Please use this form to submit comments on the Phase III & IV Drafting Team's second draft of the first set of Phase III & IV Standards. Comments must be submitted by **December 3, 2005.** You must submit the completed form by emailing 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 numbering or bullets in any data field.
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:	**Karl Kohlrus**	
Organization:	**City Water, Light & Power**	
Telephone:	**217-321-1391**	
Email:	**kkohlrus@cwlp.com**	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☒ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☐	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
	☒	5 - Electric Generators
	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
	☐	9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

* 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.

The drafting team asks you to 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. **Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.**

1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments:

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments:

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: In R3 change R1 to Requirement 1 to be consistent with other sections. In Levels of Non-Compliance 2.4 change "required R1" to "Requirement 1".

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments:

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
   MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments:

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
   VAR-001-1 — Voltage and Reactive Control
   VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
   VAR-003-1 — Assessment of Reactive Power Resources

   Comments:

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments: For TP-002-1 in R15 capitalize "Generator".

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	**Jerry Nicely**	
Organization:	**Tennessee Valley Authority**	
Telephone:	**423-751-8236**	
Email:	**glnicely@tva.gov**	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☐	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
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	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
	☐	9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: **TVA**

Lead Contact: Walter E. Joly

Contact Organization: Transmission & Reliability

Contact Segment: 1

Contact Telephone: 423-751-8051

Contact Email: wejoly@tva.gov

Additional Member Name	Additional Member Organization	Region*	Segment*
Mark Marcum	TVA Fossil	SERC	5
Jerry Nicely	TVA Nuclear	SERC	5
Dennis Chastain	Transmission Planning	SERC	1
David Marler	Transmission Planning	SERC	1
David Thompson	River System Ops & Envir (Hydro)	SERC	5
Bob Millard	Transmission & Reliability	SERC	1
Meredith Snyder	Transmission & Reliability	SERC	1
Jim Whitehead	Transmission Planning	SERC	1

* 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.

The drafting team asks you to 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. **Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.**

1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: None

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: R1.1 - Design Data needs to be defined. The requirement to provide design data at least one year prior to in-service-dates may be appropriate for new installations. However, some refurbishment scenario's may be completed in less than one year, i.e., equipment failures, equipment damage, emergency type replacements. Therefore, this std. should provide consideration for those refurbishments that may be procured and installed within one year.

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: None

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments: None

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data

MOD-027-1 — Verification and Status of Generating Unit Frequency Response

Comments: MOD-027-1; Nuclear Plants should be exempt from this Std. due to their inability to exceed 100% Reactor Power per NRC Commitments.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
   VAR-001-1 — Voltage and Reactive Control
   VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
   VAR-003-1 — Assessment of Reactive Power Resources

   Comments: None

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments: None

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments: TVA concurrs with the drafting teams recommendation to allow field testing of MOD-026-1 & MOD-027-1.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	**Greg Mason**	
Organization:	**Dynegy Generation**	
Telephone:	**217 872-2301**	
Email:	**gregory.mason@insightbb.com**	
NERC Region		**Registered Ballot Body Segment**
☒ ERCOT ☒ ECAR ☐ FRCC ☐ MAAC ☒ MAIN ☐ MAPP ☒ NPCC ☒ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

* 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.

The drafting team asks you to 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.
Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.

1. Please identify anything you believe needs to be modified before this standard is balloted:
EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments:

   1.R8. The term "availability" needs to be omitted or clarified. Should the term "reliability" be used instead? How will the Transmission Operator verify/judge the availability or reliability of a unit for blackstart other than the results of the blackstart tests already specified in R10?

   2. R10. This section needs to clarify the term "intended function." If this term means actually testing or simulating the starting of a larger and perhaps remote unit from a blackstart unit,then the Transmission Owner should be required to obtain the Generation Owner's concurrence on any such test because of the risk to plant equipment during a test.

   3.R10.1 This section should be modified to require this simulation or testing be completed at least once every five years, unless the Transmission Owner can verify that system conditions that would impact the test/simulation have not substantially changed in the last five years.

2. Please identify anything you believe needs to be modified before this standard is balloted:
MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments:

   1.R1.1 This requirement is not practical as written. It will not always be feasible to provide new excitation system design data one year prior to the in-service date.Exceptions need to be provided for excitation system failures or other unforeseen circumstances. In those cases,the Generation Owner may temporarily install a backup system with little notice. In addition,the normal advance notice should be changed fron one year to 6 months to reflect more typical excitation system project timeframes. Also, suggest deleting the wording "other associated generation equipment" since it is vague and adds nothing to the "such as…" phrase.

3. Please identify anything you believe needs to be modified before this standard is balloted:
MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: None.

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☐ Yes

   ☒ No

   Comments:

   1. This requirement is not needed as there should be existing models which are "close" and can be used.

   2. If the requirement is added, it is the applicable ISO and Transmission Operators who need this data. It will be more efficient and economical for the applicable ISO and Transmission Owners to group all excitation systems requiring new models together and arrange for the development of any needed new models.

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
   MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments:

   MOD-026-1

   1. R1.2 Wording similar to that included in R1.2.1 from MOD-013-01 needs to be inserted between R1.2 and R1.3. This suggested wording makes clear the proper use of unit specific data versus generic data for older units installed in 1990 or before.

   2.R1.4. To be consistent with R1.2.1 from MOD-013-01, comment #1 above and the impracticality of obtaining some of the data listed under R1.4 for the excitation system of older units, the wording of this requirement needs to be changed to read as follows:" Specific information to be reported related to those generator excitation systems installed in 1990 or before (if available) and for those systems installed after 1990 and their related functions:"

   3. R1.4.7 As written, the phrase "…with the voltage regulator in the automatic voltage control mode." implies testing is the only acceptable method of verification(contrary to the provisions of R1.2). Suggest either deleting this phrase or moving it up to R1.2 to follow the word "testing."

   4 R3 This section should include a reasonable time for compliance following issuance of the RRO procedures.Since compliance efforts will likely need to occur during a unit outage,suggest compliance deadline of 24 months following issuance of RRO procedures.

   4.M3 The Generation Owner is not going to know all the entities that are applicable TP's and PA's. M3 needs to be revised so that the Generation Owner is only required to routinely send its verification of the models associated with its generator excitation system functions to one entity-the RRO.The TP or PA can receive the data from the RRO.This approach will also minimize the risk of creating mutiple sets of the same data.

   MOD-027-1

   1. R1.2 Wording similar to that included in R1.2.1 from MOD-013-01 needs to be inserted between R1.2 and R1.3. This suggested wording makes clear the proper use of unit specific data versus generic data for older units installed in 1990 or before.

2.R3 This section should include a reasonable time for compliance following issuance of the RRO procedures.Since compliance efforts will likely need to occur during a unit outage,suggest compliance deadline of 24 months following issuance of RRO procedures.

3. M3 The Generation Owner is not going to know all the entities that are applicable TP's and PA's. M3 needs to be revised so that the Generation Owner is only required to routinely send its generator frequency response data to one entity-the RRO.The TP or PA can receive the data from the RRO.This approach will also minimize the risk of creating mutiple sets of the same data.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

Comments:

VAR-001-1

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 voltage schedule should take into account voltage measuring accuracy and the dynamics of system voltage.The voltage schedule must be a range of voltage(and not a specific point voltage) in order to comply with the R3 provisions of VAR-002-1.

2.R11 There is one sentence left over from the former R17 that needs to be moved or deleted.

3.R12 As redrafted,this section deletes the prior requirement for a transmission operator and generation owner to "mutually agree" on tap changes for generator step up transformers at a plant and now allows a transmission operator to require the generation owner to make changes to these tap settings in a specified timeframe. These tap settings need to balance system requirements such as reactive output and plant requirements such as generator and auxiliary voltages that impact reliable plant operation.Also, changes to these tap settings could result in additional plant expenditures and they would need to be made during a plant outage(not at a time specified by the transmission operator). This new wording that allows a transmission operator to dictate these tap settings is bad for overall system reliability,discourages cooperation between the entities and needs to be removed. The prior wording that required "mutual agreement" between the transmission operator and generation owner on these tap setting changes should be reinstated.

4.M1 This measure references a "criteria specified in Requirement R5". As drafted,R5 does not have any "criteria".However, R5 does need to be revised to include criteria such as in my comment #1 above on R5.

VAR-002-1

1.R1 and M1 To be consistent with R3 and the practicalities of system operation, the last phrase "…unless otherwise approved by the transmission operator" needs to be deleted from R1 and M1 needs to be eliminated..R3.1 requires the generation operator to notify the transmission operator of any change in the status of the voltage regulator. Obtaining "approval" of the transmission opearator 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. R3 Given the operational interface between transmission operators and Reliability Coordinators, suggest changing the entity receiving the notification from transmission operator to Reliability Coordinator.This change will allow the generation operator to notify one entity(the Reliability Coordinator) and the Reliability Coordinator can then coordinate this information with the transmission operator.

3.R3.3,M2 and D2 These requirements only make pratical sense if the voltage schedule is a voltage range and not a specific point voltage.See my comment #1 on R5 of VAR-001-1.

4.R5 Either change this sction to coordinate with recommended change to R12 of VAR-001-1(see my comment #3 on VAR-001-1) or leave alone.

5.M5 The sentence needs to be modified as follows to fully comply with R5:" The generation owner shall have evidence that its step-up transformer taps were modified per the transmission operator's documentation or the reason why these changes could not be made as required in Requirement 5."

6.D2.1.1,D2.2.1,D2.3.1 and D2.4.1 The terms used in these non-compliance levels need to be better defined.Do any violations within the 30 minute notification period not "count"? Is the term "accumulated time of xxx unit hours" referring to consecutive hours for a unit outside the voltage range? When does a new period for judging compliance begin---immediately after the period in which the voltage schedule is met again?Is the voltage being measured the integrated transmission voltage over an hour rather than instantaneous values? For a multiple unit plant,isn't compliance measured on a plant rather than unit basis?

7.D2.1.1,D2.2.1,D2.3.1 and D2.4.1 With regard to not holding voltage schedules, why should a Generation Owner be considered non-compliant in the instance where a unit/plant was generating or absorbing maximum MVARs but still could not maintain the voltage schedule due to system conditions? These non compliance levels need to take into account this type of possible occurrence.

8.D2.1.2.D2.2.2,D2.3.2 and D2.4.2 These levels of non compliance need to be eliminated to coordinate with my above comment #1 on VAR-002-1 and since D2.1.3,etc. covers inadequate notification occurences.

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

☐ Yes

☒ No

Comments:

1.MOD 13 The effective date needs to be extended from 2/1/07 to 2/1/08 to give entities the necessary time to locate and search through historical records to verify the required generator data.

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

Comments:

1. With regard to field testing of MOD-026, each Generation Owner should have the option of doing a field test on a unit but not be required to complete a field test for at least one unit.Such a requirement for a field test seems to conflict with R1.2 of MOD-026-1 which allows multiple verification methods,of which field testing is one of those methods.

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Organization:		
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NERC Region		**Registered Ballot Body Segment**
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Group Comments (Complete this page if comments are from a group.)

Group Name: **WECC Loads and Resources Subcommittee**

Lead Contact: Jay Loock

Contact Organization: WECC

Contact Segment: 2

Contact Telephone: 801-582-0354

Contact Email: jay@wecc.biz

Additional Member Name	Additional Member Organization	Region*	Segment*
Mary Johannis	BPA	WECC	1
John Leland	NWE	WECC	1
Grace Anderson	CEC	WECC	9
Rick Haener	IPC	WECC	1
Mike Jaske	CEC	WECC	9
Dick Simons	WECC	WECC	2

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1. Please identify anything you believe needs to be modified before this standard is balloted: **EOP-005-1 — System Restoration Plans (Modified Version 0)**

   Comments:

2. Please identify anything you believe needs to be modified before this standard is balloted: **MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)**

   Comments:

3. Please identify anything you believe needs to be modified before this standard is balloted: **MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)**

   Comments: Please see attached Word File

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☐ Yes

   ☐ No

   Comments:

5. Please identify anything you believe needs to be modified before this set of standards is **field tested: MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data MOD-027-1 — Verification and Status of Generating Unit Frequency Response**

   Comments:
6. Please identify anything you believe needs to be modified before this set of standards is balloted:

VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

Comments:

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

☐ Yes

☐ No

Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

Comments:

Comments to Standard are in blue!

Standard MOD-016-1 — Actual and Forecast Demands, Net Energy for Load, Controllable Demand-Side Management

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

This proposed standard is the Version 0 MOD-016 modified to include a translation of planning measure II.D.M2, which was not included in the approval Version 0 reliability standards because it required further work.

Development Steps Completed:

1. A SAR was posted from December 2, 2004, through January 7, 2005.
2. The SAC appointed a standard drafting team on January 13, 2005.
3. The drafting team posted its response to SAR comments and all other historical comments on April 19, 2005.
4. The drafting team posted Draft 1 of the standard on April 21, 2005.

Description of Current Draft:

This is a second draft of the standard to be posted for industry comment from October 15 – November 30, 2005.

Future Development Plan:

Anticipated Actions - Anticipated Date

1. Review comments from industry posting; post consideration of comments. December 1 – January 15, 2006
2. Post standards and implementation plan for 30-day pre-ballot review. February 1 – March 2, 2006
3. Conduct 1st ballot. March 5-15, 2006
4. Consider comments submitted with 1st ballot; post consideration of comments March 15 – March 20, 2006
5. Conduct 2nd ballot. March 20 – 30, 2006
6. Post standards and implementation plan for 30-day review by Board. April 1, 2006
7. Board adoption date. May 1, 2006
8. Proposed Effective date. November 1, 2006

Standard MOD-016-1 — Actual and Forecast Demands, Net Energy for Load, Controllable Demand-Side Management

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated

here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

No new definitions are proposed for this standard.

R1 uses the term controllable DSM, which is not in the NERC glossary of terms. A similar term – direct control load management – is in the NERC glossary, is this what is intended?

M2 uses term “evidence”. This term is used loosely and needs clarification on what would classify as evidence (registered mail, email, etc).

One issue that presents a problem is that the term "controllable DSM" is not identified in the NERC Glossary and should not appear in R1. The terms Direct Control Load Management and Interruptible Demand, which are in the NERC Glossary, should be inserted in R1 in place of the term "controllable DSM."

Standard MOD-016-1 — Actual and Forecast Demands, Net Energy for Load, Controllable Demand-Side Management

A. Introduction

1. Title: Actual and Forecast Demands, Net Energy for Load, Controllable Demand-Side Management

2. Number: MOD-016-1

3. Purpose: Ensure that accurate, actual demand data is available to support assessments and validation of past events and databases. Forecast demand data is needed to perform future system assessments to identify the need for system reinforcements for continued reliability. In addition, to assist in proper real-time operating, best available load information related to controllable demand-side management (DSM) programs is needed.

A clear definition of forecast demand is needed. Should the peak demand load forecasts include such factors as economic, demographic, and customer trends; conservation, improvements in the efficiency of electrical energy use, and other changes in the end uses of electricity; and weather effects? Should the peak demand load forecast have a 50% probability of not being exceeded (expected peak demand)? This load forecast is commonly referred to as the 1-in-2 peak load forecast.

4. Applicability

4.1. Planning Authority.
4.2. Regional Reliability Organization.

5. Proposed Effective Date: November 1, 2006.

B. Requirements

R1. The planning authority and regional reliability organization shall have documentation identifying the scope and details of the actual and forecast (a) demand data, (b) net energy for load data, and (c) controllable DSM data to be reported for system modeling and reliability analyses.

Transmission providers who serve customers who have retail access may have difficulty obtaining documentation identifying the scope and details of actual and forecast data. These transmission providers' can provide the actual and forecast data using their own data sets, but they may not have access to an individual retail choice customer's documentation for historical and forecast data. Often concerns about loss of competitive advantage or confidentiality issues are expressed about providing the data to the transmission provider. What is your solution to this issue in this Standard?

In R1, the definition of a load serving entity in the April 2005 NERC glossary seems to require that such entities make both generation and transmission services for end-use customers. Translating this to the version of LSE existing in California, it is not clear what is intended. Electricity service providers (ESP) make load forecasts and forward generation commitments for end-users, but they do not necessarily schedule load into the CAISO forward scheduling process. That function is performed by a scheduling coordinator. Given this institutional arrangement, would either of these be considered a load serving entity using the NERC definition?

In R1, the definition of a planning authority is unclear. Is the planning authority one that used to be considered synonymous with a control area operator, or is the planning authority those entities that prepare resource plans, transmission plans, etc. Again, in the context of the CAISO and the participating transmission owners (PG&E, SCE, SDG&E and some larger POUs) in the CAISO control area, which is the planning authority?

The proposed standard appears to make a change in current WECC L&R practices by dropping a requirement that non-firm load be identified. Is this intended? If so, why? If not, then the language of the requirement needs to be revised to also request projections of non-firm load.

R1.1. The aggregated and dispersed data submittal requirements shall ensure that consistent data is supplied for Reliability Standards TPL-005-0, TPL-006-0,

MOD-010-0, MOD-011-0, MOD-012-0, MOD-013-0, MOD 014-0, MOD-015-0, MOD-016-0, MOD-
017-0, MOD-018-0, MOD-019-0, MOD-020-0, and MOD-021-0.

R1.2. The data submittal requirements shall stipulate that the load-serving entity count each customer demand within its service territory once and only once, on an aggregated and dispersed basis, in developing its actual and forecast customer demand values.

Once again the type of forecast needs to be defined (see comment under Purpose).

R1.2 should be revised to recognize that service territories may host multiple LSEs.

R2. The regional reliability organization shall distribute its documentation required in Requirement 1 for reporting customer demand data, and any changes to that documentation, to all planning authorities that work within its region within 30 calendar days of approval.

R3. The regional reliability organization shall distribute its documentation required in R1 for reporting customer demand data, and any changes to that documentation, to its transmission planners and load-serving entities that work within its planning authority area within 30 calendar days of approval.

C. Measures

M1. The regional reliability organization's documentation for actual and forecast customer demand data shall contain all items identified in Requirement 1.

M2. The regional reliability organization shall have evidence it provided its actual and forecast customer demand data reporting requirements within 30 calendar days of approval to each planning authority that works within its region.

M3. The planning authority shall have evidence it provided documentation for reporting customer demand data, and any changes to that documentation, to its transmission planners and load-serving entities as required in requirement 3.

C.D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Compliance monitor for planning authority: regional reliability organization
Compliance monitor for regional reliability organization: NERC.

1.2. Compliance Monitoring Period and Reset Timeframe
One calendar year.

1.3. Data Retention
For the regional reliability organization and planning authority: Current version of the procedure.
For the compliance monitor: Three years of audit information.

1.4. Additional Compliance Information
The regional reliability organization and planning authority shall demonstrate compliance through self-certification or audit (periodic, as part of targeted monitoring or initiated by complaint or event), as determined by the compliance monitor.

2. Levels of Non-Compliance

2.1. Level 1: Documentation does not address completeness and double counting of customer data.

2.2. Level 2: Documentation did not address one of the three types of data required in Requirement 1 (demand data, net energy for load data, and controllable DSM data).

Standard MOD-016-1 — Actual and Forecast Demands, Net Energy for Load, Controllable Demand-Side Management

2.3. Level 3: No evidence documentation was distributed as required.

2.4. Level 4: Either the documentation did not address two of the three types of data required in R1 (demand data, net energy for load data, and controllable DSM data), or there was no documentation.

Regional Differences
None identified.

General Comments
Even though the Planning Authorities and Regional Reliability Organizations are supposed to document load forecasts, which in many areas are performed by the Load Serving Entities, there is no requirement for LSEs to actually provide this data to PAs and RROs.

In the West, WECC's Resource Adequacy Work Group, identified the disconnect between LSE load forecasting and planning and the control area reporting as a major issue in the reporting of quality load and resources data to WECC. Confidentiality issues and other communication issues have contributed to making this an issue of concern therefore the following are action needs:

- Expand the applicability to include Load Serving Entities and Purchasing/Selling entities
- Explicitly state that LSEs are required to provide the documentation for actual and load forecast data for the loads they serve to the PAs and RROs.

- Where Purchasing/ Selling entities are retail access customers who perform load forecasts, specifiy that these entities also need to provide similar documentation to PAs and RROS.
- Include a provision for dealing with confidentiality of information.

Assuming that the intent is to collect information about direct control load management, why is this one type the focus of the requirement? There are various types of demand response programs and tariffs, each with degrees of uncertainty. Knowledge of those programs which are classified as direct control load management is insufficient to know with certainty what quantity of load can be dropped at any specific moment since the underlying loads that are controlled are themselves fluctuating through time.

To the extent that load serving entities are required to prepare and submit documentation about DSM, why would this not be extended to all forms of DSM (energy efficiency, onsite generation, etc.) rather than just one small component of DSM activities?

What mechanisms exist or must be created to implement the layered set of requirements evidently intended by this standard? Are planning authorities able to compel load serving entities to prepare documentation and submit this documentation in forms that can be passed up to WECC?

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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☐ ERCOT ☐ ECAR ☐ FRCC ☒ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
	☒	2 - RTOs, ISOs, Regional Reliability Councils
	☐	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
	☐	5 - Electric Generators
	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

* 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.

The drafting team asks you to 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. **Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.**

1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: The IV.A.M2 and M3 material should NOT be moved to a new Version 1 Standard. Material that is closely related should be kept together as much as possible.

   I assume the EOP-005-1 Attachment 1 will be the same as the EOP-005-0 Attachment 1. That was not made clear and the Attachment was not included with the Standards as posted.

   Cranking Path information to be provided (R9 and M2) should be transmitted by a secure method and kept in a secure location. Should that be specified in the Standard?

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: The Future Development Plans table shows a Proposed Effective Date of August 1, 2007, but I believe the intended date is February 1, 2007, as shown in other places.

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: The Future Development Plans table shows a Board Adoption Date of May 1, 2006 and a Proposed Effective Date of November 1, 2006, but I believe the intended dates are August 1, 2006 (Adoption) and February 1, 2007(Effective), as shown in other places.

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☐ Yes

   ☒ No

   Comments: This could be onerous for small generators with new or different excitation systems. There should be a means for the cost of such software enhancements to be shared among all generators, if absolutely required.

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments: Adding the RRO's requirements into these Standards is logical and a good idea.

   Moving the design data requirements to MOD-013 is a good idea

   Field testing for these Standards before proceeding further is the right way to go. There are a lot of concerns and uncertainties that need to be resolved.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

   Comments: Look OK.

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments: The reference to May 1, 2006 in the last sentence before the table is misleading. I believe the projected Board Adoption Date is August 1, 2006. The six months or one year allowance before the Effective Date is needed to insure that compliance can be achieved.

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments: Good job overall by the Drafting Team.

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☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☒ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
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Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.

1. Please identify anything you believe needs to be modified before this standard is balloted:
EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: All references to simulated testing for blackstart should be changed so that only actual testing is performed. Or, at a minimum require blackstart testing to be performed once every 5 years. There is no guarantee that the generating facilities will be able to provide line charging necessary to blackstart the grid and/or pick up the load blocks as identified in the restoration plan. At present blackstart testing is required for blackstart listed facilities, but this blackstart testing is only verifying that the generating facility can energize its own internal powersystem. The proof of the pudding would be for the generating facility to energize a piece of the grid and then to pick up load commensurate with the blocks of load that the system restoration plan says the facility would be expected to pick up. Allowing simulation of the blackstart testing of the grid is like starting a car, the engine starts but that is no guarantee that the car can be driven, especially if the transmission is not connected to the engine.

   A requirement for developing blackstart agreements between the transmission operator and the generator owner needs to be added. It amazes me how often the restoration plans refer to a blackstart generator and yet the owner/operator of the generator isn't aware that they are even on a blackstart list let alone what role they play in system restoration. Also, how quickly blackstart is required needs to be a part of the agreement. My organization is looking at remote operating some facilities identified as blackstart generating facilities and the time to blackstart will be close to 2 hours. The system restoration plan developers don't have a time requirement listed for blackstarting. Economics is driving the remoting of the facilities and if blackstarting is required then the cost for the blackstart asset needs to be paid for.

   A requirement for developing cranking path agreements between the transmission operator and the generator owner/operato needs to be added.

   There should also be additional Measures for:

   Transmission operator provide documentation of blackstart agreements with the generator owner that has been identified as a blackstart generator.

   Transmission operator should provide test results for verifying that the pieces of the system restoration plan are capable of being performed by the blackstart generators.

   Transmission operator provide documentation of cranking path agreements with the generator owners of generating facilities that are identified as cranking path resources (generators).

2. Please identify anything you believe needs to be modified before this standard is balloted:
MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: R1.2.1 should allow the data from sister or identical units procured under the same contract in lieu of requiring unit specific data. Performing the required tests on identical units is not cost effective when you consider that the resulting data from identical units is well within the

modelling parameter tolerances. Also, what is the justification for the 1990 cut off date for actual data vs. manufacturers data? The requirement that only unit specific data is acceptable for generators installed after 1990 means that each generator procured under the same contract would have to be individually tested even though the units are essentially identical. Requiring each unit to be tested seems to be a great waste of money and resources. Recommend that the last sentence of R1.2.1 be removed.

There should be a measure for each requirement, otherwise how can you audit the requirement?

3. Please identify anything you believe needs to be modified before this standard is balloted:
MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments:

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☐ Yes

   ☒ No

   Comments:

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments: MOD-026-1, the transmission service provider should have a QC role in the verification of the model data provided. The TSP needs to use the modelling data in their planning studies and it makes sense for them to be the primary reviewer of the generator owner/operator's model data prior to the model data being forwarded to the RRO. The RRO should perform a QA role on reviewing the data by performing a spot check. The other transmission planning groups within the RRO would also play into the QA process. The main player in the review and validation of the useability of the generator owner/operator's model data should be the transmission service provider for that facility.

   The RRO should provide an acceptable list of models and it should be the generator owner/operator responsibility to match their equipment to the acceptable models. The RRO should not have to accept models that their power simulation programs do not recognize or use.

   The standard should recognize that after the initial testing of the generator has been performed, the use of continuous online monitoring equipment can be used to meet the requirement of periodic reverification of the machine parameters. The cost of the online monitors is far less than the cost of

retesting the generators. An added benefit of utilizing continuous online monitors for capturing the generators response to a system disturbance is the information from these online monitors can also provide more information for analyzing the system disturbance. More eyes and ears on the power system can help improve the system models.

MOD-027-1, I agree with the requirement for verifying generating unit frequency response. I do think the time frame should be extended to 1 minute, that way you will capture the quick response and decay of response that a thermal machine exhibits in the 0-40 second range and you will capture the slow response but sustained response that a hydro machine exhibits in the 25 second and beyond range. I think the goal is to better capture what generators are capable of performing and sustaining and the present 0-30 second range is too short a time frame.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

Comments: The references to "synchronous generators" should be removed from this standard. The standard should apply to all generators connected to the bulk electric system.

Each requirement should also have a measure associated with it, otherwise how will you be able to determine if the requirement is being met.

VAR-001-1, I don't see any requirement for verifying that the reactive resources are truly available. Performing a survey is not the same as actually testing to see if the reported reactive resource can operate at the maximum and minimum levels of the device. Recommend an annual testing of reactive resources be implemented so that the reactive capability on the system is truly available.

VAR-002-1, recognition of the use of Automatic Generation Control links for dynamically communicating realtime voltage schedules should be mentioned in the Measures section. Some of our generators receive voltage schedule information from the transmission service provider as well as information on voltage schedule compliance. This information is available from the transmission service provider and it doesn't make sense for the generation owner/operator to archive this information when it is also archived by the TSP.

An additional requirement, "R6. The generator owner will annually test the static reactive capabilities of each of their generators and shall submit the information to the transmission operator." A good example of the type of static reactive testing would be the WECC Synchronous Machine Reactive Limits Verification that was required after the 1996 Aug West Coast system disturbance. Please note that the annual testing should be performed on all generators connected to the bulk electric system and not just synchronous machines. The testing is easily performed by the generator operators and it does give the generator operators experience in operating the generators to the extremes of the reactive limits of the machine capability curve. A few of the benefits of performing this testing is the operators learn more about the generators capabilities, find limiters and protective devices that would limit the machine from operating at max/min VARS, discover equipment deficiencies and deal with them prior to having these deficiencies add to the problems of a major system disturbance. Along with the additional requirement is the following recommended measure, "M6. The generator owner shall have evidence that it has performed the annual static reactive capability testing and has submitted the information to its transmission operator."

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

☒ Yes

☐ No

Comments: The implementation plan for TOP-002-1 is fine, but the layout of the regulation is not very concise. Recommend the regulation be broken down into subparts where the subparts only deal with the requirements and metrics for a specific entity.

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments: For any requirement in a reliability standard, there should be at least one measurement. This would make the job of complying witht the reliability standard easier for the entity as well as make the job of the compliance team easier.

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Group Comments (Complete this page if comments are from a group.)

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David Weekley	MEAG Power	SERC	1
Clay Young	South Carolina Electric & Gas Co	SERC	3
Art Brown	SCPSA (Santee Cooper)	SERC	1
Pat Huntley	SERC	SERC	2
Bob Jones	Southern Company Services	SERC	1
Travis Sykes	TVA	SERC	1
David Till	TVA	SERC	1
Mike Green	AEC	SERC	1

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Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.

1. Please identify anything you believe needs to be modified before this standard is balloted:
EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: (1) Revise R8. to be consistent with R1.1 of EOP-007. It should read: Each transmission operator shall provide the name, location, megawatt capacity, type of unit, latest date of test, and starting method of the system blackstart generating units in the transmission operator's area to meet the regional requirement for maintaining a database. (2) If this recommendation is accepted, revise the reference to number, size, and location of blackstart units in M2 as appropriate.

2. Please identify anything you believe needs to be modified before this standard is balloted:
MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

– Comments: (1) In the Levels of Non-Compliance section, change R1 to Requirement 1 in sections 2.3 and 2.4. (2) Since design data generally will not be available one-year prior to the installation date, change R1.1 to read: Design data shall be provided for new or refurbished excitation systems at the time the equipment is ordered with updated data provided once the unit is in service.

3. Please identify anything you believe needs to be modified before this standard is balloted:
MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: (1) In R3 replace regional reliability organization with planning authority. This will make M3 consistent. (2) To be consistent with R1, M1 should refer to both the regional reliability organization and the planning authority. (3) In R1.2 delete the phrase (within its service territory) to accommodate load that is dynamically served from another area. The requirement needs to focus on counting of all loads only once, not on who or how it is accounted for.

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments: If this is not added the excitation system may not be adequately represented.

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
   MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments: In M3 of MOD-026 delete (to the regional reliability organization, and appropriate transmission planner and planning authority) to make it consistent with R3. A similar change needs to be made to M3 of MOD-027 for the same reason.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
   VAR-001-1 — Voltage and Reactive Control
   VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
   VAR-003-1 — Assessment of Reactive Power Resources

   Comments: (1) On VAR-001 not all of the requirements are captured in the measurements. (2) In VAR-003 Levels of Non-Compliance section 2.4.1 insert the words (evidence of a) after (No) to provide a way to assess M1. (3) In VAR-001, R10 remove "first" so as not to limit this requirement to first contingency conditions. As written with or without removing "first", R10 provides no additional information not already required in R3. This requirement would read better if the current R10.1 was relabeled R10 and the current R10's repeat of R3's requirement be removed.

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments: References in a standard to another standard should not include the Revision number.

Please use this form to submit comments on the Phase III & IV Drafting Team's second draft of the first set of Phase III & IV Standards. Comments must be submitted by **December 3, 2005.** You must submit the completed form by emailing 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:	**Michael Pfeister**	
Organization:	**Salt River Project**	
Telephone:	**602-236-3970**	
Email:	**mjpfeist@srpnet.com**	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☒	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☐	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
	☐	5 - Electric Generators
	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
	☐	9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

* 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.

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1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments:

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments:

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments:

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☐ Yes

   ☐ No

   Comments:

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
   MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments:
6. Please identify anything you believe needs to be modified before this set of standards is balloted:

VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

Comments:

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

☒ Yes

☐ No

Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

Comments:

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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Organization:		
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Email:		
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☐	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
	☐	5 - Electric Generators
	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
	☐	9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: **SERC Operations Planning Subcommittee**

Lead Contact: Uma Gangadharan

Contact Organization: Entergy

Contact Segment: 1

Contact Telephone: 504-374-4450

Contact Email: ugangad@entergy.com

Additional Member Name	Additional Member Organization	Region*	Segment*
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William Gaither	SCPSA	SERC	1
Phil Creech	PEC	SERC	1
Larry Goins	TVA	SERC	1
Mike Clements	TVA	SERC	1
Jerry Tang	MEAG	SERC	1
Steve Crutchfield	PJM	SERC	2
Don Reichenbach	Duke Power	SERC	1
Brian Moss	Duke Power	SERC	1
Melinda Montgomery	Entergy	SERC	1
Carter Edge	SEPA	SERC	4
Doug McLaughlin	SOCO	SERC	1
Susan Morris	SERC	SERC	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.

The drafting team asks you to 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. **Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.**

1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: Remove the word "availability" from R8 in EOP-005-1. This concept is already addressed in EOP-007-0 in the Regional BCP. Availability is an operating consideration rather than a discrete data element.

   Incorporating IVAM2 and IVAM3 into EOP-005 is sufficient. There is no need for a new Standard.

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments:

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments:

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☐ Yes

   ☐ No

   Comments:

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data

MOD-027-1 — Verification and Status of Generating Unit Frequency Response

Comments:

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
   VAR-001-1 — Voltage and Reactive Control
   VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
   VAR-003-1 — Assessment of Reactive Power Resources

   Comments:

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☐ Yes

   ☐ No

   Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments:

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☐	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
	☐	5 - Electric Generators
	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
	☐	9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: **TVA**

Lead Contact: Walter E. Joly

Contact Organization: Transmission & Reliability

Contact Segment: 1

Contact Telephone: 423-751-8051

Contact Email: wejoly@tva.gov

Additional Member Name	Additional Member Organization	Region*	Segment*
Mark Marcum	TVA Fossil	SERC	5
Jerry Nicely	TVA Nuclear	SERC	5
Dennis Chastain	Transmission Planning	SERC	1
David Marler	Transmission Planning	SERC	1
David Thompson	River System Ops & Envir (Hydro)	SERC	5
Bob Millard	Transmission & Reliability	SERC	1
Meredith Snyder	Transmission & Reliability	SERC	1
Jim Whitehead	Transmission Planning	SERC	1

* 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.

The drafting team asks you to 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. **Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.**

1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: None

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: R1.1 - Design Data needs to be defined. The requirement to provide design data at least one year prior to in-service-dates may be appropriate for new installations. However, some refurbishment scenario's may be completed in less than one year, i.e., equipment failures, equipment damage, emergency type replacements. Therefore, this std. should provide consideration for those refurbishments that may be procured and installed within one year.

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: None

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments: None

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data

MOD-027-1 — Verification and Status of Generating Unit Frequency Response

Comments: MOD-027-1; Nuclear Plants should be exempt from this Std. due to their inability to exceed 100% Reactor Power per NRC Commitments.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
   VAR-001-1 — Voltage and Reactive Control
   VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
   VAR-003-1 — Assessment of Reactive Power Resources

   Comments: None

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments: None

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments: TVA concurrs with the drafting teams recommendation to allow field testing of MOD-026-1 & MOD-027-1.

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NERC Region		**Registered Ballot Body Segment**
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	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☒	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
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	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
	☐	9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: **Southern Company Services, Inc.**

Lead Contact: Marc Butts

Contact Organization: Southern Company - Transmission

Contact Segment: 1

Contact Telephone: 205-257-4839

Contact Email: mmbutts@southernco.com

Additional Member Name	Additional Member Organization	Region*	Segment*
Dan Baisden	Southern Company	SERC	1
James Busbin	Southern Company	SERC	1
Wade Pugh	Southern Company	SERC	1
Keith Calhoun	Southern Company	SERC	1
James Ford	Southern Company	SERC	1
Mike Oatts	Southern Company	SERC	1
Doug McLaughlin	Southern Company	SERC	1
Dean Ulch	Southern Company	SERC	1
Jim Viikinsalo	Southern Company	SERC	1
Phil Winston	Southern Company	SERC	3
Rodney O'Bryant	Southern Company	SERC	1
Jim Griffith	Southern Company	SERC	1
Steve Williamson	Southern Company	SERC	1
Monroe Landrum	Southern Company	SERC	1
Raymond Vice	Southern Company	SERC	1

* 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.

The drafting team asks you to 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. **Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.**

1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: We feel that R11.5 should be reworded to change the operative word in the standard from -may- to -shall.- Futhermore, we feel that R11.5.1, R11.5.2, R11.5.3, and R11.5.4 can be elimated and the necessary provisions of these standards placed in a more concise statement contained in R11.5. The reworded provision could possibly read as follows: -The affected transmission operators shall not resychronize the isolated area(s) with the surrounding area(s) unless the voltage, frequency, and phase angle permit, the affected reliablility coordinator(s) and the adjacent areas are notified, and reliability coodinator approval is given.

   We also feel that the training required under R6 should be clearly defined in terms of scope and degree. We feel that this standard is overbroad, vague, and does not provide training personnel with the ability to determine if the requirements of this standard have been met.

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: We feel that under R1.2.1, the operative word -may- should be changed to -shall,- as -may- could imply that there is an option not to act..

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: None

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments: None

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
   MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments: None
6. Please identify anything you believe needs to be modified before this set of standards is balloted:
   VAR-001-1 — Voltage and Reactive Control
   VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
   VAR-003-1 — Assessment of Reactive Power Resources

   Comments: Under VAR-002, we feel that the provisions under R.3 seem very reasonable.

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☐ Yes

   ☒ No

   Comments: We agree with the standard itself, but feel that there should be field testing of VAR-002-1.

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments: None

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NERC Region		**Registered Ballot Body Segment**
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Group Comments (Complete this page if comments are from a group.)

Group Name:	**NERC Standards Evaluation Subcommittee**
Lead Contact:	Bill Bojorquez
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Contact Segment:	
Contact Telephone:	512-248-3036
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Additional Member Name	Additional Member Organization	Region*	Segment*

* 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.

The drafting team asks you to 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.
Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.

1. Please identify anything you believe needs to be modified before this standard is balloted:
EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: The SES assumes the SDT is not recommending any revisions to Attachment 1-EOP-005-1 at this time. For the convenience of the reviewer, the SES recommends all drafting teams to include any attachments referenced to with the draft standard.

   The SES recommends the SDT review the draft EOP-005-1 and capitalize all entity names and defined terms such as: Transmission Operators, Balancing Authorities, Reliability Coordinator, Cranking Path, etc.

   R5 requires periodic testing of telecommunication facilities needed to implement the restoration plan. The SES believes the SDT should replace the term periodically with a stated term such as annually.

   R6 requires the training of operating personnel in the implementation of the restoration plan, but provides little guidance as to how often or to what degree of scope this training shall incur. The SES recommends the SDT provide additional guideance as to this training requiremement in order to make it a more effective and easier to measure.

   R10 requires the Transmission Operator to demonstrate, either through simulation or testing, that the Blackstart generating units in its restoration plan can perform their intended functions. The SES notes that many Transmission Operators do not own or physically control generating units. Therefore, the SES would ask the SDT what obligation does the Generator Operator have in this testing? If there is an obligation, should it not be clearly stated in R10?

   R10.1 requires the Transmission Operator to perform a simulation or test the blackstart units in its restoration plan at a minimum of five years. This is a long interval between tests for large, complicated, mechanical devices such as generators. SES recommends that this interval be consistent with Attachment 1-EOP-005-1.

   The SES believes the Measures provided in the draft standard are a good starting point, but do not go far enough. For example in M2, the Transmission Operator is not specifically required to provide a copy of its plan to other entities unless requested. The SDT would agree, effective communication between entities is essential in service restoration; therefore, the SES recommends the SDT specifically state what entities are to receive the restoration documentation and include requirements, including a provision for updates as situations change.

2. Please identify anything you believe needs to be modified before this standard is balloted:
MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: The SES recommends the SDT review the draft MOD-013-1 and capitalize all entity names such as: Regional Reliability Organization, Transmission Owners, Transmission Planners, etc.

   Also the SES recommends the SDT revise the Applicability section to include the named entities in R1 since each entity incurrs some level of obligation to satisifying the standard.

   R1.2.1 states that estimated or typical manufacturer's dynamic data may be submitted to the RRO when unit-specific data cannot be obtained. The SES believes the best source of this data is actual testing. However, for

the standard, the SES recommends the SDT give each RRO the discretion to determine if estimated or test-verified dynamic data is acceptable, including any year or size thresholds.

R1.3, the terms static VAR controllers and statice compensators are different terms for the same device.

The SES believes the review of the data requirements and reporting procedures for this draft standard listed in R2 at five years is too long. The SES recommends this interval be 3 years.

3. Please identify anything you believe needs to be modified before this standard is balloted:
MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

– Comments: The SES recommends the SDT review the draft MOD-016-1 and capitalize all entity names such as: Regional Reliability Organization, Planning Authorities, Transmission Planners, etc.

The SES notes that in R1.1, the draft standard describes a list of standards by specific number such as MOD-013-0 that this standard is to supply data to. The SES is concerned that as the standards mentioned in R1.1 are modified, the number will change. For example, in this draft standard, data is to be supplied for MOD-013-0; however, in this Set 2, Phase III/IV proposal, we are considering a new MOD-013-1 for adoption. The SES would recommend the SDT either drop the suffix number, which signifies the version, and note this standard as simply MOD-13.

The proposed wording of R2 and R3 as currently proposed is confusing. The SES recommends the SDT revise R2 and R3 to be a single requirement R2 with consistent wording.

The proposed wording of M2 and M3 as currently proposed is confusing. The SES recommends the SDT revise M2 and M3 to be a single requirement M2 with consistent wording.

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

☒ Yes

☐ No

Comments:

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
MOD-027-1 — Verification and Status of Generating Unit Frequency Response

– Comments: The SES recommends the SDT review the draft MOD-026-1 and MOD-027-1 and capitalize all entity names such as: Regional Reliability Organization, Generation Owner, Transmission Planners, etc.

- MOD-026-1: This standard appears to apply only to synchronous generators. Because other technologies of generation may become large enough to require appropriate modeling, the SES recommends the SDT add a new requirement (R4) that "Owners of non-synchronous generation that is not exempt from these procedures per R1.1 shall furnish data equivalent to that required in R1.4, as needed to support the data requirements of the Regional Reliability Organization's analysis models."

  For R1.2, the SES believes the proposed standard should state that field testing is the preferred method of data verification. Analysis of blackouts indicates consistently that the accuracy of generator data is not reliable. While commissioning data may be a reliable source of data initially, data can change over time.

  MOD-027-1: This standard appears to apply only to synchronous generators. Because other technologies of generation may become large enough to require appropriate modeling, the SES recommends the SDT add a new requirement (R4) that "Owners of non-synchronous generation that is not exempt from these procedures per R1.1 shall furnish data equivalent to that required in R1.4, as needed to support the data requirements of the Regional Reliability Organization's analysis models."

  For R1.2, the SES believes the proposed standard should state that field testing is the preferred method of data verification. Analysis of blackouts indicates consistently that the accuracy of generator data is not reliable. While commissioning data may be a reliable source of data initially, data can change over time.

  The SES agrees with the SDT that both MOD-026 and MOD-027 should be field tested prior to final drafting and submission for balloting.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
   VAR-001-1 — Voltage and Reactive Control
   VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
   VAR-003-1 — Assessment of Reactive Power Resources

– Comments: The SES recommends the SDT review the drafts VAR-001-1, VAR-002-1, and VAR-003-1 and capitalize all entity names such as: Transmission Operators, Generation Owner, Generation Operators, Planning Authorities, Transmission Planners, etc.

- VAR-001-1: The SES believes the SDT should include a Measure that will require the Transmission Operator to provide evidence that it made its formal policies and procedures documentation regarding voltage and reactive control available to the Regional Reliability Organization.

  Overall, the SES is concerned that this proposed standard has requirments beyond the control of the responsible entity noted. For example, in R3, the Transmission Operator only has the reactive resources that exist in the area--how does the TO "acquire sufficient reactive resources" if existing resources are not adequate? The SES questions if R3 is not more appropriately addressed to the Transmission Planner? Or in the alternative, should the word "aquire" in R3 be replaced with the word "operate"? Similarly, R6 and R10.1 presumes that sufficient reactive resources are available.

  The SES also questions should the Regional Reliability Organization be included in the Applicability section?

  M2 and M4: The SES questions should these measures have corresponding levels of Non-Compliance proposed?

  M4: Requirement 11 referenced in M4 should be Requirement 12.

- VAR-002-1: The SES recommends the SDT change the notification requirement in R3 (M3 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.

  VAR-003-1: The assessment of reactive power is inherent in the assessment required by the TPL series of standards--therefore the SES questions the value of this standard as proposed. A standard defining reactive margin may be more appropriate. However, should the SDT belive this standard as proposed is appropriate, the SES offers the following additional comments:

R1: This requirement should establish the method and criteria for assessing adequate static and dynamic reactive power. The SES believes that leaving this to the discretion of the Transmission Planner and Planning Authority will result in inconsistent requirements. The SES asks the SDT if they are aware of any existing methods and criteria currently used in the industry.

R2: This requirement is duplicative of the TPL standards.

R2.1: As drafted, this requirement is very general and vague in nature. The SES recommends the SDT be more specific with respect to the objective of the requirement. For example, is the SDT looking for sensitivity studies to changing power factor, etc.?

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments: The SES commends the Set 2 Phase III/IV Drafting Team for its efforts and stands ready to support these standards with the consideration of the previous comments.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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Organization:		
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NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☐	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
	☐	5 - Electric Generators
	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
	☐	9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:	**Wind Generator Task Force**
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Contact Email:	patelm3@pjm.com

Additional Member Name	Additional Member Organization	Region*	Segment*

* 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.

The drafting team asks you to 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. **Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.**

1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: The WGTF has no comments.

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: The WGTF suggests that the standard drafting team clarify that R1.1 is applicable to wind generator plants (not individual wind generators). R1.2 should be clarified to refer to wind generator plants (not individual wind generators).

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: The WGTF has no comments.

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments: Does the standard drafting team agree that MOD-026 does not apply to wind generator plants?

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
   MOD-027-1 — Verification and Status of Generating Unit Frequency Response

Comments: Does the standard drafting team agree that MOD-026 and MOD-027 do not apply to wind generator plants?

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

   Comments:

   VAR-001-1 R4 should also include a list of exempt wind generator plants (not individual wind generators). R5 should incorporate wind generator plants (not individual wind generators) that are not exempt from the requirement.

   VAR-002-1 The standard drafting team should consider incoporating requirements that parallel R1 and R2 for wind generator plants (not individual wind generators) that have dynamic reactive capabilities.

   VAR-003-1 WGTF has no comment.

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☐ Yes

   ☐ No

   Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments: When wind generation is incorporated into NERC standards, the standards should generally refer to wind generator plants, rather than individual wind generators. Wind generator plants comprise a complete system, rather than individual units.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	**Peter Burke [on behalf of ATC's Planning, Operations, and Engineering]**	
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Email:	**pburke@atcllc.com**	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☒ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☒	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☐	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
	☐	5 - Electric Generators
	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
	☐	9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

* 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.

The drafting team asks you to 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. **Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.**

1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: There are some capitalization problems with all of the standards in this set in that the functional entities, such as Transmission Planner, Regional Reliability Coordinator, etc. should be capitalized consistantly throughout the standards.

   The industry should develop future standards for every generator to establish a blackout plan to improve coordination during an actual restoration event in addition to more specific standards applied to blackstart generators.

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: The standard has the same capitalization problems as were identified in EPO-005-01.

   The proposed effective dates that are used in the document are different thoughout the standard (Anticipated Actions table, footer, and A.5) and need to be synchronized.

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: The standard has the same capitalization problems as were identified in EPO-005-01.

   In section R1.1 reference is made to MOD-016-1 which is a standard referencing itself. Is that what was intended?

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

Comments: The requirement should be added and language should also be included to require the use of the latest IEEE standard, or PSSE, or PSLF/PSDS standard library model to represent the excitation response. It should be the generator owner's responsibility to validate and document the non-standard model so the onus to do this doesn't pass to the Planning Authority and/or Transmission Planner.

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments: The standard has the same capitalization problems as were identified in EPO-005-01.

   This standard doesn't address how generator data is shared between RRO's and if this isn't addressed in another standard then a provision for cross region data sharing should be added.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

   Comments: The standard has the same capitalization problems as were identified in EPO-005-01.

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments:

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NERC Region		**Registered Ballot Body Segment**
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	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☐	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
	☒	5 - Electric Generators
	☒	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
	☐	9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:	**Southern Company Generation**
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Contact Email:	jrcarter@southernco.com

Additional Member Name	Additional Member Organization	Region*	Segment*
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Thomas A. Higgins	Southern Company Generation	SERC	5
Terry L. Crawley	Southern Nuclear	SERC	5
Joel Dison	Southern Company Generation	SERC	6
Wayne Moore	Southern Company Generation	SERC	6

* 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.

The drafting team asks you to 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. **Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.**

1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: Under Requirement 11.5, the requirement should be modified by removing -may- in the requirement and replacing with: The affected Transmission Operators shall not resynchronize the isolated area(s) with the surrounding area(s) until the following conditions are met. Additionally, we recommend deleting requirement 11.5.4. It does not seem reasonable or logical for a control area to be required to shed 5000MWs of load, for example, in order for their neighbor to reconnect 1000MWs of their own load.

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: R1.1 - In practice, design data may not always be available one-year prior to the installation date. We recommend changing R1.1 to read: Design data shall be provided for new or refurbished excitation systems at the time the equipment is ordered with updated data provided once the unit is in service.

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments:

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments:

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
   MOD-027-1 — Verification and Status of Generating Unit Frequency Response

– Comments: We support Field Testing of MOD-026-1 and MOD-027. We agree that the Levels of Non-Compliance should be developed as part of the Field Testing process, and will provide our recommendations at that time. For MOD-027, we do not believe there is industry agreement on the specific information to be reported related to generator unit frequency response as spelled out in R1.4. Therefore, the Field Testing process should specifically include refinement of R1.4 as this is worked out.

–

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
   VAR-001-1 — Voltage and Reactive Control
   VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
   VAR-003-1 — Assessment of Reactive Power Resources

– Comments: We have a number of comments on VAR-002-1: R2.1: We have concerns about the wording of R2.1 and how this could be interpreted (implies strict adherence to the voltage/reactive schedule even if operating in manual regulator). Our experience supports a joint effort between the Generator Operator and the Transmission Operator to define reasonable operating limits when operating in this mode. For example, operation in the underexcited region of the generator capability curve is not desired since the URAL is not active when in manual regulator mode and a single contingency event (example: loss of the strongest source) could result in exceeding the steady state stability limit and loss of synchronism. Thus, if strict adherence to the voltage schedule by the affected generator requires operation in the underexcited region, this could set up a condition that is detrimental to the generator and system stability/reliability. M2: Measurement of compliance with R2 is actually covered (and more easily measured) by compliance with R3 as addressed in M3. Thus, M2 is not needed and can be deleted. M3: We recommend revising the end of the sentence to say: changes identified in Requirement 3. (i.e., instead of Requirements R3.1 through R3.3) This wording encompasses the main requirement plus all three sub-requirements. Levels of Non-Compliance: We understand the need to have defined levels of non-compliance. However, it is anticipated that the implementation of the reporting requirements and assessments of compliance for this standard will be difficult to accomplish in practice. We recommend a Field Test Period be established to develop more practical Levels of Non-Compliance and to allow time for Generator Owners and Operators to develop appropriate training and reporting procedures to help ensure operation that complies with the requirements. Southern Company Generation supports the standard drafting team's decision to provide the Generator Operator the chance to provide documentation in support of their reasons for not responding in the 30 minute window. For instance, during emergencies, it is possible that the Generator Operator will not have the opportunity to respond within the 30 minutes due to their efforts with stabilizing the generator and, therefore, would be agreeable to providing the documentation.

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☐ Yes

   ☒ No

   Comments: We agree with the proposed plan with one exception - We recommend Field Testing of VAR-002-1. (See our response to Question 6 on VAR-002-1 Levels of Non-Compliance for details.)

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments:

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	**Ron Falsetti**	
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NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*
		`	

* 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.

The drafting team asks you to 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. **Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.**

1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: It is IESO's view the standard needs to be developed to incorporate compliance elements for all requirements within the standard and NERC should avoid evolving / developing standards piecemeal.

   Requirement R1 specifies that only the applicable elements of attachment 1 need be included within the plan while the level 4 non-compliance is based on exclusion of two or more elements from the attachment. We recommend inclusion of …."applicable "…in the level 4 compliance level to be consistent.. The IESO also suggests an appropriate definition or guidelines be added to explain what constitutes "Applicable elements"

   R7 The IESO suggests guidelines/clarification be provided to explain what constitutes "testing" or "simulation" of the restoration procedure. Is it intended that only simulations through the use of a simulator constitute compliance or will table top restoration plans exercises satisfy this requirement.

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

- Comments: In our comments for MOD-028 (see below), we stated that some items were still required to be added to MOD-013, before MOD-028 could be retired. Our position remains the same..
- The IESO disagrees with the drafting teams position that all the information within this standard is redundant and contained within MOD-012 & MOD-013, As an example, Requirement R2 (data has to be validated every five years) is not in the above noted standards. This requirement should be moved to MOD-013. With the above recommendation, MOD-028 could then be retired.

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

- Comments: Requirement R1.1 should be revised to exclude references to specific standards but identify that consistent data is to used for all standards associated with adequacy and transmission assessments. Otherwise the Standard will need to be revised anytime that one of these referenced Standards is revised? For example, the Phase III & IV Standard Drafting Team is proposing that MOD-013-0 be revised and renumbered MOD-013-1. Suggest replacing R1.1 with…The documentation required in R1 shall ensure that consistent data is supplied for all NERC Reliability Standards where such data is required to be submitted or used for resource and transmission adequacy assessments.

- In R1.2 change …requirements… to …documentation required in R1… to align better with R1.
- R3 should read ….The planning authority shall distribute… to be consistent to Measure M3.
- M2 should read …The regional reliability organization shall have records that it provided the documentation required in R1 within 30 calendar days of review or change and approval to each planning authority that works within its region.
- M3 should read …The planning authority shall have records that it provided the documentation required in R1 within 30 calendar days of review or change and approval to its transmission planners and load serving entities as required in requirement 3.
-

  In Section D, 2.3 change …evidence… to …record that…

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments: The reliability need exists to ensure an accurate model is available for reliability studies and the generation owner seems like logical entity to be responsible for the provision of such information

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
   MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments: MOD-026-1

   R1.2 -The IESO suggests an appropriate definition or guidelines be added to explain what constitutes "Acceptable methods".

   R1.3 -ditto regarding “periodicity” . It is the IESO view periodicity should be standardized and not Regional specific.

   R1.4 - is this the complete list or is it an example of the type of items to be reported?

   R1.4.1 add …for example… before text in parentheses.

   R1.4.7 drop everything after the second comma. Some methods of verification may require the voltage regulator to be in other modes or out of service.

   R2 suggest deleting …and any changes to those procedures… and changing …of approval… to …of review or change and approval…

In M2 and M3 change …evidence… to …records… In M3 change …provide verification… to …provide records of verification…

MOD-027-1

R2 suggest deleting …and any changes to those procedures… and changing …of approval… to …of review or change and approval…

M2 and M3 change …evidence… to …records…

Where it has been changed from the previous draft (ie under R3 and M1), prefer to see Requirement R1 or R2 as this is what they are actually labelled as.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

- Comments: VAR-001-1
- R3 Suggest changing the phrase…to protect the voltage…. to maintain the voltage
- R4 should be a subbullet of R2..
- R5, R7.1 & M1 A clarification is requested to define what constitutes a voltage or reactive power schedule in the context of a market based system that operates the system to pre-defined bus voltage operating limits and requiring all generators to operate their AVRs in auto voltage control maintaining its terminal voltage within predefined voltage performance criterion and/or follow any specific VAR dispatch instruction issued by the TOP.
- R11 Remove reference to 30 minutes, TOP-007 - IORL/SOS reporting requirements includes the timeline for violations reporting and should be referenced in this standard
- R12 Line above appears to be part of R12, if so then second line, first …the… should be lower case.
- It is IESO's view the standard needs to be developed to incorporate measures/compliance elements for all requirements within the standard and NERC should avoid evolving / developing standards piecemeal.
- VAR-002-1
- R3 This requirement should be reworded to states that the generator shall notify its associated transmission operator "asap" to allow the transmission operator to reprepare the system for the next contingency within 30 minutes.
- M4 should be Requirement 12 instead of Requirement R11.

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

☒ Yes

☐ No

Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments:

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NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☐	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
	☐	5 - Electric Generators
	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
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Group Comments (Complete this page if comments are from a group.)

Group Name: **Transmission Issues Subcommittee**

Lead Contact: Kirit Shah

Contact Organization: NERC

Contact Segment:

Contact Telephone: (314) 554-3542

Contact Email: kshah@ameren.com

Additional Member Name	Additional Member Organization	Region*	Segment*

* 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.

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1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: The requirement R7 should include the periodicty of verification. TIS suggests bi-annual verification.

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: While it is understood that this standard would apply to all generator owners, including wind generator owners, it should be made clear in the standard.

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: TIS has no comments.

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments: For appropriate modeling of the excitation system it is imperative and essential that a valid model is available for simulation.

   The requirement R1.2 should emphasize field verification, testing, and comparision with test results or disturbance monitoring data as acceptable methods. A verification method based only on the manufacturer data should not be acceptable beyond the initial stage of scoping studies. This is because what is out in the field needs to be modeled and not the typical or design data provided by the manufacturer.

   The requirement R1.4 should also include test response data at some appropriate generation level to supplement the open circuit test response data requirement included in R1.4.5.

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments:

   MOD-026-1 : (1) The Requirement R1.2 should emphasize field verification, testing, and comparision with test results or disturbance monitoring data as acceptable methods. A verification method based only on the manufacturer data should not be acceptable beyond the initial stage of scoping studies. This is because what is out in the field needs to be modeled and not the typical or design data provided by the manufacturer. (2) The requirement R1.4 should also include test response data at some appropriate generation level to supplement the open circuit test reaponse data requirement included in R1.4.5. (3) The requirement R1.3 should require a maximum five year period for verification. Furthermore, whenever there is a change in equipment or a setting change, the generator excitation system should be retested.

   MOD-027-1 : The requirement R1.3 should require a maximum five year period for verification. Furthermore, whenever there is a change in equipment or a setting change, the generator excitation system should be retested.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

   Comments:

   VAR-001-1 : (1) The requirements R4 and R5 should also apply to the wind generator or wind plant at the high voltage side of the wind plant generator step-up transformer (GSU). (2) R10 refers only to first contingency conditions. The drafting team should confirm whether that is the intent of this requirement and/or clarify the starting point scenario to which the contingency is applied.

   VAR-002 -1 : The standard drafting team should clarify that requirement R1 also applies to non-synchronous generators that have automatic voltage regulators. Requirement R2 of the standard should be clarified to also apply to non-synchronous generators.

   VAR-003-1 : Why do both the transmission planner and the planning authority need a method and criteria, as stated in requirement R1?

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments: TIS has no further comments.

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments: NERC standards, pre-Version 0, contained a guidline that required generators to have a range of power factor capability. TIS has observed that this guideline has been ommitted from NERC standards. A power factor requirement for generators does not seem to easily fit in either MOD-025-1 or VAR-003-1. TIS believes the standard drafting team should discuss an appropriate standard to include a requirement for new generators to have the capability of an overexcited power factor of 0.95 or less and underexcited power factor capability of 0.95 or less as measured at the high side of the generator step-up transformer for a synchronous generator or for a wind generator plant. If a generator does not meet this requirement, the generation owner should make alternate arrangements for supplying an equvalent dynamic reactive power capbility to meet this requirement. TIS believes the drafting team should make every effort to incorporate generator power factor requirements into NERC standards.

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NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☐	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
	☐	5 - Electric Generators
	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
	☐	9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: **Midwest Reliability Organization**

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Contact Organization: Midwest Reliability Organization

Contact Segment: 2

Contact Telephone: 306-566-2166

Contact Email: wguttormson@saskpower.com

Additional Member Name	Additional Member Organization	Region*	Segment*
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Alan Boesch	NPPD	MRO	2
Robert Coish	MHEB	MRO	2
Dennis Florom	LES	MRO	2
Ken Goldsmith	ALT	MRO	2
Todd Gosnell	OPPD	MRO	2
Jim Maenner	WPS	MRO	2
Tom Mielnik	MEC	MRO	2
Darrick Moe	WAPA	MRO	2
Pam Oreschnick	XCEL	MRO	2
Dick Pursley	GRE	MRO	2
Dave Rudolph	BEPC	MRO	2
Joe Knight	MRO	MRO	2
The 28 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.

The drafting team asks you to 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. **Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.**

1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: The MRO does not believe that the non-compliance item listed in 2.3 should be level 3. The MRO believes it should be level 2 after comparing it with the the non-compliance item listed in 2.2.

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments:

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: For R3 change Regional Reliability Organization to Planning Authority. For M1 add Planning Authority.

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments: If this requirement is not added it will shift the burden and liability to the Planning Authority and Transmission Planner to translate non-standard models to industry standard models.

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data

MOD-027-1 — Verification and Status of Generating Unit Frequency Response

Comments: For the R1 procedures in MOD-026 and MOD-027 add language requiring the use of the latest standard IEEE or PSS/E excitation system and governor models or a validated user-defined model in absence of an appropriate standard model. Not requiring the use of industry standard models will shift the burden and liability to the Planning Authority and Transmission Planner to translate non-industry standard models to industry standard models. Generation Owners should be allowed additional transition time for updating models as required to meet compliance.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

   Comments: VAR-001-1: For M4 and D2.1.2 change R11 to R12.
   VAR-002-1: For R2.1 please clarify what is meant by alternative method, what alternative methods are acceptable and that manual control is acceptable. For R4 in addition to the Transmission Operator and Transmission Planner, add Planning Authority and Reliability Coordinator as being able to request data from the Generator Owner. For R5.1 change "associated reason" to "technical justification" to match the wording in VAR-001-1 R12 or vice versa.

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments: EOP-005: the MRO does not see the need to move IV.A.M2 and M3 into a new version 1 standard.
   MOD-026 and MOD-027 Levels of Non-Compliance: Failure to comply on the administrative details listed in M1, M2 and M3 should not invoke a high non-compliance level, i.e., greater than level 2. However, the RRO not having a model verification process or the Generator Owner not providing verified models should invoke a high non-compliance level. Also, since the RRO is providing the verification process perhaps it should be involved in determining acceptability of the models and a related compliance level.
   VAR-003: as per the MRO draft 1 comments the MRO recommends that VAR-003 be merged with the TPL set of standards.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	**John K. Loftis, Jr.**	
Organization:	**Dominion - Electric Transmission**	
Telephone:	**(804) 819-2337**	
Email:	**john_loftis@dom.com**	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT	☒	1 - Transmission Owners
☐ ECAR	☐	2 - RTOs, ISOs, Regional Reliability Councils
☐ FRCC	☐	3 - Load-serving Entities
☐ MAAC	☐	4 - Transmission-dependent Utilities
☐ MAIN	☐	5 - Electric Generators
☐ MAPP	☐	6 - Electricity Brokers, Aggregators, and Marketers
☐ NPCC	☐	7 - Large Electricity End Users
☒ SERC	☐	8 - Small Electricity End Users
☐ SPP	☐	9 - Federal, State, Provincial Regulatory or other Government Entities
☐ WECC		
☐ NA - Not Applicable		

Group Comments (Complete this page if comments are from a group.)

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Lead Contact:

Contact Organization:

Contact Segment:

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Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

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Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.

1. Please identify anything you believe needs to be modified before this standard is balloted:
EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: (1) Revise R8. to be consistent with R1.1 of EOP-007. It should read: Each transmission operator shall provide the name, location, megawatt capacity, type of unit, latest date of test, and starting method of the system blackstart generating units in the transmission operator's area to meet the regional requirement for maintaining a database.

   (2) If this recommendation is accepted, revise the reference to number, size, and location of blackstart units in M2 as appropriate.

2. Please identify anything you believe needs to be modified before this standard is balloted:
MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

- Comments: (1) In the Levels of Non-Compliance section, change R1 to Requirement 1 in sections 2.3 and 2.4.
- (2) Requirement R1.1 states: "Design data shall be provided for new or refurbished excitation systems at least one year prior to the in-service date with updated data provided once the unit is in service." The phrase "Design data" can be interpreted many different ways, e.g. "the system is capable of continuously supplying 105% of the nominal rated current to the generator rotor, and 150% ceiling current for a minimum of 30 seconds; Ceiling voltage is based on 1.6 x rated field voltage; the excitation system is rated for the operating conditions of 40°C maximum ambient temperature with 90% non-condensing humidity", etc. are all part of the "Design data". Also, there should be some time limit to provide the final data once in service. Suggest that Requirement R1.1 be reworded as follows: "Dynamic model(s) with preliminary data shall be provided for new or refurbished excitation systems at least one year prior to the in-service date. "As-built" field data shall be provided within 90 days from actual in-service date."

3. Please identify anything you believe needs to be modified before this standard is balloted:
MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: (1) In R3 replace regional reliability organization with planning authority. This will make M3 consistent.

   (2) To be consistent with R1, M1 should refer to both the regional reliability organization and the planning authority.

   (3) In R1.2 delete the phrase "within its service territory" to accommodate load that is dynamically served from another area.

(4) On the whole this standard is poorly written and will be difficult to achieve. In particular the requirement to count each customer once and only once in order to produce a forecast of demand needs to be revisited. Since the subject is producing forecasts, there will be a certain amount of error in the forecast no matter how counting is done. Avoiding double counting is part of minimizing forecast error, but a better standard would be to specify the accuracy expected of the forecast and then to list the components of a good forecast needed to accomplish this. As written, it seems to imply that accuracy may be achieved by simply counting once and only once rather than emphasizing all the aspects of an acceptable forecast. The standard should also refer to the need to coordinate customer loads between load serving entities, particularly where there is shared metering, which would insure that loads are accurately captured.

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments: Dominion - Electric Transmission endorses the requirement that generator owners develop user written models if no standard model exists in the dynamic software currently being used. Someone has to be responsible for making an accurate model available for reliability studies and the generation owner seems like the right entity to be responsible. Also, even when IEEE has developed (after a time lag) a model for a new excitation system, there is an additional time lag of as much as 2 - 3 years before the dynamic software developers make it available as a standard model. Ideally, the equipment manufacturer (Alstom, GE, etc.), the generator owner, and the software developer (Siemens/PTI, GE, etc.), IEEE (and perhaps IDWG?), should work together to develop an accurate model for any new system.

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
   MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments: (1) In M3 of MOD-026 delete "to the regional reliability organization, and appropriate transmission planner and planning authority" to make it consistent with R3. A similar change needs to be made to M3 of MOD-027 for the same reason.

   (2) On a general note, why is each regional reliability organization being delegated responsibility for developing regional methods to verify models and data vs. the development of global requirements that would be applicable to all RROs on a consistent basis?

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
   VAR-001-1 — Voltage and Reactive Control
   VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
   VAR-003-1 — Assessment of Reactive Power Resources

   Comments: (1) On VAR-001 not all of the requirements are captured in the measurements.

(2) In VAR-003 Levels of Non-Compliance section 2.4.1 insert the words "evidence of a" after "No" to provide a way to assess M1.

(3) In VAR-001, R10 remove "first" so as not to limit this requirement to first contingency conditions. As written with or without removing "first", R10 provides no additional information not already required in R3. This requirement would read better if the current R10.1 was relabeled R10 and the current R10's repeat of R3's requirement be removed.

(4) The requirements of VAR-002 are confusing. The requirement seems to be for a cumulative total over a rolling 12-month period, but the compliance reset timeframe is shown as one calendar year. It would seem that the reset period should be shown as one month. Also, it is assumed that compliance is cumulative, that is, that incidents of noncompliance within the rolling 12 months are additive. These requirements should be reworded to be clearer.

(5) Since deviation from schedules will constitute the basis for noncompliance, and that the allowable magnitude of this deviation will be established by the transmission operator alone, it seems that VAR-001 should spell this out more specifically in the duties of the TO.

(6) There seems to be nothing written in the levels of Non-Compliance about the Generator Operator being out of compliance for not maintaining records, so if the generator operator does not keep any evidence of being out of compliance is he meeting the standard or is this only implied?

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments:

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	**Kathleen Goodman**	
Organization:	**ISO New England**	
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NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☒ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
	☒	2 - RTOs, ISOs, Regional Reliability Councils
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Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

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1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: None.

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: Drafting Team should match Proposed Effective Date with Anticipated Actions Date in this standard. MOD-012-0 should also be revised once MOD-013-1 is approved because MOD-013-0 requirements are referenced in MOD-012-0.

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: Drafting Team should match Proposed Effective Date in the standard with the Proposed Effective Date in the Implementation Plan. ISO NE recommends that R3 should read "The Planning Authority " instead of "regional reliability organization" to be consistent with M3.

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments: None.

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments: The above Standards should each be broken into RRO requirements and GO requirements similar to PRC-002-1 & PRC-018-1. In addition the timeline for implementation should be staggered, taking an approach similar to PRC-018-1, to allow the Areas and the Generator Owners sufficient time to assimilate the details contained in what may be a set of newly established RRO procedures and criteria that would otherwise require immediate compliance.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

   Comments: In VAR-003 Section R 2 . 2 the assessment should be optionally conducted "jointly" instead of specifically conducting "separate" annual Reactive Resource assessments.

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☐ Yes

   ☒ No

   Comments: The proposed effective date for TOP-002-1 is not shown in the implementation plan. The drafting team needs to better match the effective dates with those shown either for Anticipated Actions or Proposed Effective Date. Please refer to the previous comments.

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments: ISO NE agrees with the premise to have design data for new or refurbished excitation systems provided at least one year prior to the in-service date with updated data provided within 2 weeks of the unit being in-service. There should also be a requirement to provide updated data within 2 weeks of changes.

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

Group Comments (Complete this page if comments are from a group.)

Group Name: **CP9, Reliability Standards Working Group**

Lead Contact: Guy V. Zito

Contact Organization: Northeast Power Coordinating Council

Contact Segment: 2

Contact Telephone: 212-840-1070

Contact Email: gzito@npcc.org

Additional Member Name	Additional Member Organization	Region*	Segment*
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Kathleen Goodman	ISO-New England	NPCC	2
Bill Shemley	ISO-New England	NPCC	2
David Kiguel	Hydro One Networks	NPCC	1
Shashi Parehk	MA Dept. of Tele. and Elec.	NPCC	9
Peter Lebro	National Grid US	NPCC	1
Roger Champagne	TransEnergie	NPCC	1
Al Adamson	New York State Reliability Ccl	NPCC	2
Bob (Vinod) Kotecha	Con Edison	NPCC	1
Dave Little	Nova Scotia Power	NPCC	1
Greg Campoli	New York ISO	NPCC	2
Guy V. Zito	Northeast Power Coor. Council	NPCC	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.

The drafting team asks you to 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. **Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.**

1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: No Comment-

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: No Comment

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: No Comment

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments:

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
   MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments: No Comment
6. Please identify anything you believe needs to be modified before this set of standards is balloted:

VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

Comments: In VAR-003 Section R 2 . 2 the assessment should be optionally conducted "jointly" instead of specifically conducting "separate" annual Reactive Resource assessments.

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments: No Comment

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	**Howard Rulf**	
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NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☒	3 - Load-serving Entities
	☒	4 - Transmission-dependent Utilities
	☒	5 - Electric Generators
	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
	☐	9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

* 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.

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1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments:

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments:

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments:

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☐ Yes

   ☒ No

   Comments: This requirement would be onerous for companies like We Energies because we do not have personnel familiar with or available to develop planning models for excitation systems. This expertise resides with the transmission owner/operator in our case.

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
   MOD-027-1 — Verification and Status of Generating Unit Frequency Response

Comments:

– MOD-026-1 Verification of Models & Data for Generator Excitation System Functions

–

C. M3: The generator owner is required to show verification to the RRO and "appropriate transmission planner and planning authority". This requirement should be revised. It should be sufficient to report this information to the RRO, which should be responsible to transfer necessary data to the transmission planner or other entities.

~ MOD-027-1 Verification of Generator Unit Frequency Response

C. M3: Similar to above comment. The generator owner is required to show evidence it provided frequency response data to the RRO and "transmission planner and transmission operator". This requirement should be revised. It should be sufficient to report this information to the RRO, which should be responsible to transfer necessary data to the transmission entities.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

   Comments:

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☐ Yes

   ☐ No

   Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments:

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
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NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☐	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
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	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
	☐	9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: **Pepco Holdings, Inc. - Affiliates**

Lead Contact: Richard J. Kafka

Contact Organization: Pepco Holdings, Inc.

Contact Segment: 1

Contact Telephone: (301) 469-5274

Contact Email: rjkafka@pepcoholdings.com

Additional Member Name	Additional Member Organization	Region*	Segment*
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James Newton	Pepco Energy Services	MAAC	6
David Thorne	Potomac Electric Power Company	MAAC	1

* 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.

The drafting team asks you to 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. **Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.**

1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: PJM requires annual testing of black start units. This does not appear to be unduly burdensome and gives greater assurance of successful black start when required. Fives years is a very long time for units that may not run otherwise. PHI assumes that Attachment 1 (of EOP-005-0) still applies - it should be included in the package.

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: none

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: Implementation date in draft standard is inconsistent with date shown in Implementation Plan.

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments: A Generator Owner who has obtained a new design excitation system should be able to work with the vendor to devop a model.

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**

MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
MOD-027-1 — Verification and Status of Generating Unit Frequency Response

Comments: MOD-026 -1: See response to Question 4. PHI agrees that MOD-026 and MOD-027 should be field tested before they are sumbmitted for ballot.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

   Comments: VAR-003 appears to duplicate the requirements of TPL-001-0

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments:

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	**Lynn Aspaas**	
Organization:	**Bonneville Power Administration**	
Telephone:	**360-418-2728**	
Email:	**lmaspaas@bpa.gov**	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☒ WECC ☐ NA - Not Applicable	☒	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☒	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

* 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.

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1. Please identify anything you believe needs to be modified before this standard is balloted: **EOP-005-1 — System Restoration Plans (Modified Version 0)**

   Comments:

2. Please identify anything you believe needs to be modified before this standard is balloted: **MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)**

   Comments:

3. Please identify anything you believe needs to be modified before this standard is balloted: **MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)**

   Comments: Requirement R1 - What is the reason for required reporting of "net energy for load data"? Computer simulation models used to validate past events and conduct future system reliability assessments use demand data. The requirement for "net energy for load data" should be omitted.

   Requirement R1.2 - Replace "load serving entity" with "entities responsible for reporting customer demand." Small load serving entities may have some other entity reporting customer demand for them to other organizations.

   There are several places that state "... within 30 calendar days of approval." What is approval referring to? If it refers to the Standard or the referenced documentation this would only be a one time requirement, not a Standard that could be assessed on an ongoing basis. It would make more sense if this time frame were tied to when the documentation was requested by some other entity.

   Requirements R2 and R3 appear redundant.

   Please clarify the Measures and their relation to the Requirements. Does the RRO develop documentation as required in Requirement R1, make this available to the Planning Authority, then the Planning Authority makes this documentation available to Transmission Planners and LSE's? Or do the RRO and Planning Authority develop seperate documentation as required in Requirement R1, and then make this available to the appropriate entities?

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a

user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

☐ Yes

☒ No

Comments: All models in the data base should utilize standard library models. If user defined models are used, the data is not convertible between programs. Not all transmission planners use the same computer programs (e.g. PSSE, PSLF). If there are not adequate standard excitation models available, the Generator Owner should be responsible for working with the vendors to develop the required standard models.

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments: There are several places in both MOD-026 and MOD-027 that state "... within 30 calendar days of approval." What is approval referring to? If it refers to the Standard or the referenced documentation this would only be a one time requirement, not a Standard that could be assessed on an ongoing basis. It would make more sense if this time frame were tied to when the documentation was requested by some other entity.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

   Comments: VAR-001, VAR-002, VAR-003 - All generators, synchronous and non-synchronous, should make every effort to provide system voltage support. The references that note "synchronous generators" should be removed so that it is clear that these stardards are applicable to all generators connected to the

   VAR-001

   Requirement R6, Should there be some measure that applies to the purchasing-selling entity that ensures this requirement was carried out?

   Requirement R7, There should be a measure for this requirement that specifies how this information is to be documented and how often.

   Measure M4 seems to refer to Requirement 12 not Requirement R11.

   There are many requirements in this Standard which do not have associated measures. Perhaps this Standard is not ready for balloting.

   VAR-002

   Requirement R5.1 states "... the generator operator shall notify the transmission operator and shall provide the associated reason." This statement does not allow for partially meeting the transmission operators specifications. There may be cases where transformer taps can be changed to provide some benefit, but cannot be changed in the full range to meet the specification. Rather than the requirement to give an associated reason not to change transformer taps, there should be flexibility to be able to change some taps in conjunction with other options.

   VAR-003

We believe the contents of this Standard should be included in the TPL series of Standards. Having all Standards associated with assessing transmission system performance consolidated in one place saves time and helps ensure that transmission planners include all the necessary studies required to show compliance.

The terms "static and dynamic" should be removed from the Standard. In general, reactive power requirements and voltage issues are specific to both the location and cause of a voltage stability problem (e.g. local load reactive demand, transmission line reactive losses) and need to be assessed on a case by case basis. The mix of static and dynamic reactive power requirements is very different for different areas. Also, having a specific requirement for dynamic reactive power for an area does not ensure the reactive power source will provide the reactive support necessary based on the location of the source relative to the voltage problem.

If the terms "static and dynamic" are to be included in this Standard there needs to be definitions for static and dynamic reactive power sources. For example, dynamic reactive power sources could include 1) shunt capacitors or reactors that switch automatically on voltage control or as part of an SPS, 2) static VAR compensator, 3) synchronous condensor, or 4) synchronous generator. A static reactive power source could be shunt capacitors or reactors that are switched manually or with some time delay.

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments:

   TOP-002

   Requirement R8 states "... shall plan to meet voltage and/or reactive limits, ..." It would make more sense for this sentence to refer to "requirements" rather than "limits".

   Requirement R16.2 - It seems an example that would better reflect system operations would be "system operating limits" rather than "transmission facility ratings."

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	**Mohan Kondragunta**	
Organization:	**SCE**	
Telephone:	**626 302-4725**	
Email:	**kondram@sce.com**	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☒ WECC ☐ NA - Not Applicable	☒	1 - Transmission Owners
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Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

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1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: None --

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: None

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: Please see comments submitted by the WECC Loads and Resources Subcommittee.

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments:

   SCE agrees with the concern raised about the accuracy of models for excitation system response but believes that new models should be developed by having the generator owner work with the program vendors to develop the model. The models should be included in the program model libraries.

   SCE requires that the models be part of the standard programs and that the data provided by the generator owner be consistent with the models contained in the standard programs. SCE does not accept user-defined models as such models may not have been adequately checked and verified. In addition, user-defined models in one program are difficult, if not impossible to convert to other programs

It is important that generator owners and generator vendors work together with program vendors to develop models that are industry accepted and shared. Models must not be proprietary. There must be a way to transfer/convert data between programs.

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments:

   MOD-026-1:

   The R1.4 subrequirements are too proscriptive and request information that is not applicable to all generators. Suggest deleting R1.4.

   MOD-027-1:

   R1 should set the minimum requirement and the RRO can set something more stringent. For example "up to 30 seconds" should be changed to "minimum of 30 seconds" as a RRO may require more than 30 seconds for post-transient simulations.

   The R1.4 subrequirements are too proscriptive and request information that is not applicable to all generators. Suggest deleting R1.4

   .

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

   Comments:

   VAR-001-1:

   R4 and R5 should be applicable to all generators. Therefore, delete the word "synchronous" from both requirements.

   R8: How does a transmission operator demonstrate compliance with this requirment?

   R11: Delete "and complete the required IROL or SOL violation reporting.' This is redundant with the requirements of TOP-007. Is is not appropriate for one standard to require compliance with another approved standard.

   M2: Which requirement does this measure apply to?

   VAR-002-1:

   R2 and R3: Is it required that generator owners store the data requested in R2 and R3? How should they provide evidence that they have complied with these requirements.

   R2: This requirement should be applicable to both synchronous and induction generators. WECC requires that Induction generators provide reactive support (SVC)

   VAR-003-1:

   no comment

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☐ Yes

   ☒ No

   Comments:

   Implementation dates of August 1, 2007 make it difficult to include in 2007's compliance enforcement program. It is proposed that the implementaion date for these standards be moved out to January 1, 2008.

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments:

   TOP-002:

   Before any requirement can be implemented, there needs to be a measure. For example, VAR-001-1 has 13 requirements but only 4 measures.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	**Roger Champagne**	
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NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☒ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☒	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☐	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
	☐	5 - Electric Generators
	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
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Group Comments (Complete this page if comments are from a group.)

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Additional Member Name	Additional Member Organization	Region*	Segment*

* 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.

The drafting team asks you to 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. **Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.**

1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: No Comment

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: No Comment

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: No Comment

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments:

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
   MOD-027-1 — Verification and Status of Generating Unit Frequency Response

Comments: We suggest that in MOD-026-1 and MOD-027-1 R1, the procedures includes the necessity for testing of generator excitation system functions and generator unit frequency response. We feel that manufaturer data only is not sufficient.

In MOD-027-1, in the title and purpose, the words "and status" are crossed although we still find them in R1 and M1, correction to make it consistent is needed.

In MOD-027-1R1, to make it consistent with M1, the procedure should address "verification and reporting".

In MOD-027-1R1.4, provision should be made to include model of turbine / prime mover.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

   Comments:

   In VAR-001-1 R5, voltage schedule should be the normal setting with reactive schedule being the exception.

   In VAR-003 Section R 2 . 2 the assessment should be optionally conducted "jointly" by planning authority and transmission planner instead of specifically conducting "separate" annual Reactive Resource assessments.

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments: No Comment

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☒ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☒	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
	☒	5 - Electric Generators
	☒	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
	☐	9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

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1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: Part of the Black Start Restoration Plan should include a requirement for an appropriate level of coordination with the generation owner/operators that are sited in the plan. This coordination could be documented in the form of an agreement between the administrator of the Black Start Plan and the Generator Owners/Operators participating in the Plan. The coordination agreement should include items such as: identification of generator owner/operator facilities required to participate in the black start plan, when and how quickly a blackstart unit must respond, and what cranking path require energization.

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: Recommend that the last sentence of R1.2.1 be revised or removed to account for generation owners procurement of multiple 'in-kind' generation equipment. This would eliminate needless and costly testing of generators procured under the same contract that perform to the same specs.

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: none

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☐ Yes

   ☒ No

   Comments: All models in the data base should utilize standard library models. If user defined models are used, the data is not convertible between programs. Not all transmission planners use the same computer programs (e.g. PSSE, PSLF). If there are not adequate standard excitation models

available, the Generator Owner should be responsible for working with the vendors to develop the required standard models.

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments: none

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

   Comments: The references that note "synchronous generators" should be removed so that it is clear that these stardards are applicable to all generators.

   Requirement R6: What measure is applied to the purchasing-selling entity?

   VAR-002

   R2 and R3: Clarify whether data storage becomes necessary for compliance.

   VAR-003

   The terms "static and dynamic" should be removed from the Standard or further defined. In general, reactive power requirements and voltage issues are specific to both the location and cause of a voltage stability problem (e.g. local load reactive demand, transmission line reactive losses) and need to be assessed on a case by case basis, i.e., area specfic.

   Consider developing a measurement that would support/demonstrate the ability of a reactive power source(s) provide the necessary reactive support to an area based on the location of the source relative to the voltage problem.

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☐ Yes

   ☐ No

   Comments: none

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

Comments:

Each requirement must be supported by a measurement. Those standards that have requirements without measurements need revising.

TOP-002 is not included as one of the standards set for comment in this comment form. Please clarify.

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Group Comments (Complete this page if comments are from a group.)

Group Name: **ISO/RTO Council**

Lead Contact: Bruce Balmat

Contact Organization: PJM

Contact Segment: 2

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Sam Jones	ERCOT		2
Ron Falsetti	IESO		2
Pete Brandien	ISONE		2
Bill Phillips	MISO	`	2
Mike Calimano	NYISO		2
Charles Yeung	SPP		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.

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Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.

1. Please identify anything you believe needs to be modified before this standard is balloted:
EOP-005-1 — System Restoration Plans (Modified Version 0)

Comments: It is the IRC's view the standard needs to be developed to incorporate compliance elements for all requirements within the standard and NERC should avoid evolving / developing standards piecemeal. These added requirements are in the right place in this Standard but the entire Standard ought to be revised rather than adding small parts to it.

Requirement R1 specifies that only the applicable elements of Attachment 1 need be included within the plan while the level 4 non-compliance is based on exclusion of two or more elements from the attachment. We recommend inclusion of …."applicable "…in the level 4 compliance level to be consistent.. We also suggests an appropriate definition or guidelines to be added to explain what constitutes "Applicable elements".

In 2.4.1, remove …"exists but"… 2.4.2 can then be deleted.

Add …"were not provided"… to the end of 2.4.3 and delete …"No"… at the beginning of 2.4.3.

R7 The IRC suggests guidelines/clarification be provided to explain what constitutes "testing" or "simulation" of the restoration procedure. Is it intended that only simulations through the use of a simulator constitute compliance or will table top restoration plans exercises satisfy this requirement.

R4. Should generators be included given that they are a key part for restoration plans?

R5. Change to upper case for BA. "periodically" should be a more specific term i. e. yearly, etc.

R8. and R10. They might be blended in one text.

R10." ..through simulation .." Should be provided a definition for simulation? and if so, consider specifing to what extend.

Also, Attachment 1 is not included for review.

2. Please identify anything you believe needs to be modified before this standard is balloted:
MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

– Comments: In our comments for MOD-028 (see below), we stated that some items were still required to be added to MOD-013, before MOD-028 could be retired. Our position remains the same..

– The IRC disagrees with the drafting teams position that all the information within this standard is redundant and contained within MOD-012 & MOD-013, As an example, Requirement R2 (data has to be validated every five years) is not in the above noted standards. This requirement should be moved to MOD-013. With the above recommendation, MOD-028 could then be retired.

–

3. Please identify anything you believe needs to be modified before this standard is balloted:
MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

– Comments: The drafting team should remember that this Standard deals with energy data along with demand data. Compliance elements need to be developed for all the requirements in this standard. Standards should not be revised piecemeal. These added requirements are in the right place in this Standard but the entire Standard should be revised rather than making a change to a small part of it.

˜ Requirement R1.1 should be revised to exclude references to specific standards but identify that consistent data is to used for all standards associated with adequacy and transmission assessments. Otherwise the Standard will need to be revised anytime that one of these referenced Standards is revised? For example, the Phase III & IV Standard Drafting Team is proposing that MOD-013-0 be revised and renumbered MOD-013-1.

Suggest replacing R1.1 with…"The documentation required in R1 shall ensure that consistent data is supplied for all NERC Reliability Standards where such data is required to be submitted or used for resource and transmission adequacy assessments."

In R1.2 change …"requirements"… to …"documentation required in R1"… to align better with R1.

R3 should read …"The planning authority shall distribute"… to be consistent to Measure M3.

In Section D, 2.3 change …"evidence"… to …"record that"…

R3 …"regional reliability organization"… should probably be …"planning authority"…

In R2 and R3, suggest deleting …"for reporting customer demand data, and any changes to that documentation,"… and changing …"of approval"… to …"of review or change and approval"…

M1 should read …"The regional reliability organization's documentation and the planning authority's documentation identified in Requirement 1 shall contain all items required."

M2 should read …"The regional reliability organization shall have records that it provided the documentation required in R1 within 30 calendar days of review or change and approval to each planning authority that works within its region."

˜ M3 should read …"The planning authority shall have records that it provided the documentation required in R1 within 30 calendar days of review or change and approval to its transmission planners and load serving entities as required in requirement 3."

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

☒ Yes

☐ No

Comments: The reliability need exists to ensure an accurate model is available for reliability studies and the generation owner seems like logical entity to be responsible for the provision of such information.

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
MOD-027-1 — Verification and Status of Generating Unit Frequency Response

Comments: MOD-026-1

R1.2 -The IRC suggests an appropriate definition or guidelines be added to explain what constitutes "Acceptable methods".

R1.3 -The same comment applies regarding "periodicity" . It is the IRC view periodicity should be standardized and not Regional specific. Regions cuold review more frequently if they desired to do so.

R1.4 - is this the complete list or is it an example of the type of items to be reported?

R1.4.1 add …"for example"… before text in parentheses.

R1.4.7 drop everything after the second comma. Some methods of verification may require the voltage regulator to be in other modes or out of service.

R2 suggest deleting …"and any changes to those procedures"… and changing …"of approval"… to …"of review or change and approval"…

In M2 and M3 change …"evidence"… to …"records"… In M3 change …"provide verification"… to …"provide records of verification"…

MOD-027-1

R2 suggest deleting …"and any changes to those procedures"… and changing …"of approval"… to …"of review or change and approval"…

M2 and M3 change …"evidence"… to …"records"…

Where it has been changed from the previous draft (ie, under R3 and M1), prefer to see Requirement R1 or R2 as this is what they are actually labelled as.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

- Comments: VAR-001-1
- R3 Suggest changing the phrase…"to protect the voltage"…. to "maintain the voltage"
- R4 should be a subbullet of R2..
- R5, R7.1 & M1 A clarification is requested to define what constitutes a voltage or reactive power schedule in the context of a market based system that operates the system to pre-defined bus voltage operating limits and requiring all generators to operate their AVRs in auto voltage control maintaining its terminal voltage within predefined voltage performance criterion and/or follow any specific VAR dispatch instruction issued by the TOP.
- R11 Remove reference to 30 minutes, TOP-007 - IORL/SOS reporting requirements includes the timeline for violations reporting and should be referenced in this standard rahter than included again here.
- R12 Line above appears to be part of R12, if so then second line, first …"the"… should be lower case.

- It is the IRC's view the standard needs to be developed to incorporate measures/compliance elements for all requirements within the standard and NERC should avoid evolving / developing standards piecemeal.
- VAR-002-1
- R3 This requirement should be reworded to states that the generator shall notify its associated transmission operator "asap" to allow the transmission operator to re-prepare the system for the next contingency within 30 minutes.
- M4 should be Requirement 12 instead of Requirement R11.
- VAR-002-1 in R5 last line remove the first …"or"…
- In all Measurements and in Compliance section 1.3, change …"evidence"… to …"records"…
- VAR-003-1 in R2.1 change …"known"… to …"common"…
- The first sentence in R2.2 is very difficult to determine compliance for. The first sentence of R2.2 should be deleted unless criteria is supplied.
- In all Measurements, change …"evidence"… to …"records"…
- No mention of Measurement 3 in Levels of Non-Compliance.
- In Section D 2.2 change …"known"… to …"common"…

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments:

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:	**Mark Kuras**	
Organization:	**MAAC/PJM**	
Telephone:	**610-666-8924**	
Email:	**kuras@pjm.com**	
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☒ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
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1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: Compliance elements need to be developed for all the requirements in this standard. Standards should not be revised piecemeal. These added requirements are in the right place in this Standard but the entire Standard needs to be revised not just a small part added. There is no Attachment 1 to review. In 2.4.1, remove …exists but… 2.4.2 can then be deleted. Add …were not provided… to the end of 2.4.3 and delete …No… at the beginning of 2.4.3.

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments:

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: Drafting team should remember that this Standard deals with energy data along with demand data. Compliance elements need to be developed for all the requirements in this standard. Standards should not be revised piecemeal. These added requirements are in the right place in this Standard but the entire Standard needs to be revised not just a small part added. Concern about the references in R1.1. Will this Standard need to be revised anytime that one of these other Standards is revised? For example, the Phase III & IV Standard Drafting Team is proposing that MOD-013-0 be revised and renumbered MOD-013-1. Suggest deleting the present text of R1.1 and replacing it with…The documentation required in R1 shall ensure that consistent data is supplied for all NERC Reliability Standards where such data is required to be submitted. In R1.2 change …requirements… to …documentation required in R1… to align better with R1. R3 …regional reliability organization… should probably be …planning authority… In R2 and R3, suggest deleting …for reporting customer demand data, and any changes to that documentation,… and changing …of approval… to …of review or change and approval… M1 should read …The regional reliability organization's documentation and the planning authority's documentation identified in Requirement 1 shall contain all items required. M2 should read …The regional reliability organization shall have records that it provided the documentation required in R1 within 30 calendar days of review or change and approval to each planning authority that works within its region. M3 should read …The planning authority shall have records that it provided the documentation required in R1 within 30 calendar days of review or change and approval to its transmission planners and load serving entities as required in requirement 3. In Section D, 2.3 change …evidence… to …record that…

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments: Someone has to be responsible for making an accurate model available for reliability studies and the generation owner seems like the right entity to be responsible.

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
   MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments: In MOD-026-1 in R1.4.1 add …for example… before text in parentheses. In R1.4.7 drop everything after the comma. Some methods of verification may require the voltage regulator to be in other modes or out of service. In R2 suggest deleting …and any changes to those procedures… and changing …of approval… to …of review or change and approval… In M2 and M3 change …evidence… to …records… In M3 change …provide verification… to …provide records of verification… In MOD-027-1 In R2 suggest deleting …and any changes to those procedures… and changing …of approval… to …of review or change and approval… In M2 and M3 change …evidence… to …records…

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
   VAR-001-1 — Voltage and Reactive Control
   VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
   VAR-003-1 — Assessment of Reactive Power Resources

   Comments: VAR-001-1, R4 should be a subbullet of R2. In R12, second line, first …the… should be lower case. VAR-002-1 in R5 last line remove the first …or… In all Measurements and in Compliance section 1.3, change …evidence… to …records… VAR-003-1 in R2.1 change …known… to …common… The first sentence in R2.2 is very difficult to determine compliance for. The first sentence of R2.2 should be deleted unless criteria is supplied. In all Measurements, change …evidence… to …records… No mention of Measurement 3 in Levels of Non-Compliance. In Section D 2.2 change …known… to …common…

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments:

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NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☐	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
	☐	5 - Electric Generators
	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
	☐	9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name: **WECC Reliability SubCommittee**

Lead Contact: Scott Waples

Contact Organization: Avista

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*
Ben Morris	Pacific Gas and Electric	WECC	1
Rebecca Berdahl	Bonneville Power Administation	WECC	
Mo Beshir	Los Angeles DWP	WECC	1
Craig Cameron	Saramento Municpal Utility Dist	WECC	
Steve Ruekert	WECC	WECC	2
Ron Schelberg	Idaho Power Company	WECC	1
Jim Whitaker	XCEL Energy	WECC	1
Phil Park	Britiish Columbia TC	WECC	
Mohan Kondragunta	Southern California Edison	WECC	1
Chuck Matthews	BPA	WECC	1
Brian Keel	Salt River Project	WECC	1
Julie Reichle	Northwestern	WECC	1
Michael Sidiropoulos	PacifiCorp	WECC	1
Leonard York	Western Area Power Administratio	WECC	
Mariam Mirzadeh	WAPA-SNR	WECC	1

* 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.

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1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: None --

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: None

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: Please see comments submitted by the WECC Loads and Resources Subcommittee.

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments:

   We agree with the concern raised about the accuracy of models for excitation system response but believe that new models should be developed by having the generator owner work with the program vendors to develop the model. The models should be included in the program model libraries.

   WECC requries that the models be part of the standard programs and that the data provided by the generator owner be consistent with the models contained in the standard programs. WECC does not accept user-defined models as such models may not have been adequately checked and verified. In addition, user-defined models in one program are difficult, if not impossible to convert to other programs

It is important that generator owners and generator vendors work together with program vendors to develop models that are industry accepted and shared. Models must not be proprietary. There must be a way to trasfer/convert data between programs.

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments:

   MOD-026-1:

   The R1.4 subrequirements are too proscriptive and request information that is not applicable to all generators. Suggest deleting R1.4.

   MOD-027-1:

   R1 should set the minimum requirement and the RRO can set something more stringent. For example "up to 30 seconds" should be changed to "minimum of 30 seconds" as a RRO may require more than 30 seconds for post-transient simulations.

   The R1.4 subrequirements are too proscriptive and request information that is not applicable to all generators. Suggest deleting R1.4

   .

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

   Comments:

   VAR-001-1:

   R4 and R5 should be applicable to all generators. Therefore, delete the word "synchronous" from both requirements.

   R8: How does a transmission operator demonstrate compliance with this requirment?

   R11: Delete "and complete the required IROL or SOL violation reporting.' This is redundant with the requirements of TOP-007. It is not appropriate for one standard to require compliance with another approved standard.

   M2: Which requirement does this measure apply to?

   VAR-002-1:

   R2 and R3: Is it required that generator owners store the data requested in R2 and R3? How should they provide evidence that they have complied with these requirements?

   R2: This requirement should be applicable to both synchronous and induction generators. WECC requries that Induction generators provide reative support (SVC)

   VAR-003-1:

   no comment

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☐ Yes

   ☒ No

   Comments:

   Implementation dates of August 1, 2007 make it difficult to include in 2007's compliance enforcement program. It is proposed that the implementaion date for these standards be moved out to January 1, 2008.

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments:

   TOP-002:

   Before any requirement can be implemented, there needs to be a measure. For example, VAR-001-1 has 13 requirements but only 4 measures.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☒ WECC ☐ NA - Not Applicable	☒	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☒	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
	☒	5 - Electric Generators
	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
	☐	9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

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1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: No comment

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: No comment

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: No comment

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments: No comment

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
   MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments: No comment
6. Please identify anything you believe needs to be modified before this set of standards is balloted:

VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

Comments: No comment

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

☐ Yes

☒ No

Comments: Implementation dates of August 1, 2007 make it difficult to include in 2007's compliance enforcement program. It is proposed that the implementaion date for these standards be moved out to January 1, 2008.

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

Comments: No comment

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☒	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☐	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
	☐	5 - Electric Generators
	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
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Group Comments (Complete this page if comments are from a group.)

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Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

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1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments:

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: Will this reliability standard also apply to wind generators?

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments:

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments:

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
   MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments: MOD-026-1 : (1) Requirement R1.2 should place greater weight on testing and field verification of equipment as installed, rather than use of typical manufacturer's data for the generator excitation systems.

Typical manufacturer data may be adequate for early phases of study work, but would need to be updated with model data based on the actual equipment to be installed. (2) R1.3 should specify a maximum time period for verification (five years), rather than leave the periodicity completely open.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
   VAR-001-1 — Voltage and Reactive Control
   VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
   VAR-003-1 — Assessment of Reactive Power Resources

   Comments: VAR-001-1 : (1) In R1, the first sentence mentions the development of policies and procedures, while in Reliability Standard VAR-003-1, Requirement R1, the first sentence mentions the establishment of a method and criteria for assessing reactive power requirements. Do the terms 'policies and procedures' and 'method and criteria' have the same meaning in these standards or is something different meant for each set of these terms? (2) Will this standard apply to wind generation? If not, will a separate standard be developed for wind generation? (3) Requirement R3 covers normal and contingency conditions, while R10 mentions only first contingency conditions. Is there a reason for this difference? Also, it is not clear what is meant in the second sentence in R3 by the phrase 'transmission operator's share of the reactive requirements of interconnecting transmission circuits'. What would be the reactive requirements of transmission circuits? (4) Will R6 also apply to wind generation absorbing reactive power at the point of interconnection? (5) In R10.1, does 'disperse and locate' mean the same as 'dispatch'? If so, changing the wording to 'dispatch' would make the meaning clearer. (6) Requirement R12, the corresponding measurement M4, and corresponding Compliance section 2.1.2, which cover generator step-up transformer tap changes and related documentation, would be better located within Reliability Standard VAR-003-1. Reliability Standard VAR-001-1 deals with voltage and reactive control in real time, while Reliability Standard VAR-003-1 deals with reactive power resource assessment in the planning time frame.

   VAR-003-1 : Requirement R1 states that the transmission planner and planning authority shall each establish a method and criteria for assessing reactive power requirements. Why would both entities need to do this?

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments: TOP-002-1 : At present, a number of system studies are performed at the regional level. Therefore, the first sentence of Requirement R11 should read: The transmission operator or designee shall perform seasonal, next-day, and current-day bulk electric system studies to determine SOLs.

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region		**Registered Ballot Body Segment**
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	☒	2 - RTOs, ISOs, Regional Reliability Councils
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1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: R3 says each transmission operator shall develop restoration plans with a priority of restoring the integrity of the Interconnection. BCTC is concern this requirement may hinder the transmission operators from restoring their own system to a robust state in order to interconnect with adjacent neighbor systems, and may in fact delay the restoration of the Interconnection. BCTC suggest R3 be revised as follows: Each transmission operator shall develop restoration plans with a priority to restore the integrity of its own system in order to quickly restore the integrity of the Interconnection.

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments:

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments:

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☐ Yes

   ☐ No

   Comments:

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**

MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
MOD-027-1 — Verification and Status of Generating Unit Frequency Response

Comments:

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
   VAR-001-1 — Voltage and Reactive Control
   VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
   VAR-003-1 — Assessment of Reactive Power Resources

   Comments:

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☐ Yes

   ☐ No

   Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments:

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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
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NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☒ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
	☐	2 - RTOs, ISOs, Regional Reliability Councils
	☐	3 - Load-serving Entities
	☐	4 - Transmission-dependent Utilities
	☒	5 - Electric Generators
	☐	6 - Electricity Brokers, Aggregators, and Marketers
	☐	7 - Large Electricity End Users
	☐	8 - Small Electricity End Users
	☐	9 - Federal, State, Provincial Regulatory or other Government Entities

Group Comments (Complete this page if comments are from a group.)

Group Name:

Lead Contact:

Contact Organization:

Contact Segment:

Contact Telephone:

Contact Email:

Additional Member Name	Additional Member Organization	Region*	Segment*

* 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.

The drafting team asks you to 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. **Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.**

1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: This standard lists 11 requirements and several sub-requirements (20 in all). However there are only 2 measurements described. The standard should be drafted such that for each requirement there is a defined, documented measure. And each measure should cite which requirement it assesses.

   We believe the number of requirements for this standard could be greatly distilled. For example the bulk of the standard could be comprised of two requirements: R1 the requirement to develop the restoration plan and all the components required of that plan; and R2 the requirement to prove and document that the plan works. Then, two measurements would follow: one to assess the contents of the plan and one to assess the simulation or testing of the plan.

   Additional requirements, such as testing communication systems and performing and documenting training exercises, should each have a corresponding measure.

   R8 of the draft deals with the capabilities of the generating unit. The length of time for the unit to be blackstarted should also be addressed. Although a unit may be blackstart capable it may take an inordinate amount of time to start the unit. The starting time expectations of the plan should be vetted by the generator owner.

   As part of the restoration plan the transmission operator shall also have documented that the generator owner is aware of the plan, aware of the generator's role, and agrees to participate.

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

– Comments: The standard should be drafted such that for each requirement there is a defined, documented measure. And each measure should cite which requirement it assesses.

–

   Requirement R.1.2.2 requires unit-specific data for generators installed after 1990. the justification for this requirement is not clear. Data for sister units should be allowable regardless of the date of installation.

3. Please identify anything you believe needs to be modified before this standard is balloted:
MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments:

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☐ Yes

   ☒ No

   Comments: We believe this is the role of the RRO

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
MOD-027-1 — Verification and Status of Generating Unit Frequency Response

– Comments:

– MOD-026

– This standard should also be applicable to the transmission planner whose role should include performing a quality check on modeling data before it is incorporated into system-wide models.

–

– The RRO procedures should include a reasonable implementation period. This will also allow generator owners with many units to spread out the periodicity of re-validating models.

–

– R1.4.5 requires open circuit test response data. We believe this requirement should be expanded to allow the RRO to include alternate methods of determining machine response such as monitors that capture and record the generator response to real system events.

–

– Each measure should state which requirement it assesses.

–

M3 - We believe the generator owner should provide model verification data only to the transmission planner with the understanding that the modeling data is incorporated into the RRO system-wide model. All eligible entities may then make use of the system-wide models provided by the RRO. Providing the data to more entities increases the risk of incorporating wrong data and confusing the chain of responsibility.

– MOD-027

–

R1 – 30 seconds may not be long enough to capture the response of slower units; recommend it be changed to 60 seconds.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

– Comments: VAR-001

–

– Definitions

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– No new definitions are proposed by this standard; however, the draft standard refers to "voltage schedule" and "reactive power schedule" in several of the requirements. We believe there is widespread difference of opinion or confusion throughout the industry as to what these terms mean. We believe that if "voltage schedule" and "reactive power schedule" are used in the standard, then precise definitions are needed. This further leads to the question of the purpose of the standard including both "voltage schedule" and "reactive power schedule". If reactive power schedule equates to machines operating in VAR control those machines will not be responding automatically to voltage fluctuations or disruptions on the system. This seems counterproductive to our reliability goals. We make a general recommendation that the standard be targeted to voltage control and voltage schedules and not address reactive power schedules. In addition, voltage schedules should include a tolerance band.

–

– Requirements

–

– There are 13 requirements listed for this standard, some with sub-requirements. Only 4 measures are defined; there should be a clear measurement for each requirement. Without a specific measurement paired to each requirement (or sub-requirement) we do not believe compliance can be determined.

–

– Requirement R2 concerns exemptions to requirements R5 and R7. We believe the standard would be more readable if it were listed after R5 and R7 or incorporated into each of those requirements.

–

– Requirement R3 may be the most important in the entire standard yet there is no discernable measure to detect and gauge compliance. The phrase "acquire sufficient reactive resources" is very important for maintaining reliability of the bulk power system; but it has presupposed that there has been a determination as to what reactive margin is required. Of course the devil is in the details and how a Transmission Operator demonstrates and documents that they have accomplished this needs to be somehow defined. This may point to the need for the methods and metrics to be fleshed out at a regional level.

–

– Requirement R5 obligates the Transmission Operator to specify a schedule for each synchronous generator. In addition the requirement has targeted the individual unit level. We recommend the voltage schedule be applicable at the facility or plant level. It is not practical or desirable especially for facilities that include multiple units such as hydro plants or wind farms, to schedule voltage and watts (not vars) at the individual generator level. The voltage schedule should also include a tolerance band.

–

– We believe this voltage requirement should apply to all generation, not just synchronous. The way this requirement is drafted it appears to exempt wind farms and other non-synchronous generators from participating in maintaining system voltages.

–

– Requirement R7 obligates Transmission Operators to know the status of all reactive power sources including AVRs and PSSs. This provision needs to clarify that it means generator is available and if dispatched will operate in voltage control mode and with the PSS active. As written the standard may be interpreted as requiring real time data for each generator's AVR and PSS status. For the Western Interconnection the Western Electricity Coordinating Council (WECC) requires generators to operating in voltage control mode and for those units with PSS to operate with the PSS active. Generation owners report compliance with this policy to WECC on a quarterly basis.

–

– Requirements R8 and R9 appear to overlap significantly. We recommend the drafting team consider consolidating them. We also recommend the language be restricted to maintaining voltage levels rather than reactive flow.

–

–

– VAR-002

–

– We believe the purpose of this standard would more clear if it dealt only with voltage control and voltage levels. We think including reactive power resources and reactive flow only complicates the objective.

–

Requirement R2 and corresponding measure M2 require that the generator follow the voltage schedule and be able to prove it. The compliance process requires that generators retain this evidence for a rolling 12 months. We think some more detail needs to be provided at to how this is to be accomplished. We believe this concept has been worked out within WECC; generator owners are required to operate in the voltage control mode and report compliance on a periodic (quarterly) basis. This process works. However; if the drafters are contemplating some sort of recording device to continually monitor voltage settings and AVR and PSS status and storing that data for 12 months, we think that approach is not needed or cost effective.

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments:

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments:

Please use this form to submit comments on the Phase III & IV Drafting Team's second draft of the first set of Phase III & IV Standards. Comments must be submitted by **December 3, 2005.** You must submit the completed form by emailing 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 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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Individual Commenter Information **(Complete this page for comments from one organization or individual.)**		
Name:		
Organization:		
Telephone:		
Email:		
NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☐ ECAR ☐ FRCC ☐ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☐	1 - Transmission Owners
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Group Comments (Complete this page if comments are from a group.)

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Steve Wallace	Seminole Electric Cooperative	FRCC	4
Garl Zimmerman	Seminole Electric Cooperative	FRCC	5
Mace Hunter	Lakeland Electric	FRCC	5
Alan Gale	Tallahassee Electric	FRCC	5
Bob Schoneck	FPL	FRCC	3
John Shaffer	FPL	FRCC	1
Bob Remley	Clay Electric	FRCC	3
Tom Washburn	OUC	FRCC	3
Greg Woessner	Kissimmee Utility Authority	FRCC	3

* 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.

The drafting team asks you to 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.
Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.

1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: Delete references to Attachment 1 in R1, D2.2 and D2.4.1 (since Attachment 1 has been removed).

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: As written R1.1 is too restrictive for changes made to existing units and would delay implementation of new excitation systems on existing units. With budgeting and bidding requirements, this information may not be available 1 year before the in-service date.

   Remove the words "at least one year" from R.1.1 and add two new requirements R1.1.1 and R1.1.2.

   R1.1.1. For new units, design data shall be provided at least one year prior to the in-service date.

   R1.1.2. For refurbished units, design data shall be provided at least four months prior to the in-service date.

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: In the title, purpose and R1, the term "Controllable Demand-Side Management" is used and is not a defined term. Either change it to "Direct Control Load Management", which is a defined term or define "Controllable Demand-Side Management".

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

Comments: A valid model is necessary for proper simulation. In addition, R1.2 should be re-written to make sure that manufacturer data is only used during the initial stages of development. This data should be replaced by actual field data when it is available.

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments: MOD-026-1 R1 should be modified to include the phrase "if applicable" after the words "power system stablizers" in the first sentence. R1.4 should include a requirement to provide information under an appropriate generation level, in addition to R1.4.5 Open Circuit Test.

   Compliance D1.1.3 Data Retention - RRO requirement - Remove "and previous" from the 1st sentence - There is no need for and no benefit in the RRO retaining "previous" procedures. This requirement could lead to confusion about which procedure is in effect.

   MOD-27-1 Compliance D1.1.3 Data Retention - RRO requirement - Remove "and previous" from the 1st sentence - There is no need for and no benefit in the RRO retaining "previous" procedures. This requirement could lead to confusion about which procedure is in effect.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
VAR-001-1 — Voltage and Reactive Control
VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
VAR-003-1 — Assessment of Reactive Power Resources

   Comments: VAR-001-1 Add a new measure - M5. The Purchasing-Selling Entities shall have evidence to show that they arranged for reactive resources to satisfy their reactive requirements as idenfied by their transmission service provider.

   VAR-002-1 R1 & R2 should address non-synchronous generators.

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments: No additional comments

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments: TOP-002-1 is incomplete and should be modifed and posted for comments. It needs to have Measures and Compliance items added.

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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.)**		
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NERC Region		**Registered Ballot Body Segment**
☐ ERCOT ☒ ECAR ☐ FRCC ☒ MAAC ☐ MAIN ☐ MAPP ☐ NPCC ☐ SERC ☐ SPP ☐ WECC ☐ NA - Not Applicable	☒	1 - Transmission Owners
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* 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.

The drafting team asks you to 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. **Please Enter All Comments in Simple Text Format. To insert a "check' mark in the appropriate box, double-click the gray area.**

1. Please identify anything you believe needs to be modified before this standard is balloted:
   EOP-005-1 — System Restoration Plans (Modified Version 0)

   Comments: The standard is acceptable as written. It is assumed that Attachment 1-EOP-005-1 remains unchanged as it was not provided.

2. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-013-1 — Maintenance and Distribution of Dynamics Data Requirements and Reporting Procedures (Modified Version 0)

   Comments: The proposed effective date of the standard is not consistent throughout various references. The drafting team needs to correct and it is assumed the correct data is August 7, 2007.

3. Please identify anything you believe needs to be modified before this standard is balloted:
   MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management (Modified Version 0)

   Comments: It is suggested that the references to the Reliability Standards in R1.1. be removed and replaced with "…data is supplied for all Applicable Reliability Standards within the TPL and MOD modules." Otherwise, why keep reference to version 0 when version 1 is applicable in some cases.

   Again, proposed effective date should be reviewed as the date reference on the standard does not match the Implementation Plan document. The comments offered regarding Proposed Effect dates should be treated as a general comment for all of the Set 2 standards that the Team to review and adjust as needed.

4. MOD-026 – Some commenters raised a question about the existence of accurate models for excitation system response. These commenters suggested that, if no IEEE standard or PSSE or PSLF/PSDS standard library model adequately represents excitation system response, the Generator Owner should be required to have a user-defined model written and validated and provide documentation to the user community. Do you think this requirement should be added to MOD-026?

   ☒ Yes

   ☐ No

   Comments: However, there should be some minimum MVA size used so that it does not become too onerous for small generator owner projects.

5. Please identify anything you believe needs to be modified before this set of standards is **field tested:**
   MOD-026-1 — Verification of Generator Excitation Systems and Voltage Control Model Data
   MOD-027-1 — Verification and Status of Generating Unit Frequency Response

   Comments: We agree with the drafting team's recommendation to field test the standards prior to ballotting.

6. Please identify anything you believe needs to be modified before this set of standards is balloted:
   VAR-001-1 — Voltage and Reactive Control
   VAR-002-1 — Generator Operation for Maintaining Network Voltage Schedules
   VAR-003-1 — Assessment of Reactive Power Resources

   Comments:

7. Do you agree with the proposed implementation plan? If not, please identify specifically what you feel needs to be modified.

   ☒ Yes

   ☐ No

   Comments: However, the reference to May 1, 2006 in the last sentence before the table is confusing based on the dates/comments in the table.

8. Please provide any other comments on this set of standards that you haven't already provided, including any comments you have on any of the issues highlighted in the associated Background Information for Set Two of the Phase III & IV Standards.

   Comments: It is unclear why the Drafting Team added TOP-002-1 to the Draft 2, Set 2 issue of the Phase III-IV Standards. It is our understanding that the TOP-002-1 standard was not included in any prior release of the draft Phase III-IV Standards. It is recommended that this be removed from the Phase III-IV group and move through the NERC Standard Development process on its own. Also, there is no reference to the TOP-002-1 standard in your questioning above. Furthermore, the TOP-002-1 recommended changes for R14 are NOT agreed to.