement in VAR-002 that requires the Generator Operator to comply with the TOP's directives.)

R5. Each Transmission Operator shall specify a voltage or Reactive Power schedule to be maintained by each non-exempt 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.

R5.1 If a Transmission Operator identifies a Generator Operator that is not following its assigned voltage or Reactive Power schedule, the Transmission Operator shall notify the Generator Operator that the schedule is not being met and shall obtain reasons for deviation from the schedule.

- Removed references to 'synchronous' generators. (VAR-001 and VAR-002)
- Removed the VAR-002 requirement to notify the TOP of instances of not adhering to the voltage schedule – this was not practical since the Generator Operator may not know that it is not complying with the schedule.
- Added a new Requirement 2.2 in VAR-002 to clarify that the Generator Operator is expected to comply with the TOP's directives relative to making changes in output:

R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
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The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

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1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?)

Yes

No

Comments:

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments: Specific Concerns: R2. R9 best satisfies the intent of R2 and therefore R2 should be deleted. The TOP operates, dispatches or has access to the reactive resources that exist in the area. The TOP does not: acquire sufficient reactive resources - that is a TO or TP function. However, the TOP may be required to complete an operational study to verify that the voltage levels are protected under normal and contingency conditions. R13. As written, R13 implies that R2 will not be complied with. The SDT should revise R13 by deleting the phrase: when reactive resources are insufficient.

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments:

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments:

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

No

Comments: VAR-003 duplicates requirements already approved in TPL-001 and TPL-002 and therefore, VAR-003 should be deleted.

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments: It is disappointing that it is beyond the scope of the SAR to change the measures for these standards. They are essentially Version 0 with version 1 labels.

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Individual Commenter Information		
(Complete this page for comments from one organization or individual.)		
Name:	Ed Davis	
Organization:	Entergy Services, Inc	
Telephone:	601-339-2614	
E-mail:	edavis@entergy.com	
NERC Region		Registered Ballot Body Segment
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Comment Form for Draft Three of Set Two of Phase III & IV Standards

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The drafting team made changes to both VAR-001 and VAR-002 to better align the tasks with the entities that are responsible for those tasks and to ensure measures are applied such that entities should not need to invest in additional resources solely to make it easy to measure compliance. The drafting team also made other changes as suggested by stakeholders, to improve clarity of intent and to ensure that the measures and levels of non-compliance align with the modified requirements. To simplify the review process, the drafting team has posted both a clean version of each of the standards as well as a 'red line' to show the changes from the second posting. Here is a summary of the major changes made to the requirements in VAR-001 and VAR-002:

- Added the following requirement to VAR-001 to address concerns that wind generators be considered collectively as a 'plant' rather than as single 'units':

R3. The Transmission Operator shall identify aggregated generating units required to comply as a plant rather than as individual generators.

- Modified VAR-001 R5 as follows to clarify the intent that the TOP maintain communication with the Generator Operator and provide the Generator Operator with specific directives, if needed. (There is a corresponding requirement in VAR-002 that requires the Generator Operator to comply with the TOP's directives.)

R5. Each Transmission Operator shall specify a voltage or Reactive Power schedule to be maintained by each non-exempt 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.

R5.1 If a Transmission Operator identifies a Generator Operator that is not following its assigned voltage or Reactive Power schedule, the Transmission Operator shall notify the Generator Operator that the schedule is not being met and shall obtain reasons for deviation from the schedule.

- Removed references to 'synchronous' generators. (VAR-001 and VAR-002)
- Removed the VAR-002 requirement to notify the TOP of instances of not adhering to the voltage schedule – this was not practical since the Generator Operator may not know that it is not complying with the schedule.
- Added a new Requirement 2.2 in VAR-002 to clarify that the Generator Operator is expected to comply with the TOP's directives relative to making changes in output:

R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)

The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?)

Yes

No

Comments:

We suggest R2 be deleted. This requirement is really a requirement to operate within limits and there are many other standards already requiring Transmission Operators operate within limits. R2 is a vague restatement of those other requirements. If this R2 is not deleted then the authors need to define *sufficient reactive resources*, *normal conditions*, *contingency conditions*, and *Transmission Operator's share of the reactive requirements of the interconnecting transmission circuits*.

R3 requires the identification of *aggregated generating units required to comply as a plant rather than individual generators*. We recommend R3 be deleted as this requirement is not a reliability issue, it is a contractual or tariff issue. We agree with the premise that voltage or VAR requirements should not be specified at the individual generator level but at the generator station (or facility) interconnection level. The requirement that the Transmission Operator specify a voltage or reactive schedule is in R5 and does not need to be repeated in R3. If the industry needs to specify the point where the voltage schedule is maintained, then we suggest R5 be modified to state the *Reactive Power schedule at the interconnection between the generator facility and the Transmission Owner's facilities*, and delete R3.

R6 is an OATT obligation, not a reliability requirement, and should be deleted from this reliability standard.

R7 contains a requirement that the TO know the status of *power system stabilizers*. Please delete *power system stabilizers* from this voltage and reactive control standard. It is inappropriate to have a requirement not associated with voltage or reactive control in this standard.

R8 contains the same requirements as R9 and R8 should be deleted.

R10 contains the same requirements as R2 and R10 should be deleted.

R10.1 should be deleted as it is a system design characteristic that is used so the system can be operated within limits. One of set of limits are the voltage limits. This design characteristic is required in order to meet many other standards, e.g. TOP-002 through TOP-008, and is not needed here.

R11 should be deleted from this standard since this requirement is already included in several operate within limits requirements like TOP-007 R1, R2, and R3.

R13 should also be deleted from this standard since this requirement is already included in several operate within limits requirements like TOP-007 R1, R2, and R3.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

There should be measures for each requirement and those measures should reflect the requirement. There should also be Levels of Non-Compliance for each requirement. Please add measures and Levels of Non-Compliance for each requirement. For instance, R1 has certain requirements which have no measures nor Levels on Non-Compliance associated with R1. If the content of R1 is important enough to be a requirement then the requirement should be measured and sanctioned.

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments:

Please see our responses to Question 1 above.

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments:

Please remove from the Levels restatements of the requirements. We suggest the Levels be stated as - for instance - one incident of failing to meet R3. Also, there should also be Levels of Non-Compliance for each requirement.

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments:

R2 contains conflicting requirements for the GO. One requirement is that the GO maintain voltage as directed by the TO. The other requirement is that the GO maintain voltage within applicable Facility Ratings. (Why is Facility Ratings capitalized?) We suggest the Facility Ratings requirement be deleted.

As stated, we believe this requirement is not measureable. However with the suggested changes to VAR-001 R5, above, we think this requirement is measureable.

R3.1 contains a requirement that the GO notify the TO of a status change of the *power system stabilizers*. Please delete *power system stabilizers* from this voltage and reactive control standard. It is inappropriate to have a requirement not associated with voltage or reactive control in this standard.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

There should be measures for each requirement and those measures should reflect the requirement. There should also be Levels of Non-Compliance for each requirement. Please add measures and Levels of Non-Compliance for each requirement.

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

No

Comments:

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments:

Please provide a redline of VAR-001-1 to the existing VAR-001-0.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please use this form to submit comments on the Phase III & IV Drafting Team’s third draft of the second set of Phase III & IV Standards. Comments must be submitted by **April 15, 2006**. You must submit the completed form by e-mailing it to sarcomm@nerc.com with the words “Phase III & IV Standard Comments” in the subject line. If you have questions, please contact Mark Ladrow at mark.ladrow@nerc.net or 609.452.8060.

ALL DATA ON THIS FORM WILL BE TRANSFERRED AUTOMATICALLY TO A DATABASE.

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Do use more than one form if responses do not fit in the spaces provided.
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Do not use quotation marks in any data field.
Do not submit a response in an unprotected copy of this form.

Individual Commenter Information	
(Complete this page for comments from one organization or individual.)	
Name:	James H. Sorrels, Jr.
Organization:	American Electric Power
Telephone:	(614) 716-2370
E-mail:	jhsorrels@aep.com
NERC Region	Registered Ballot Body Segment
<input checked="" type="checkbox"/> ERCOT	<input checked="" type="checkbox"/> 1 — Transmission Owners
<input type="checkbox"/> FRCC	<input type="checkbox"/> 2 — RTOs, ISOs, Regional Reliability Councils
<input type="checkbox"/> MAPP	<input type="checkbox"/> 3 — Load-serving Entities
<input type="checkbox"/> NPCC	<input type="checkbox"/> 4 — Transmission-dependent Utilities
<input checked="" type="checkbox"/> RFC	<input checked="" type="checkbox"/> 5 — Electric Generators
<input type="checkbox"/> SERC	<input checked="" type="checkbox"/> 6 — Electricity Brokers, Aggregators, and Marketers
<input checked="" type="checkbox"/> SPP	<input type="checkbox"/> 7 — Large Electricity End Users
<input type="checkbox"/> WECC	<input type="checkbox"/> 8 — Small Electricity End Users
<input type="checkbox"/> NA — Not Applicable	<input type="checkbox"/> 9 — Federal, State, Provincial Regulatory or other Government Entities

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Background:

The Phase III & IV drafting team divided its Standards into two sets, and most of the standards have moved forward to balloting. The drafting team is posting VAR-001, VAR-002, and VAR-003 for another comment period to improve consensus on these standards.

VAR-001	Voltage and Reactive Control
VAR-002	Generator Operation for Maintaining Network Voltage Schedules
VAR-003	Assessment of Reactive Power Resources

VAR-001 and VAR-002 are companion standards – there are requirements in VAR-001 for Transmission Operators to perform certain tasks in conjunction with Generator Operators – and there are requirements in VAR-002 for Generator Operators to perform certain tasks in conjunction with Transmission Operators. VAR-001 is an already approved Version 0 Standard – and the requirements in VAR-001 that were assigned to the Generator Operator were moved into VAR-002.

The drafting team made changes to both VAR-001 and VAR-002 to better align the tasks with the entities that are responsible for those tasks and to ensure measures are applied such that entities should not need to invest in additional resources solely to make it easy to measure compliance. The drafting team also made other changes as suggested by stakeholders, to improve clarity of intent and to ensure that the measures and levels of non-compliance align with the modified requirements. To simplify the review process, the drafting team has posted both a clean version of each of the standards as well as a ‘red line’ to show the changes from the second posting. Here is a summary of the major changes made to the requirements in VAR-001 and VAR-002:

- Added the following requirement to VAR-001 to address concerns that wind generators be considered collectively as a ‘plant’ rather than as single ‘units’:

R3. The Transmission Operator shall identify aggregated generating units required to comply as a plant rather than as individual generators.

- Modified VAR-001 R5 as follows to clarify the intent that the TOP maintain communication with the Generator Operator and provide the Generator Operator with specific directives, if needed. (There is a corresponding requirement in VAR-002 that requires the Generator Operator to comply with the TOP’s directives.)

R5. Each Transmission Operator shall specify a voltage or Reactive Power schedule to be maintained by each non-exempt 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.

R5.1 If a Transmission Operator identifies a Generator Operator that is not following its assigned voltage or Reactive Power schedule, the Transmission Operator shall notify the Generator Operator that the schedule is not being met and shall obtain reasons for deviation from the schedule.

- Removed references to ‘synchronous’ generators. (VAR-001 and VAR-002)
- Removed the VAR-002 requirement to notify the TOP of instances of not adhering to the voltage schedule – this was not practical since the Generator Operator may not know that it is not complying with the schedule.
- Added a new Requirement 2.2 in VAR-002 to clarify that the Generator Operator is expected to comply with the TOP’s directives relative to making changes in output:

R2.2 When directed to modify voltage output, the Generator Operator shall comply within 5 minutes or provide an explanation of why the schedule cannot be met.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

- Modified VAR-002 Requirement 3 to clarify the intent by adding the following language:

R3. Each Generator Operator shall notify its associated Transmission Operator **as soon as practical, but** within 30 minutes of any of the following:

R3.1 A status change on any generator Reactive Power resource, including the status of each automatic voltage regulator and power system stabilizer **and the expected duration of the change in status.**

R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)
- Modified the levels of non-compliance so that there are levels of non-compliance associated with a delay or failure to comply with a TOP's directive relative to making a change in generator output – and removed the levels of non-compliance that were associated with a number of hours of operating outside a voltage or reactive schedule. (Measuring compliance with the number of hours of operating outside a voltage or reactive schedule was not practical.)

The drafting team did not make any changes to the recommended dates for implementation of VAR-001 and VAR-002. The team recommends that entities have 6 months from the Board of Trustee adoption date to comply with the changed requirements in VAR-001. The drafting team recommends that entities have 6 months beyond the effective date of VAR-001 to become compliant with the requirements in VAR-002. Note that part of the implementation plan calls for the modification of one requirement in TOP-002 at the same time that VAR-002 becomes effective. The Implementation Plan can be reviewed with the standards in Set Two that are posted for pre-ballot review. TOP-002 has been re-posted for reference.

The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

Please consider your acceptance of the changes made to the standards as you respond to the following questions. Note that you are not required to answer all of the questions.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

Please Enter All Comments in Simple Text Format.

Insert a "check" mark in the appropriate boxes by double-clicking the gray areas.

1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?)

Yes

No

Comments:

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments: R13 should include the ability of the Transmission Operator to direct a generator to reduce MW in order to increase MVAR output before having to shed load in emergency situations, if such action is deemed appropriate by the Transmission Operator.

The term "reactive power schedule" needs to be defined. As pointed out by a previous commenter during the 2nd posting, there is a difference in opinion in the industry as to what this term means. The Standard Drafting Team (STD) is incorrect if they think that just because few commenters stated the term should be defined or even commented in regards to the term, that such action is an indication that the industry has the same interpretation of this term as the STD. There are generation owner/operators that equate "reactive power schedule" to mean operating their excitation system in VAR control mode as opposed to automatic voltage control mode. We know this by first-hand experience as we operate in two Regions that have very specific Criteria language in this area. Since the 2003 Blackout, annually, we send a letter to all affiliated and non-affiliated generators connected to our system reminding them of the Region requirement to operate their excitation systems in automatic voltage control mode. Each year, we receive feedback from at least one generator that they believed that if they had a "reactive power schedule" that that meant they could operate in VAR control mode. VAR-002-1 R1 requires the generator to operate in the automatic voltage control mode. However, we do not want a generator to interpret having an assigned reactive power schedule to be the same as having an exemption to this requirement. We strongly suggest the STD reconsider and include a definition of the term "reactive power schedule."

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments:

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments: It would be helpful to clarify the conditions where AVR is out of service, such as unavailable due to failure.

Comment Form for Draft Three of Set Two of Phase III & IV Standards

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

No

Comments:

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments: These standards are still inadequate, as previous comments from multiple commenters have indicated. However, any attempt to make the necessary changes have always been met by statements that "modifying the requirements for the existing Version 0 standards is outside the scope of the SARs assigned to this drafting team." It is apparent a new SAR is needed to address the short-comings of these proposed standards/requirements and to put boundaries around the concept of "reactive reserves."

Some areas deserving further examination: What constitutes "sufficient reactive resources" in VAR-001 R2? Development of a "reactive reserve" requirement and would this be on a load center basis or some other basis. Development of reactive reserve monitoring requirements. Incorporating a day ahead review of one's reactive position as part of the operations planning requirements and tying it to planning for and acquiring reactive reserve margins for the next day's projected conditions.

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Individual Commenter Information (Complete this page for comments from one organization or individual.)		
Name:		
Organization:		
Telephone:		
E-mail:		
NERC Region		Registered Ballot Body Segment
<input type="checkbox"/> ERCOT	<input type="checkbox"/>	1 — Transmission Owners
<input type="checkbox"/> FRCC	<input type="checkbox"/>	2 — RTOs, ISOs, Regional Reliability Councils
<input type="checkbox"/> MAPP	<input type="checkbox"/>	3 — Load-serving Entities
<input type="checkbox"/> NPCC	<input type="checkbox"/>	4 — Transmission-dependent Utilities
<input type="checkbox"/> RFC	<input type="checkbox"/>	5 — Electric Generators
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Comment Form for Draft Three of Set Two of Phase III & IV Standards

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Comment Form for Draft Three of Set Two of Phase III & IV Standards

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R3.2 A status change on any other Reactive Power resources under the Generator Operator's control **and the expected duration of the change in status.**

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The drafting team is recommending the deletion of VAR-003 from the set of standards included in Phase III & IV. During the second posting of these standards, additional stakeholders submitted comments indicating that the requirements in VAR-003 - Assessment of Reactive Power Resources, duplicate requirements in the already implemented Version 0 (TPL-001 System Performance Under Normal Conditions, and TPL-002 System Performance Following Loss of a Single BES Element) standards.

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1. Do you agree with the changes made in VAR-001 (Voltage and Reactive Control to require the Transmission Operator to notify the Generator Operator when the Transmission Operator notes that the Generator Operator is not meeting a voltage or reactive schedule?)

Yes

No

Comments:

2. Please identify anything you believe needs to be modified before VAR-001 is balloted:

Comments: WECC RS believes the terminology in R2 should be changed to say maintain the voltage levels rather than protect the voltage levels, for clarity purposes.

3. Do you agree with the modifications to the levels of non-compliance in VAR-002 (Generator Operation for Maintaining Network Voltage Schedules)?

Yes

No

Comments: Amount of time allowed to comply is too restrictive. R2.2 requires the generator operator to comply or provide an explanation of why the schedule can not be met within 5 minutes. The levels of non-compliance do not appear to allow for explanations of why the schedule can not be met.

4. Please identify anything you believe needs to be modified before VAR-002 is balloted:

Comments: There should be a clarification stated in R2.2 whether this applies to normal or contingency situations. If this standard is referring to normal conditions at the generating plant, the time limitations seem reasonable. If the generating plant is experiencing additional problems at the time of the request, additional time should be allowed

5. Do you agree with the stakeholders who recommended the deletion of VAR-003 (Assessment of Reactive Power Resources) because VAR-003 duplicates requirements in the already approved TPL-001 and TPL-002 standards?

Yes

No

Comments:

6. Please provide any other comments on this set of standards (VAR-001, VAR-002, and VAR-003) that you haven't already provided.

Comments: