

### **Summary Consideration:**

The drafting team did not make any content changes to VAR-001 and VAR-002 as a result of the comments submitted with the first ballot. Most comments suggested modifications that are outside the scope of work assigned to this drafting team. Some comments indicated some confusion about which requirement was associated with some of the levels of non-compliance. All the levels of non-compliance except 2.1.2, 2.2.2, 2.3.2, and 2.4.3 have a reference to the associated requirement. The drafting team has asked that the reference, "(R2)" be added as errata to the end of 2.1.2, 2.2.2, 2.3.2, and 2.4.3 to identify the requirement associated with these levels of non-compliance.

If you feel that your comment has been overlooked, please let us know immediately. Our goal is to give every comment serious consideration in this process! If you feel there has been an error or omission, you can contact the Vice President and Director of Standards, Gerry Cauley at 609-452-8060 or at [gerry.cauley@nerc.net](mailto:gerry.cauley@nerc.net). In addition, there is a NERC Reliability Standards Appeals Process.<sup>1</sup>

---

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

**Verne Ingersoll II, Carolina Power & Light Company CPL**

**Comment:**

1. The language in the measures and compliance sections such as “2.1.2 One incident of failing to maintain a voltage or reactive power schedule” is too vague and does not specify any duration that is acceptable or unacceptable to be off schedule. The measures section states that the Generator Operator shall notify the TO within 30 minutes or as soon as practical that it cannot maintain schedule, and that as long as the TO is notified the GO would be in compliance with the standard. However, the compliance section seems to say that if the GO is off schedule for any reason and for any length of time, the GO is NON-compliant. This seems contradictory and at the least vague and open to interpretation.
2. The changes made to VAR-002 R1 significantly weaken the standard and importance of system dynamic vars from online generation. The following change is recommended: “The GO shall operate each generator connected to the interconnected transmission system in the automatic voltage control mode (automatic voltage regulator in service and controlling voltage) unless otherwise approved by the Transmission Operator, such approval not unreasonably withheld.”
3. Would have voted to approve VAR-001 if it had been balloted separately.

**Response:**

1. The transmission operator’s voltage schedule can include an acceptable range, duration, and acceptable deviation. The transmission operator can exempt the generator operator from compliance with the voltage schedule. Non-compliance is a failure to adhere to the schedule when the generator operator has not gotten an exemption from compliance from the transmission operator.
2. VAR-002 Requirement 3 does require the Generator Operator to notify the Transmission Operator within 30 minutes when it has certain status or capability changes – this is not the same as notifying the Transmission Operator that it cannot meet the schedule. It is possible to have a status or capability change and still operate within the assigned voltage or reactive power schedule. The expectation is that the Generator Operator will notify the Transmission Operator and the Transmission Operator may exempt the Generator Operator from compliance with the schedule (under R2) or may issue a new schedule. Note that the phrase used in the standard is, 'as soon as practical but within 30 minutes' - which has a very different meaning than, 'within 30 minutes or as soon as practical'.

The drafting team modified VAR-002 R1, to recognize that the Generator Operator normally would not operate without AVR unless its equipment is not running – and in this case, having the TOP ‘Approve’ operating without AVR does not make any practical sense. When the GOP notifies the TOP, the TOP can provide the GOP an exemption or not under R2 or the TOP may give the GOP a new schedule that could be maintained manually.

3. VAR-001 and VAR-002 contain requirements that are inter-dependent and need to be balloted as a single set.

**Jim Cyrulewski, International Transmission Company**

**Comment:**

NERC Standards VAR-001-1 & 002-1 ITC Transmission commenters have decided to vote No on these standards for the following reasons:

1. VAR-001-1 A Introduction Item 4 Applicability: the standard is also applicable to Transmission Owner and Transmission Services Provider. It is not applicable to Purchase-Selling Entities
2. B Requirements R2 Transmission Operators do not acquire reactive services. Transmission Owners provide the necessary transmission assets and the Transmission Service Providers provide the necessary generation reactive capability.
3. R4 Missing is need for Transmission Operator to tell Generator Operator schedule not being met. This requirement should have been written as follows: Each Transmission Operator shall specify a voltage or Reactive Power schedule at the interconnection between the generator facility and the Transmission Owner's facilities to be maintained by each generator with the schedule in automatic voltage control mode (AVR in service and controlling voltage). If a Transmission Operator identifies a Generation Operator that is not following assigned schedule, the transmission Operator shall notify the Generator Operator that scheduled not being met and obtain reasons for deviations.
4. The footnote is unclear. The footnote should read "The voltage schedule is a target voltage range to be maintained during a specific period."
5. R5 This requirement is an Open Access Transmission Tariff requirement and does not belong in a reliability standard.
6. R6 & R6.1 These are not two separate requirements. These should have been combined.
7. R7 The requirement is incomplete. Need to add to end of sentence the following; "and to maintain system and interconnection voltages within established limits."  
  
R8 Unnecessary especially if suggested wording addition to R7 had been included.  
  
R9 This requirement pertains to reactive reserves but fails to make that clear. The requirement should have been written as follows: "Each Transmission Operator shall maintain reactive reserve resources"  
  
R9.1 This requirement is not feasible. Cannot dictate where generation resources are to be disbursed or located.
8. C Measures In all the measures it is totally unclear what general categories of evidence are allowable. Other NERC standards that require evidence has included examples. Also only four requirements are being measured. The other eight requirements have to have measures.

9. D Compliance Level 3 Wording indicates that there should be at least two conditions but only one listed.
10. VAR-002-1 B Requirements R1 This requirement is unclear. It should have been written as follows: “The Generator Operator shall operate each generator connected to the transmission system with the automatic voltage regulator in service unless the Generator Operator has notified the Transmission Operator that the regulator is unavailable.”
11. R4 This requirement as currently written looks like six different requirements when it is just one. The requirements should have been written as follows: “The Generation Owner shall provide tap settings, available fixed tap ranges, impedance data and +/- voltage range with step changes in % for load-tap-changing transformers to its associated Transmission Operator and Transmission Planner within 30 calendar days of a request.”
12. R5 & R5.1 These are not two separate requirements. These should have been combined.
13. C Measures M2 & M3 These should have been combined. Bottom line is measuring a Generator Operator response to a Transmission Operator request for action.
14. M6 & M7 These should have been combined. Single Generator response will address ability to modify step up transformers taps.
15. D Compliance For the Generator Operator, the Levels of non-Compliance regarding failing to maintain a voltage or reactive power schedule are not realistic. Changes to voltage schedules for generation units by the Transmission Operator can be significantly higher on a yearly basis. There are often good reasons for a generation unit failing to meet schedule. If there is a need to retain this item then wording to the effect on whether or not the failure to maintain a voltage or reactive power schedule had a material effect on the reliability of the bulk electric system should be included.

**Response:**

1. The TOP and PSE were added as applicable functional entities during Version 0 – the Phase III & IV drafting team did not add any requirements for the Transmission Owners or Transmission Providers and cannot add these to the applicability section of the standard.
2. R2 is a Version 0 requirement that was not changed by the Phase III & IV drafting team. Note that there is another drafting team that is charged with adding the ‘missing measures and compliance elements’ to all the Version 0 standards that were incomplete when approved.
3. The drafting team did have this requirement in a prior version of the standard but stakeholders submitted comments suggesting that the addition went beyond the scope of the SAR and the drafting team was compelled to remove the requirement.
4. The drafting team does not believe that the suggested language is a significant improvement over the language that is already contained in the footnote.

5. R5 is a Version 0 requirement and making changes to this is outside the scope of the SAR assigned to this drafting team. Note that there is another drafting team that is charged with adding the 'missing measures and compliance elements' to all the Version 0 standards that were incomplete when approved.
6. This is a format issue. The drafting team was advised by its compliance representative that it is better to subdivide requirements such as this. In addition, R6 is a Version 0 requirement and R6.1 was added by the Phase III & IV drafting team. Because the drafting team is limited in scope to adding measures that are associated with the new requirements that were added from the Phase III & IV measures, the drafting team thought it would be better to have 6.1 as a separate requirement so that it would be easier to see the associated measure and levels of non-compliance.
7. Requirements 7-9 are all Version 0 requirements that were not modified as part of the work assigned to the Phase III & IV drafting team. Making changes to these requirements is outside the scope of the SAR assigned to this drafting team. Note that there is another drafting team that is charged with adding the 'missing measures and compliance elements' to all the Version 0 standards that were incomplete when approved.
8. The drafting team is limited to adding measures associated with the requirements that were added for the translation of the Phase III & IV planning measures. There are many standards that do not provide 'examples' of types of evidence that would be acceptable to the compliance monitor, and the Reliability Standards Process Manual does not require their inclusion. By leaving the definition of what constitutes acceptable 'evidence' blank, the drafting team is intentionally opening the door for entities to use whatever types of evidence they already have – this should preclude any entity from having to use a system that would require additional resources without any associated increase in reliability.
9. Agree. This is a typographical error and will be fixed as errata.
10. The drafting team does not believe that the suggested language is a significant improvement over the language that is already contained in the requirement.
11. This is a format issue. There is nothing wrong with listing the individual items as they are listed in the standard and it is much easier for most people to interpret technical information when it is provided in a list rather than in a sentence.
12. This is a format issue. The drafting team was advised by its compliance representative that it is better to subdivide requirements such as this.
13. The evidence provided for M2 and M3 may be different, so it seemed better to keep these separate. Note that the Reliability Standards Process Manual only requires that there be at least one measure for each requirement- a requirement may have more than one measure and one measure may be used for more than one requirement.
14. The evidence provided for M6 and M7 is expected to be different, so it seems better to keep these separate.

15. The transmission operator's voltage schedule can include an acceptable range, duration, and acceptable deviation. The transmission operator can exempt the generator operator from compliance with the voltage schedule. Non-compliance is a failure to adhere to the schedule when the generator operator has not gotten an exemption from compliance from the transmission operator.

**Alan Boesch, Nebraska Public Power District NPPD**

**Comment:**

VAR-001 Requirement 5 does not have a measurement or compliance element. This requirement is a tariff issue and does not belong in a reliability standard.

**Response:**

Requirement 5 is a Version 0 requirement that was not modified as part of the work assigned to the Phase III & IV drafting team. Making changes to this requirement or adding a measure or level of non-compliance for this requirement is outside the scope of the SAR assigned to this drafting team. Note that there is another drafting team that is charged with adding the 'missing measures and compliance elements' to all the Version 0 standards that were incomplete when approved.

**Rebecca Berdahl, Bonneville Power Administration - Power Business BPAP**

**Comment:**

Not enough measurements to meet the requirements Classic 'Fill in the Blank' Standard (VAR-001) The communication structure between the TO and the GO is vague Risk of machines with .95 pf not being able to meet the standard as written Additional/parallel standards that support transparent planning processes for acquiring reactive resources needs to be written

**Response:**

All of the requirements that were added to VAR-001 as a result of the translation of the Phase III & IV measures do have associated measures. The drafting team cannot add measures for the Version 0 requirements that were unchanged as a result of the translation of the Phase III & IV measures.

The drafting team is not sure of your meaning of the term, 'fill in the blank'. This term has most recently been used when describing the subset of standards that require each region to establish a set of requirements and then require entities to comply with those regional requirements. VAR-001 does not contain any such requirements.

Please be more specific in identifying the requirements that you feel contain vague language. The drafting team made a good faith effort at ensuring that there is a commitment to relay information critical to reliability in a reasonable timeframe, while respecting the need of the generator operator to focus on the operation of its facility.

Please be more specific in explaining why you feel that some generators may not be able to meet the standard as written. The standard does allow the Transmission Operator the right to exempt generators from compliance with the voltage or reactive power schedule. Writing additional standards is outside the scope of the SAR assigned to this drafting team.

**David Lapinski, Consumers Energy CETR**

**Comment:**

The following comments are submitted concerning VAR-002:

Levels of Non-Compliance for Generator Operator: Our Company's generating plant operators are required to exercise nearly 10,000 voltage schedule changes annually. A Level 1 finding for one incident is not reasonable. The levels should scale or be shifted to require reasonable attainment standards, recognizing the volume of voltage schedule changes.

The following should be added to Section R5 of VAR-002: Recognizing that such action would require the generator to change its loading level or cycle, the transmission operator should not rely on tap position changes on a step-up transformer with a no-load tap changer (NLTC) for periodic or seasonal system control, unless there is an explicit voluntary arrangement with the Generator Operator. For each instance of an urgent directive for such action, the transmission operator must justify its action to affected parties.

**Response:**

The transmission operator's voltage schedule can include an acceptable range, duration, and acceptable deviation. The transmission operator can exempt the generator operator from compliance with the voltage schedule. Non-compliance is a failure to adhere to the schedule when the generator operator has not gotten an exemption from compliance from the transmission operator.

Requirement 5 is a Version 0 requirement that was not modified as part of the work assigned to the Phase III & IV drafting team. Making changes to this requirement or adding a measure or level of non-compliance for this requirement is outside the scope of the SAR assigned to this drafting team. Note that there is another drafting team that is charged with adding the 'missing measures and compliance elements' to all the Version 0 standards that were incomplete when approved.

**Gary Conrad, Fayetteville Public Works Commission FPWC**

**Comment:**

This standard should not let the transmission provider totally set the exemptions. If a smaller generator does not get along well with the transmission provider the transmission provider might make it harder for the generation owner. The standard should set out possible exemptions with the flexibility for the transmission provider to get changes or information as they need it.

**Response:**

The Transmission Operator, not the Transmission Service Provider sets the voltage or reactive power schedules and has the authority to assign exemptions. Note that really small generators may be exempt from compliance. In addition, if an entity feels that it has been dealt with unfairly, there is an appeals process.

**Lee G Schuster, Florida Power Corporation FPC**

**Comment:**

The language in the measures and compliance sections such as "2.1.2 One incident of failing to maintain a voltage or reactive power schedule" is too vague and does not specify any duration that is acceptable or unacceptable to be off voltage schedule or reactive schedule. The measures section states that the Generator Operator shall notify the T.O. within 30 minutes or as soon as practical that it cannot maintain a voltage schedule or reactive schedule, and that as long as the T.O. is notified we would be "OK" with compliance to the standard. However, then the Compliance section seems to say if you are off voltage or reactive schedule for any reason for any length of time you are non-compliant. This seems to be contradictory and at best vague and hard to understand.

The changes made to VAR-002 R1 significantly weaken the standard and importance of system dynamic vars from online generation. The following change is recommended: R1- The Generator Operator shall operate each generator connected to the interconnected transmission system in the automatic voltage control mode (automatic voltage regulator in service and controlling voltage) unless the Generator Operator has notified the Transmission Operator unless otherwise approved by the Transmission Operator, such approval not unreasonably withheld.

**Response:**

VAR-002 Requirement 3 does require the Generator Operator to notify the Transmission Operator within 30 minutes when it has certain status or capability changes – this is not the same as notifying the Transmission Operator that it cannot meet the schedule. It is possible to have a status or capability change and still operate within the assigned voltage or reactive power schedule. The expectation is that the Generator Operator will notify the Transmission Operator and the Transmission Operator may exempt the Generator Operator from compliance with the schedule (under R2) or may issue a new schedule. Note that the phrase used in the standard is, 'as soon as practical but within 30 minutes' - which has a very different meaning than, 'within 30 minutes or as soon as practical'.

The drafting team modified VAR-002 R1, to recognize that the Generator Operator normally would not operate without AVR unless its equipment is not running – and in this case, having the TOP 'Approve' operating without AVR does not make any practical sense. When the GOP notifies the TOP, the TOP can provide the GOP an exemption or not under R2 or the TOP may give the GOP a new schedule that could be maintained manually.

**David Frank Ronk, Consumers Energy CETR**

**Comment:**

The following comments are submitted concerning VAR-002: Levels of Non-Compliance for Generator Operator: Our Company's generating plant operators are required to exercise nearly 10,000 voltage schedule changes annually. A Level 1 finding for one incident is not reasonable. The levels should scale or be shifted to require reasonable attainment standards, recognizing the volume of voltage schedule changes.

The following should be added to Section R5 of VAR-002: Recognizing that such action would require the generator to change its loading level or cycle, the transmission operator

should not rely on tap position changes on a step-up transformer with a no-load tap changer (NLTC) for periodic or seasonal system control, unless there is an explicit voluntary arrangement with the Generator Operator. For each instance of an urgent directive for such action, the transmission operator must justify its action to affected parties.

**Response:**

The transmission operator's voltage schedule can include an acceptable range, duration, and acceptable deviation. The transmission operator can exempt the generator operator from compliance with the voltage schedule. Non-compliance is a failure to adhere to the schedule when the generator operator has not gotten an exemption from compliance from the transmission operator.

Requirement 5 is a Version 0 requirement that was not modified as part of the work assigned to the Phase III & IV drafting team. Making changes to this requirement or adding a measure or level of non-compliance for this requirement is outside the scope of the SAR assigned to this drafting team. Note that there is another drafting team that is charged with adding the 'missing measures and compliance elements' to all the Version 0 standards that were incomplete when approved.

**Ronald Bauer, Detroit Edison**

**Comment:**

Detroit Edison has concerns with VAR-001-1. We offer the following comments: R7 Currently reads: The Transmission Operator shall be able to operate or direct the operation of devices necessary to regulate transmission voltage and reactive flow. We are concerned with this language possibly being interpreted as to allow the Transmission Operator to be able to operate reactive devices not owned by the Transmission Operator/Owner. We would suggest changing the language to include ownership verbiage or delete the operate language all together.

We are also concerned with the directive language not including a measure which would allow the device owners to decide if the equipment can be operated in a manner outside the normal operating parameters, i.e., operating a generator outside the normal operating region with elevated hydrogen pressures and associated elevated operating temperatures (overload operation or emergency operation). Suggested wording: \*The Transmission Operator shall operate owned devices or direct the operation of devices, within their normal operating parameters and -capabilities, necessary to regulate transmission voltage and reactive flow. (Substituting the verbiage used in VAR-002-1, Facility Ratings, may be better than using "normal operating parameters and capabilities"?)

R8 Currently reads: Each Transmission Operator shall operate or direct the operation of capacitive and inductive reactive resources within its area-including reactive generation scheduling; transmission line and reactive resource switching; and, if necessary, load shedding- to maintain system and Interconnection voltages within established limits. We have the same concerns as stated above in R7 and would recommend incorporating similar language as suggested in R7. \*Each Transmission Operator shall operate owned

devices or direct the operation of, within their normal operating parameters and capabilities, capacitive and inductive reactive resources within its area-including reactive generation scheduling; transmission line and reactive resource switching; and, if necessary, load shedding- to maintain system and Interconnection voltages within established limits.

**Response:**

Requirements 7-8 are Version 0 requirements that were not modified as part of the work assigned to the Phase III & IV drafting team. Making changes to these requirements is outside the scope of the SAR assigned to this drafting team. Note that there is another drafting team that is charged with adding the 'missing measures and compliance elements' to all the Version 0 standards that were incomplete when approved.

**Bob Birch, Florida Power & Light FPL**

**Comment:**

Although the draft 4 version of VAR-001 is probably workable as written there are a number of deficiencies that should be considered and strengthened. In general, VAR-001, which applies to Transmission Operators, should more closely parallel VAR-002 which applies to Generator Operators. The majority of VAR-001 requirements is not supported with measurements and would be difficult to measure in a compliance assessment process. Some of these VAR-001 requirements (R1, R2, R7, R8, R9, R10, and R12) are redundant to the TOP standards. One solution is to eliminate these VAR-001 requirements and revise the TOP requirements as necessary.

**Response:**

VAR-001 was a Version 0 standard and VAR-002 was developed to include the Phase III & IV measures. The drafting team's scope was limited to addressing changes associated with the Phase III & IV measures.

**Wayne Lewis, Progress Energy - Carolinas**

**Comment:**

It is recommended that NERC in the future provide the opportunity to vote on the individual standards instead of bundling the standards together within a single vote. Progress Energy would have voted "Yes" to VAR-001-1 if we had been given the opportunity to separately submit our vote on that standard.

The language in the measures and compliance sections such as "2.1.2 One incident of failing to maintain a voltage or reactive power schedule" is too vague and does not specify any duration that is acceptable or unacceptable to be off voltage schedule or reactive schedule. The measures section states that the Generator Operator shall notify the T.O. within 30 minutes or as soon as practical that it cannot maintain a voltage schedule or reactive schedule, and that as long as the T.O. is notified we would be "OK" with compliance to the standard. However, then the Compliance section seems to say if you are off voltage or reactive schedule for any reason for any length of time you are non-compliant. This seems to be contradictory and at best vague and hard to understand.

The changes made to VAR-002 R1 significantly weaken the standard and importance of system dynamic vars from online generation. The following change is recommended: R1- The Generator Operator shall operate each generator connected to the interconnected transmission system in the automatic voltage control mode (automatic voltage regulator in service and controlling voltage) unless the Generator Operator has notified the Transmission Operator unless otherwise approved by the Transmission Operator, such approval not unreasonably withheld.

**Response:**

The transmission operator's voltage schedule can include an acceptable range, duration, and acceptable deviation. The transmission operator can exempt the generator operator from compliance with the voltage schedule. Non-compliance is a failure to adhere to the schedule when the generator operator has not gotten an exemption from compliance from the transmission operator.

VAR-002 Requirement 3 does require the Generator Operator to notify the Transmission Operator within 30 minutes when it has certain status or capability changes – this is not the same as notifying the Transmission Operator that it cannot meet the schedule. It is possible to have a status or capability change and still operate within the assigned voltage or reactive power schedule. The expectation is that the Generator Operator will notify the Transmission Operator and the Transmission Operator may exempt the Generator Operator from compliance with the schedule (under R2) or may issue a new schedule. Note that the phrase used in the standard is, 'as soon as practical but within 30 minutes' - which has a very different meaning than, 'within 30 minutes or as soon as practical'.

The drafting team modified VAR-002 R1, to recognize that the Generator Operator normally would not operate without AVR unless its equipment is not running – and in this case, having the TOP 'Approve' operating without AVR does not make any practical sense. When the GOP notifies the TOP, the TOP can provide the GOP an exemption or not under R2 or the TOP may give the GOP a new schedule that could be maintained manually.

VAR-001 and VAR-002 contain requirements that are inter-dependent and need to be balloted as a single set.

**Thomas Bradish, Reliant Energy Services RES**

**Comment:**

R5 should be deleted from this standard. Having adequate reactive support to operate the grid is the responsibility of the transmission provider/operator. Trying to define who pays for a service does not belong in a reliability standard. Putting this requirement on a PSE is not efficient because: 1. Is it possible to exactly determine the amount of reactive needed to move power from point A to point B from a resource at C? Aren't reactive requirements based on real time system conditions? Any before the fact calculations would just be an estimate. 2. The cost of reactive may already be a component of the transmission provider's tariff being paid by the PSE to move the power from A to B. 3. If R5 remains in the standard load will be paying the PSE for the forecasted reactive component based on an estimate. The load may be over paying for the service

Requirement 5 is Version 0 Requirement that was not modified as part of the work assigned to the Phase III & IV drafting team. Making changes to Version 0 requirements is outside the scope of the SAR assigned to this drafting team.

**Deborah M. Linke, United States Bureau of Reclamation**

**Comment:**

We are voting against this standard, VAR-002-1, as we believe it is ambiguous and may cause undue negative impact on competition. R2 of the standard requires the Generator Operator to provide voltage support as directed by the Transmission Operator within the rating of the facility. This may be interpreted as obligating the Generator Operator to provide any and all reactive capability available if directed at any time. This may also be interpreted to require the Generator Operator to reduce real power output in order to provide more reactive output. This language is in contrast to the situation described in the NERC Reliability 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. During the comment period we recommended that R2 be changed 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.

**Response:**

When the TOP sets up its voltage or reactive power schedules, those schedules would have to respect the contracts or agreements already in place. Adding language to the standard to address the contracts is outside the scope of what is included in a reliability standard.

**James Eckelkamp, Carolina Power & Light Company CPL**

**Comment:**

It is recommended that NERC in the future provide the opportunity to vote on the individual standards instead of bundling the standards together within a single vote. Progress Energy would have voted "Yes" to VAR-001-1 if we had been given the opportunity to separately submit our vote on that standard.

The language in the measures and compliance sections such as “2.1.2 One incident of failing to maintain a voltage or reactive power schedule” is too vague and does not specify any duration that is acceptable or unacceptable to be off voltage schedule or reactive schedule. The measures section states that the Generator Operator shall notify the T.O. within 30 minutes or as soon as practical that it cannot maintain a voltage schedule or reactive schedule, and that as long as the T.O. is notified we would be “OK” with compliance to the standard. However, then the Compliance section seems to say if you are off voltage or reactive schedule for any reason for any length of time you are non-compliant. This seems to be contradictory and at best vague and hard to understand.

The changes made to VAR-002 R1 significantly weaken the standard and importance of system dynamic vars from online generation. The following change is recommended:

**Response:**

VAR-001 and VAR-002 contain requirements that are inter-dependent and need to be balloted as a single set.

The transmission operator's voltage schedule can include an acceptable range, duration, and acceptable deviation. The transmission operator can exempt the generator operator from compliance with the voltage schedule. Non-compliance is a failure to adhere to the schedule when the generator operator has not gotten an exemption from compliance from the transmission operator.

VAR-002 Requirement 3 does require the Generator Operator to notify the Transmission Operator within 30 minutes when it has certain status or capability changes – this is not the same as notifying the Transmission Operator that it cannot meet the schedule. It is possible to have a status or capability change and still operate within the assigned voltage or reactive power schedule. The expectation is that the Generator Operator will notify the Transmission Operator and the Transmission Operator may exempt the Generator Operator from compliance with the schedule (under R2) or may issue a new schedule. Note that the phrase used in the standard is, 'as soon as practical but within 30 minutes' - which has a very different meaning than, 'within 30 minutes or as soon as practical'.

The drafting team modified VAR-002 R1, to recognize that the Generator Operator normally would not operate without AVR unless its equipment is not running – and in this case, having the TOP 'Approve' operating without AVR does not make any practical sense. When the GOP notifies the TOP, the TOP can provide the GOP an exemption or not under R2 or the TOP may give the GOP a new schedule that could be maintained manually.

**Diane Jean Barney, National Association of Regulatory Utility Commissioners**

**Comment:**

While the overall standard is good, there appears to be one item where an interpretation will be required. R3 allows a generator up to 30 minutes to report malfunctioning voltage regulation equipment. It is likely that during that period, the generator is not holding its required voltage level. Yet compliance 2.1.2 would hold the generator in non-compliance for not holding the specified voltage until they received authorization. An interpretation is required to clarify the intent.

**Response:**

The transmission operator's voltage schedule can include an acceptable range, duration, and acceptable deviation. The transmission operator can exempt the generator operator from compliance with the voltage schedule. Non-compliance is a failure to adhere to the schedule when the generator operator has not gotten an exemption from compliance from the transmission operator.

VAR-002 Requirement 3 does require the Generator Operator to notify the Transmission Operator within 30 minutes when it has certain status or capability changes – this is not the same as notifying the Transmission Operator that it cannot meet the schedule. It is possible to

have a status or capability change and still operate within the assigned voltage or reactive power schedule. The expectation is that the Generator Operator will notify the Transmission Operator and the Transmission Operator may exempt the Generator Operator from compliance with the schedule (under R2) or may issue a new schedule.