

Implementation Plan — Set Two of Phase III & IV Reliability Standards

Effective Date

The following table shows the proposed effective dates for the standards in the 2nd of 2 sets of Phase III & IV Standards. Each of these standards has a unique effective date, based on the amount of preparation needed to comply with the requirements. The effective date is contingent on stakeholder support during the second posting of the standards, followed by approval of the reliability standards by a vote of the ballot pool in February, 2006. The effective date is also contingent on adoption of these Standards by the NERC Board of Trustees. The Board will approve the final effective date when it adopts the standards for implementation. This subset of the Phase III & IV standards is tentatively scheduled for consideration by the Board on May 1, 2006.

Standard	Proposed Effective Date	Reason for Delay in Implementation
EOP-005 System Restoration Plans	7/1/2006	
VAR-001 Voltage and Reactive Control	1/1/2007	
VAR-002 Generator Operation for Maintaining Network Voltage Schedules	1/1/2007	
VAR-003 Assessment of Reactive Power Resources		
MOD-016 Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management	7/1/2006	Time needed for RRO to modify & distribute existing procedures

Compliance with Phase III & IV Reliability Standards

Once the Phase III & IV Reliability Standards are effective, the responsible entities identified in each of the standards must comply with the requirements in that standard. The table in Appendix A maps all the Phase III & IV requirements to each applicable function in the Functional Model. Note that some Phase III & IV Reliability Standards are modifications of existing Version 0 Standards. Entities must continue to comply with all requirements in approved Version 0 Standards until the requirements in the approved Version 0 Standards are replaced or retired. For example, PRC-003-1 is a modification of Version 0's PRC-003-0. PRC-003-0 has two requirements for the Regional Reliability Organization. The Regional Reliability Organization is responsible for compliance with both of the requirements in PRC-003-0 until May 1, 2006 when PRC-003-1 will replace PRC-003-0.

Implementation Plan for Phase III & IV Standards – Appendix A

Standard Number	Req. Number	BA	DP	GO	GOP	LSE	PA	PSE	RC	RP	RRO	RSG	TO	TOP	TP	TSP	NERC_Net
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Implementation Plan for Phase III & IV Standards – Appendix A

Standard Number	Req. Number	BA	DP	GO	GOP	LSE	PA	PSE	RC	RP	RRO	RS	TO	TOP	TP	TSP	NERC_Net

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Implementation Plan for Phase III & IV Standards – Appendix A

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COMMENT FORM FOR DRAFT TWO OF SET TWO OF PHASE III & IV STANDARDS

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 **November 30, 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.

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

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

DO NOT: **Do not** insert tabs or paragraph returns in any data field.
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:		
Organization:		
Telephone:		
Email:		
NERC Region	<input type="checkbox"/>	Registered Ballot Body Segment
<input type="checkbox"/> ERCOT	<input type="checkbox"/>	1 - Transmission Owners
<input type="checkbox"/> ECAR	<input type="checkbox"/>	2 - RTOs, ISOs, Regional Reliability Councils
<input type="checkbox"/> FRCC	<input type="checkbox"/>	3 - Load-serving Entities
<input type="checkbox"/> MAAC	<input type="checkbox"/>	4 - Transmission-dependent Utilities
<input type="checkbox"/> MAIN	<input type="checkbox"/>	5 - Electric Generators
<input type="checkbox"/> MAPP	<input type="checkbox"/>	6 - Electricity Brokers, Aggregators, and Marketers
<input type="checkbox"/> NPCC	<input type="checkbox"/>	7 - Large Electricity End Users
<input type="checkbox"/> SERC	<input type="checkbox"/>	8 - Small Electricity End Users
<input type="checkbox"/> SPP	<input type="checkbox"/>	9 - Federal, State, Provincial Regulatory or other Government Entities
<input type="checkbox"/> WECC		
<input type="checkbox"/> NA - Not Applicable		

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.

Background:

The Phase III & IV drafting team divided its Standards into two sets, and is posting the second set now. (Set One was posted from September 1 through October 15, 2005.)

The Standards included in this second set are:

Major Changes to this Set of Phase III & IV Standards

Generator Model and Data Verification:

There were many suggestions for modifying the sequence of standards that include MOD-023 through MOD-027. MOD-023 required the RRO to develop procedures requiring Generator Owners to verify the following types of data used in modeling and for real-time analyses:

- Generator gross and net real power capability
- Generator gross and net reactive power capability
- Excitation system models and related data
- Speed/load governor control models and data

MOD-023 referenced four companion standards:

- MOD-024 requires the Generator Owner to verify (and report to end users) its generator gross and net real power capability
- MOD-025 requires the Generator Owner to verify (and report to end users) its generator gross and net reactive power capability
- MOD-026 requires the Generator Owner to verify its excitation system models and related data
- MOD-027 requires the Generator Owner to verify its speed/load governor control models and data

To prepare the second draft of this set of standards, the Drafting Team subdivided the Regional Reliability Organization’s requirements in MOD-023 and added the requirements into the associated standard (MOD-024 through MOD-027). Now each of the revised standards includes the Regional Reliability Organization’s requirement to develop a procedure and the Generator Owners requirement to follow that procedure.

One of the reasons the drafting team made this change was to make the balloting easier and to ensure that field testing of some measures won’t hold up the entire sequence of standards.

Field Testing:

Most of the comments submitted on field testing indicated either a need to delay full implementation of the standards to give entities time to acquire and install equipment or to develop processes to meet compliance. These are not necessarily reasons to conduct field testing. The drafting team used these comments to draft effective dates for the individual standards that reflect consideration of the time entities need to acquire and install equipment or to develop processes to meet compliance.

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.

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

1. 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:

2. Please identify anything you believe needs to be modified before this set of standards is balloted:
- EOP-005-1 — System Restoration Plans

Comments:

3. 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:

4. Please identify anything you believe needs to be modified before this set of standards is balloted:
- MOD-016-1 — Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, and Controllable Demand-Side Management

Comments:

5. Do you agree with the proposed implementation plan? If no, please identify specifically what you feel needs to be modified.

Yes

No

Comments:

6. Please provide any other comments on this set of standards that you haven't already provided.

Comments:

Some Issues for Discussion Sept 7-8

MOD-026 – Standard

The standard was modified to include the associated requirements for the RRO to develop the procedure (from MOD-023)

R1.2 – are the methods of verification all appropriate?

R1.4 through R1.4.8 - Should we organize this section like we did in MOD-025?

MOD-025 R1.5 Information to be reported:

- R1.5.1 Verified maximum Reactive Power capability (both lagging and leading) at Seasonal gross and net Real Power generating capabilities as reported in accordance with Reliability Standard MOD-024 Requirement R1.5.1.
- R1.5.2 Verified Reactive Power limitations, such as generator terminal voltage limitations, shorted rotor turns, etc.
- R1.5.3 Verified Reactive Power of auxiliary loads.
- R1.5.4 Method of verification, including date and conditions.

R1.4.4 and R1.4.5 need some adjectives in front of them. You don't report line drop compensators, you report some data related to line drop compensators. I don't know enough about gains and time constants to know if this information is complete or not.

Is R4 still needed? This requires the GO to report data prior to and after in-service dates, but the revised R1.3 requires the RRO to address periodicity and schedule for reporting data.

MOD-026 - Consideration of Comments

See suggested changes embedded in file.

MOD-027 - Standard

The standard was modified to include the associated requirements for the RRO to develop the procedure (from MOD-023)

Same comments as for MOD-026 about methods of verification and organization of the list of data

MOD-027 - Consideration of Comments

See suggested changes embedded in file.

EOP-005 – Standard

R1 – consider changing the word, 'must' with 'shall'

R1.8 – consider replacing the word, 'function' with 'task'

R9. – the following phrase is confusing since maintaining diagrams is a subset of documenting

...

. . . shall document the Cranking Paths or maintain Cranking Path diagrams . .

Suggest this be modified to say: . . . maintain its documentation of Cranking Paths . .

Levels of non-compliance – Changed format based on a comment suggesting improved standardization of format – also removed ‘or diagrams’

EOP-005 – Consideration of Comments

Numerous format changes to modify the ‘tone’ from one of the drafting team deciding what is best for the industry to one where the drafting team is using the suggestions from the industry to guide its changes.

Many of the changes made to EOP-005 modified V0 Requirements and the need for these changes isn’t clear. These are the source measures that were to be added to EOP-005:

IVAM2 - Demonstrate through simulation or testing that a blackstart generating unit can perform its function.

IVAM3 - Diagram the number, size, and location of system blackstart generating units and the initial transmission switching requirements.

Page 1 – SPP

Commenter asks you to remove the word, ‘applicable’ – response indicates you moved a missing attachment into the standard but response doesn’t address the use of the word, ‘applicable’ and the word ‘applicable’ is in the revised standard.

SPP & IDWG

Both sets of commenters suggested changing the title from System Restoration Plans to System Restoration. The requirements address having a plan as well as testing the plan **and** restoring the system (no reference to using the plan in this sequence of requirements). Why not change the title to System Restoration which is more comprehensive than System Restoration Plans?

Page 2 – Dynegy

Commenter suggests the standard should have some applicability to Generator Owners, and response indicates R4 does include coordination with between TOP and GOP but R4 doesn’t mention either GO or GOP – none of the requirements include the words GOP or GO. Response must be changed.

Page 2 – Arkansas

Response to second comment – what change was made?

Page 3 – FRCC

Incomplete response provided to first comment.

Page 5 – Con Ed

The comment indicates there was an incomplete translation – the response says you made changes based on the comment, but the change made was to delete the ‘incomplete’ requirement because it was redundant. Of the two similar requirements, the one that was dropped was the one that included specific language about blackstart testing. Suggest you add the specificity regarding blackstart testing to the original requirement (R7) and revise responses accordingly.

Several commenters asked for additional clarification on the term, 'Startup Function' and the comment was not addressed.

Page 7 - Pacific Gas & Electric – need to provide missing responses

Page 9 – Don Griffith – no response provided to his last 2 comments – review draft responses

Page 10 – Gerald Rheault – no response provided to 2nd, 3rd and last comments – review draft responses

Page 13 – Resource Issues Subcommittee – no response provided to 1st comment – review draft response

VAR-001 – Standard

R3 is confusing as written – it leads the end user to believe that there is a single procedure that defines the elements referenced in R4, R6, R11, and R12. It seems more likely that these separate requirements may be addressed in several procedures. Suggest the following revision: (Note that it isn't clear why the parenthetical phrase is needed, since nuclear units are a subset of all generating units.)

R3. The Transmission Operator shall specify ~~exemption~~ criteria ~~for that exempts~~ generating units ~~in the development of- from compliance with the procedures as defined in VAR-001 R4, R6, R11, and R12 (including any that may apply to nuclear units).~~ (DO YOU WANT THIS IN A SINGLE DOCUMENT OR IN EVERY PROCEDURE?)

R6.1 – suggest removing the phrase, 'as necessary'

R10.1 is unclear – what entity is the recipient of the GOP's summary report?

R10.2 is unclear – does the GOP retain the log or provide the log to some other entity? Note that in the Consideration of Comments your response to NIPSCO (Page 1) indicates that the GOP provides the log to the TOP.

VAR-001 – Consideration of comments

Page 1 – NIPSCO

The response seems incorrect. R10 doesn't include any requirements to provide the information to the TOP – R10 requires the GOP to retain documentation for 12 months. The corresponding standard (VAR-002) merely requires the GOP to 'maintain' the log – VAR-002 doesn't require the GOP to provide the log to the TOP – the associated measure in VAR-002 states that the GOP shall 'have available on request' the log.

Page 2 – First Energy Solutions

Response is incomplete and comment seems to be related to a different standard.

Page 3 – Dynergy –

Response seems incomplete. Commenter suggested that there be a requirement added to have the TOP provide a procedure in VAR-001 to address the following requirement in VAR-002:

VAR-002 R3. Each Generator Operator shall report within 30 minutes (or within the mutually agreed to timeframe with the Transmission Operator) to its Transmission Operator when a voltage and reactive schedule for a generator is not maintained.

R3.1 Each Generator Operator shall maintain a written log of the date, time, duration, reason, and time of notification to the Transmission Operator, and their concurrence for each period when a voltage schedule or reactive schedule was not maintained. This information shall be maintained for 12 rolling months.

VAR-001 R 4.2 Each Transmission Operator shall develop a procedure for communicating to the Transmission Operator failure to maintain a voltage or reactive schedule by a Generator Operator in accordance with VAR-002 Requirement 3.

Suggest modifying VAR-001 R4.2 to state:

VAR-001 R4.2 Each Transmission Operator shall develop a procedure that identifies what information the Generator Operator must provide to the Transmission Operator when the Generator Operator cannot maintain a voltage or reactive schedule including the following:

R4.2.1 The Generator Operator shall report to the Transmission Operator within 30 minutes (or within the mutually agreed to timeframe with the Transmission Operator) to of the time that the Generator Operator fails to maintain a voltage and reactive schedule.

R4.2.2 The Generator Operator shall maintain a written log of the date, time, duration, reason, and time of notification to the Transmission Operator, and the Transmission Operator's concurrence for each period when a voltage schedule or reactive schedule is not maintained. The Generator Operator shall maintain this information for 12 rolling months.

Page – 4 – Duke Energy

Response does not seem to address the comment which was that the phrase, 'shall know' is not a requirement. Consider replacing, 'shall know' with 'shall monitor'

The Transmission Operator shall know the status of all transmission Reactive Power resources, and develop procedures to be given to the Generator Operator on communicating the status of voltage regulators and power system stabilizers.

Page 5 – TVA

Response to comment regarding the use of the word, 'auxiliary' is not complete – its not enough to say we considered your comment, you must state how you changed the associated document.

Page 6 – IDWG

The response to the first comment indicates there are planning elements to VAR-001. What are these – all the requirements look like they are performed in the operating horizon and are aimed at operations, not planning.

Page 8 - Joe Willson

The commenter is correct – R4.1 requires the TOP to maintain a list of synchronous generators that are required to follow a voltage or reactive schedule – level 2 non-compliance penalizes the TOP that doesn't have a list of generators exempt from this requirement. Suggest you modify the

response to the comment. The revised standard's R3 requires the TOP to have a list of exemptions.

Response to comment regarding Level 3 isn't correct. Level 3 was assessing the completeness of the directive, not the documentation. (Note that this is at least the third comment suggesting that you state more clearly what you consider to be a voltage schedule)

Response to last comment doesn't necessarily match the standard. The standard isn't clear if the exemptions need to be provided in the individual procedures or in some other document.

Page 11 – FRCC

Another comment suggesting that voltage or reactive schedule needs to be defined. What is the drafting team's basis for stating that it doesn't need to be defined when so many people have indicated that it does need to be defined?

The commenter suggests you've used different phrases to mean the same thing and you respond that you believe you have been consistent – however the commenter is correct:

- R4, R4.1, R4.2, M1 and Level 3 non-compliance all use the phrase 'voltage or reactive schedule.'
- R4.3 uses the phrase, 'voltage schedule deviation' leaving the reader unclear if a deviation in a reactive schedule must also be reported.
- R6.1 uses the phrase, 'voltage schedule or Reactive Power schedule'.

Page 15-17 – Transmission Subcommittee

Second comment seems to make sense. What's the basis for saying, 'there was minimal support for this change from the industry'? The TS suggested that the bulleted item is really the more comprehensive than the element it is qualifying and provided an alternate method of presenting the same information. They suggested that you change the original text:

4. Each Transmission Operator shall specify a voltage or reactive schedule to be maintained by each synchronous generator, within the reactive capability of the unit, at a specified bus and shall provide this information to the Generator Operator.

4.1 Each Transmission Operator shall maintain a list of synchronous generators that are required to follow a voltage or reactive schedule and shall provide each Generator Operator with its voltage or reactive schedule.

It looks like the information highlighted in yellow is redundant and could be combined as suggested by the TS.

VAR-002 – Standard

Purpose – suggest you use phrase, 'within equipment rating' rather than 'up to equipment capabilities' so this standard uses same language used in other standards.

R3 – the parenthetical phrase doesn't seem to be very realistic. The commenters who suggested this be changed indicated that 30 minutes is not a realistic timeframe given everything the GOP is required to do – the parenthetical indicates that the GOP and TOP will discuss some alternate time period and agree to some alternate time period for this reporting – how and when will this take place – will it be in one of the procedures the TOP writes for the GOP or will they negotiate on a case by case basis in real time?

R4.1 The addition of this subrequirement seems to tell the GOP how to do its routine job – and its purpose in this standard is unclear. Shouldn't the GOP always consider the impact of any change to any of the equipment under the GOP control before taking action?

Non-compliance

It isn't clear if the levels of non-compliance are being accumulated by each generator or not. Would the compliance monitor actually look at all operating logs for each generator on the system for a whole year to come up with these figures – or should the reporting period and compliance reset period be something shorter?

Level one and level two non-compliance are redundant unless modified to include a range of hours for level two as follows:

... for an accumulated time of **8 or more unit-hours but less than 16 unit-hours** . . .

Level three non-compliance should be modified as follows:

... for an accumulated time of **16 or more unit-hours but less than less than 24 unit-hours**

Level four non-compliance should be modified as follows:

... **24 or more** unit-hours . . .

VAR-002 – Consideration of Comments

P1 – Dynegy

Response suggests you'll modify TOP-002 – this needs to be in the implementation plan and a red line to show the changes to TOP-002 is needed.

P3 – NIPSCO

Response to first comment doesn't provide sufficient information to understand the intent of the response.

Response to third comment isn't specific enough to tell the commenter what was changed.

Page 4 – Dynegy

Response to first comment is inaccurate – response indicates the Drafting Team made a change to the 30 minutes in R1.1 and R3, but no such change was made to R1.1 or to R3. A change was made to R3, but the change isn't the one that was requested.

Response to second comment does not address the suggestion and needs to be modified. The commenter is suggesting that voltage schedules be specified as 'ranges' and is suggesting that the 'reactive' component be removed – and response is addressing responsibility. . .

Response to last comment doesn't reflect any consideration of the comment. What is the DT's basis for thinking that commenters agree with the levels of non-compliance?

Page 4 – IDWG

Response to comment indicates you adopted suggested change to R4, but the change wasn't made. This needs to be corrected either in the response or in the standard.

Page 5 – Resources Subcommittee

Most responses are incomplete and need more work.

Comment suggests eliminating all references to auxiliary transformers and response implies this was done, but the term remains in R5, M3 and in level one non-compliance. The response or the standard needs modification.

Response to last comment doesn't address the stated concern and provides no clarification.

Page 6 – Southern Co

First comment suggests you add the words, 'on request' to 1.3 – response indicates you made the change, but the words, 'on request' don't appear in 1.3. Need to change response.

Page 6 – Second set of comments from Southern Co

Second comment seems to have been totally ignored and this is the second comment asking for clarification as to what you envision the GOP is monitoring – grid voltage or the GOP's adherence to a voltage schedule

Page 11 – TIS

Second comment – response doesn't seem to address the comment and there is no indication that R1 was changed as suggested – either change the standard or the response.

Page 11 – Ontario

No response provided to comment suggesting there may be an operational issue with R2.

Page 12 – Transmission Subcommittee

Response to first comment indicates support for comment, but not all the suggested changes were made to R2 – the TS suggested 'as specified' be replaced with 'as directed' and this change was not made. Either change the response or the standard.

Response to second comment indicates the members of the RS are wrong and the DT is right – but the RS is really asking for clarification, and this is not the only group that indicated there is a need for clarification in identifying when the 30 minutes starts. This needs some discussion.

Third comment indicates that 'on request' should be clarified. In most other standards, the phrase, 'on request' actually states, 'on request (within 30 calendar days)'. This is what the TS was suggesting. Compared to other standards, this one is unclear in identifying how you would measure 'on request'.

VAR-003 – Standard

Need to confirm the effective date of April 1, 2006 (none was recorded on Action Plan)

VAR-003 – Consideration of Comments

No responses provided to comments - I drafted what I could, so please be prepared with constructive criticism and suggestions for answers that are missing.

MOD-016 - Consideration of Comments

The responses, in many cases, are not accurate. The comments request changes to several of the 'new' requirements, and the responses indicate (incorrectly) that the requirements are from V0. V0 had just the following two requirements – everything else was added by the drafting team:

- 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.
- 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, MOD-017-0, MOD-018-0, MOD-019-0, MOD-020-0, and MOD-021-0.
- R2.** The documentation of the scope and details of the data reporting requirements shall be available on request (five business days).

Page 2 – Comment from Con Ed and others – response is not correct – R1.5 was not part of V0, it was added by the Drafting Team

Page 4 – Comment from ATC – response is not correct – R1.3 was not part of V0 and making changes is not outside the scope of the SAR

Page 6 – Comment from Entergy – response is incorrect – R5 was added by the drafting team, it was not part of V0

Commenter	Reliability Need	Acceptable Translation	Comments
Entergy			<p>(From Q 4 – Other comments)</p> <p>The two Measures included in this Standard are concerned only with Requirement 11. A third measure should be added to measure R1 - R10.</p> <p>The wording in the Data Retention part of the Compliance Section seems appropriate: "The Transmission Operator must have its plan to reestablish its electric system available for review by the Regional Reliability Organization at all times."</p>
<p>Response: The drafting team believes that mMeasure #1 addresses R8 and R9 and that M2 addresses R10. The other requirements were part of the existing V0 standard and adding measures for these requirements is outside the scope of this SAR.</p>			
SPP Transmission Working Group	Yes	No	<p>Title should be changed to System Restoration because standard covers more than restoration plan, includes policy portions in R11.</p> <p>Applicable to TPs and PAs.</p> <p>R1-remove APPLICABLE, each plan should address all of the elements of EOP5. If they apply simply states it.</p>
<p>Response: The drafting team believes tThe term "system restoration" encompasses more than what is contained within this standard, and therefore believes the present title is more appropriate.</p> <p>-The comment provided does not provide the drafting team with sufficient information concerning applicability to Transmission Planners and Planning Authorities to determine whether they should be included in the standard.</p> <p>The drafting team has reviewreviewed the subject sentence and has discovered the posted standard inadvertently omitted the attachment 1 that described the plan elements. The drafting team incorporated the contents of attachment 1 <u>directly</u> into the standard <u>directly</u>.</p>			
NERC Interconnection Dynamics Working Group	Yes	No	<p>The title should be: System Restoration, because the standard covers more than just the plan, it includes the policy portions in R11.</p> <p>— R1-R10 Restoration Plan – needs better organization, change the order to: Plan elements, Plan Coordination, Plan validation, Plan Review & Update, and</p>

			<p>Plan Training. — Add applicability to Transmission Planners and Planning Authorities.</p>
<p>Response: The drafting team believes the term “system restoration” encompasses more than what is contained within this standard and therefore believes the present title is more appropriate.</p> <p>The comment provided does not provide the drafting team with sufficient information concerning applicability to Transmission Planners and Planning Authorities to determine whether they should be included in the standard.</p> <p>The drafting team believes the content of the standard is appropriate and the order of presentation is subjective.</p>			
<p>Gred Mason – Dynergy Generation</p>	<p>Yes</p>	<p>No</p>	<p>1. Need to include Generation Owners in Section 4(Applicability). 2. Generation Owners should be included in Section B,R4. 3. In Section B,R9 need to eliminate "its" wording as TO's may not own blackstart generating units. 4. In Section B,R10 need to change "or" in second line to "and" and change "units to be cranked" in fourth line to "units to be started."</p>
<p>Response:</p> <p>1 & 2: The drafting team believes the Transmission Operator and Balancing Authority do need to should also coordinate their actions with other entities, including Generator Operators, with it is the Transmission Operators and Balancing Authorities that are responsible for the restoration-related tasks addressed in this standard. the Generation Operator and has included this in the standard (R4.). However, for the purpose of the standard itself, the drafting team believes this standard is not applicable to Generator Owners or Generator Operators. The purpose of this standard is for the Transmission Operator and Balancing Authority to have a restoration plan.</p> <p>3: The drafting team reviewed section B R.9 and discovered this requirement is redundant with R7- of the same standard along with EOP-009-1. The drafting team recommends and deletion of Requirement R.9.</p> <p>4: The drafting team agrees to the proposed change in phrase “units to be cranked” in fourth line to “units to be started. However, the drafting team believes the intent of R10- is to allow for one of two options in fulfilling this requirement, so changing, ‘or’ to ‘and’ . The option included in R10- was in response to earlier comments regarding Critical Utility Infrastructure. Your suggestion to change, ‘units to be cranked’ to ‘units to be started’ was adopted and is reflected in the revised standard.</p>			

<p>Ronnie Frizzell - Arkansas Electric Coop. Corp.</p>	<p>Yes</p>	<p>No</p>	<p>R1 -- remove applicable, each plan should address all of the elements of EOP5. If they don't apply simply state it.</p> <p>R12 -- By deleting R12 the requirement to have the unit available is lost. I know that it is not the TOs responsibility to make generation available, however, the TO does need to know that black start units are available if needed. Maybe this requirement should be in another standard</p>
<p>Response: The drafting team has review<u>ed</u> the subject sentence and has discovered the posted standard inadvertently omitted the attachment 1 that described the plan elements. The drafting team incorporated the contents of attachment 1 <u>directly</u> into the standard <u>directly</u>.</p> <p>The drafting team agrees and has modified R8- to address your concern re R12.</p>			
<p>FRCC</p>	<p>Yes and No</p>	<p>No</p>	<p>References to EOP-005 Attachment in R1 needs to be deleted and the applicable elements need to be added into the requirements, including a requirement that the TOP must provide its plan to the RRO upon request.</p> <p>R2 should qualify the level of "changes in the power system network" that would require the Transmission Operator to review and update its restoration plan to ensure that R2 only requires the review and updates when network changes occur that could impact the restoration plans.</p> <p>R7 requires that the verification of the restoration procedures by actual testing or by simulation. Actual testing should be removed from the standard because "actual" testing of the restoration procedure is impractical since it would adversely impact customers.</p> <p>R8 should be the responsibility of the RRO and not of the individual Transmission Operators.</p> <p>References to EOP-005 Attachment in the Compliance section needs to be deleted.</p>
<p>Response: The drafting team has review the subject sentence and has discovered the posted standard inadvertently omitted the attachment 1 that described the plan elements. The drafting team incorporated the contents of attachment 4-1 <u>1 directly</u> into the standard directly.</p>			

<p>The drafting team modified R2. in response to your concern.</p> <p>The drafting team believes that actual testing is appropriately included in the standard.</p> <p>The drafting team modified R8. in response to your concern.</p> <p>See first response to these comments.</p>			
<p>Mohan Kondragunta – Southern California Edison</p>	<p>Yes</p>	<p>No</p>	<p>To improve the standard translation, SCE recommends the following changes:</p> <p>For the definitions, rename the term “Cranking Path” to “System Restoration Critical Path”</p> <p>For R8, the requirement for a T.O. to verify blackstart sufficiency to meet RRO requirements is unreasonable. The T.O. should verify sufficient blackstart for their restoration plans or their ISO, not the RCC.</p> <p>As worded, Requirement R9 implies that the Transmission Operator owns the blackstart units in its system restoration plan which may not be the case. Therefore, change Requirement R9 to read: “... demonstrate, through simulation or testing, that the blackstart generating unit(s) in its restoration plan can perform...”</p>
<p>Response: The drafting team received little support for this change and therefore recommends leaving the term as it existsMost commenters agreed with the definition and it wasn't changed currently.</p> <p>The drafting team modified R8. in response to your concern.</p> <p>The drafting team reviewed section B R.9 and discovered this requirement is redundant with R7. of the same standard along with EOP-009-1. The drafting team recommends and deletion of Requirement R.9.</p>			
<p>Individual Members of CCMC</p>	<p>Yes</p>	<p>No</p>	<p>Measure contains additional requirements of supplying a document within 30 days – this is a requirement, move to R9</p> <p>Levels of non-compliance do not cover R8.</p> <p>The level of Non-compliance use the words "element" and "requirement" but it is not clear what is intended, e.g. (1) does R8 contain 3 elements or is it an element and where is this defined and (2) is R8 concerned addressed if one or two of the three components included under R8 are addressed.</p>

<p>Response: The current format for NERC standards includes <u>specifying</u> the response time <u>for providing evidence</u> in the Measures of the standard.</p> <p>The drafting team made modifications to the Compliance section to address this comment.</p> <p>The drafting team has review the subject sentence and has discovered the posted standard inadvertently omitted the attachment 1 that described the plan elements. The drafting team incorporated the contents of attachment 1 into the standard directly <u>and revised the levels of non-compliance so they reference specific 'requirements'</u>.</p>			
Consolidated Edison	Yes	No	<p><u>IV.A.M2 has not been fully translated into R10 and measure M2.</u></p> <p>The Measures should include other restoration plan measures, not only those related to blackstart.</p> <p>In R9, it is important that serious consideration should be given to blackstart testing more frequently than "at least every five years."</p> <p><u>-The Drafting Team should clarify the term Startup Function in R9 to distinguish between simple blackstart of a unit(s) and the ability to perform restoration service.</u></p> <p>We suggest to reformat the restoration plan requirements as separate bulleted subrequirements and then reformat the Blackstart unit testing section into subRequirements for clarity.</p>
<p>Response: <u>The drafting team has made significant changes to the standard in response to your comment regarding IV.A.M2.</u></p> <p>Adding measures for the existing V0 standard's requirements is outside the scope of this SAR. This comment would require the drafting team to operate outside the scope of the current SAR.</p> <p>The drafting team reviewed section B R.9 and discovered this requirement is redundant with R7. of the same standard along with EOP-009-1 <u>and deleted</u>. The drafting team recommends deletion of Requirement R.9.</p> <p>The drafting team believes the format of the standard is appropriate and is subjective<u>Changing the sequence of requirements approved as part of V0 is outside the scope of what is necessary to incorporate the requirements for IVAM2 and IVAM3.</u></p>			
P.D. Henderson Khaqan Khan	Yes	No	<p><u>IV.A.M2 and IV.A.M3 have not been fully translated into EOP-005 requirement R9, R10 and measure M2.</u></p> <p>Moreover, the Measures should also include other restoration plan measures, not</p>

			<p>only those related to blackstart.</p> <p>In R9, consideration should be given on testing of blackstart more frequently rather than "at least every five years". Simulation of unit testing should not be allowed and there should be a requirement to test any blackstart related facility on an annual basis.</p> <p>Drafting Team to expand the term Startup Function in R9 to require both a blackstart of a unit(s) and the ability to perform restoration service.</p>
<p>Response: The drafting team has made significant changes to the standard in response to your comment regarding IV.A.M2 and IV.A.M3.</p> <p>Adding measures for the existing V0 standard's requirements is outside the scope of this SAR. This comment would require the drafting team to operate outside the scope of the current SAR.</p> <p>R9. This comment would require the drafting team to operate outside the scope of the current SAR. The drafting team reviewed section B R.9 and discovered this requirement is redundant with R7- of the same standard along with EOP-009-1. The drafting team recommends deletion of Requirement R.9.</p>			
ISO/RTO Council Standards Review Committee	Yes	No	<p>IV.A.M2 and IV.A.M3 are not fully translated into R9 and R10 and measure M2.</p> <p>The Measures should include other restoration plan measures, not only those related to blackstart.</p>
Ed Riley – California ISO	Yes	No	<p>Drafting Team to clarify the term Startup Function in R9 to distinguish between simple blackstart of a unit(s) and the ability to perform restoration service.</p>
<p>Response: The drafting team has made significant changes to the standard in response to your comment regarding IV.A.M2 and IV.A.M3.</p> <p>Adding measures for the existing V0 standard's requirements is outside the scope of this SAR.</p> <p>This comment would require the drafting team to operate outside the scope of the current SAR. R9. This comment would require the drafting team to operate outside the scope of the current SAR. The drafting team reviewed section B R.9 and discovered this requirement is redundant with R7- of the same standard along with EOP-009-1. The drafting team recommends deletion of Requirement R.9.</p>			
Cinod Kotecha	Yes	No	<p>IV.A.M2 has not been fully translated into R10 and measure M2.</p>

Michael C. Calimano – NYISO	Yes	No	The Measures should include other restoration plan measures, not only those related to blackstart.
Kathleen Goodman – ISO-NE	Yes	No	In R9, it is important that serious consideration should be given to blackstart testing more frequently than "at least every five years". Simulation of unit testing should not be allowed and there should only be a requirement to test the Units at least once every five years and any blackstart related facility on an annual basis.
Alan Adamson – NYSRC	Yes	No	Drafting Team to clarify the term Startup Function in R9 to distinguish between simple blackstart of a unit(s) and the ability to perform restoration service.
NPCC CP9 RSWG	Yes	No	Suggestion to reformat the restoration plan requirements as separate bulleted subrequirements and then reformat the Blackstart unit testing section into subRequirements for clarity.
<p>Response: The drafting team has made significant changes to the standard in response to your comment regarding IV.A.M2 and IV.A.M3.</p> <p><u>Adding measures for the existing V0 standard's requirements is outside the scope of this SAR.</u></p> <p>This comment would require the drafting team to operate outside the scope of the current SAR. This comment would require the drafting team to operate outside the scope of the current SAR. The drafting team reviewed section B R.9 and discovered this requirement is redundant with R7- of the same standard along with EOP-009-1. The drafting team recommends deletion of Requirement R.9.</p> <p>The drafting team believes the format of the standard is appropriate as shown and is subjective regardless.</p>			
Kansas City Power and Light	Yes	No	The new R9 and R10 seem to be a rewording of the existing R7 and R8. One of these sets of requirements needs to be eliminated.
<p>Response: The drafting team has made significant changes to the standard in response to your comment regarding R9- and R10.</p>			
Pacific Gas and Electric			<p>COMMENT: R3 states "the Transmission Operator shall develop restoration plans with a priority of restoring the integrity of the Interconnection". R11.4 states "The affected Transmission Operator shall give high priority to restoration of off-site power to nuclear stations". These two statements could result in confusion in terms of priority (i.e. the Interconnection or offsite power to a nuclear station). Restoring offsite power to a nuclear station may not contribute to restoring the</p>

			<p>bulk power system and its interconnections, therefore, may be judged a lower priority by the Transmission Operator. The NRC expects the restoration of offsite power to a nuclear power plant to be the highest priority.</p> <p>COMMENT: R8 is too general regarding the capability of blackstart units. Blackstart unit capability should also be sufficient to meet nuclear offsite power requirements.</p> <p>COMMENT: R9 should require that documentation of simulation / testing acceptance be transmitted to the nuclear power plants.</p> <p>COMMENT: R10 Same comment as R9, documentation applicable to nuclear offsite power cranking paths should be provided to the nuclear power plants.</p> <p>COMMENT: R11.5.4 should specifically exclude nuclear offsite power from any load shedding.</p>
<p>Response: The drafting team has modified the standard to specifically reflect nuclear station's offsite power. The drafting team believes the additional comments have been adequately covered in the standard.</p>			
Mark Kuras – MAAC	Yes	No	<p>Several of the requirements (R2, R3) should be sub-requirements under the requirement to have a restoration plan (R1).</p> <p>Seems like too many requirements are included in this standard, break up the standard into more than one standard. Measurements do not align to the requirements.</p> <p>Many more measurements are needed and then need to be reflected in the levels of non-compliance. Level 2 mentions and Attachment. What is this? Suggest that a separate blackstart standard be created instead of trying to insert the Blackstart requirements in an incomplete operating standard that needs a lot of work.</p>
<p>Response: The drafting team has made significant formatting changes to the standard.</p> <p><u>Adding measures for the existing V0 standard's requirements is outside the scope of this SAR.</u></p> <p>The drafting team has made significant changes to the standard in response to your comment. The comment regarding measurements would require the drafting team to operate outside the scope of the current SAR. The drafting team has review the subject sentence</p>			

<p>and has discovered the posted standard inadvertently omitted the attachment 1 that described the plan elements. The drafting team incorporated the contents of attachment 1 <u>directly</u> into the standard <u>and revised the associated language in the levels of non-compliance directly.</u></p>			
<p>Peter Burke – American Transmission Co.</p>	<p>Yes</p>	<p>No</p>	<p>V1 of this standard should be enhanced to include Measures that address all the Requirements R1--R11 comprising it.</p> <p>While the translation of IV.A.M2-M3 resulting in R8, R9, R10 and M1-M2 is acceptable, not fixing the pre-existing deficiencies (i.e. absence of any Measures) in the V0 standard makes the resulting EOP-005-1 an incomplete V1 revision.</p>
<p>Response:</p> <p>Adding measures for the existing V0 standard's requirements is outside the scope of this SAR. The comment regarding measurements would require the drafting team to operate outside the scope of the current SAR.</p>			
<p>Xcel Energy – Northern States Power</p>	<p>Yes</p>	<p>No</p>	<p>Measure M1 - The intent of this measure is to validate the elements of the restoration plan, either by simulation or physical testing. Demonstration of the black-start units ability to perform the functions of the restoration plan is too restrictive, and conflicts with EOP - 009. Recommend this measure be written as follows:</p> <p>" The Transmission Operator shall , within 30 calendar days of a request, provide its Regional Reliability Organization with documentation of simulations or tests that demonstrate the resources (including cranking paths) identified in the Transmission Operator's restoration plan are sufficient to support its restoration plan."</p> <p>Measure M2 - Providing documentation can be interpreted as sending doucmentation off-site, which can be a conflict as this documentation is considered as Critical Utility Infrastructure information. This measure should be rewritten as "provide documentation or diagrams showing number, size and location of blackstart generating units identified in the Transmission Operator's restoration plan and the associated cranking paths for view at the Transmission Operator's location.</p>
<p>Response: <u>M1 -</u> The drafting team made changes to the draft standard to reflect your comment.</p>			

<u>M2 – Your suggestion was adopted and is reflected in the revised standard.</u>			
Joseph D Willson – PJM	Yes	No	Level 4 2.4.2 goes beyond the elements of Requirement 9 The levels of non-compliance are difficult (and therefore subjective) to measure. Measure contains additional requirements of supplying a document within 30 days
<p><u>Response: The drafting team made changes to the draft standard to reflect your comment revised the levels of non-compliance so they align with the new requirements.</u></p> <p>The drafting team has review the subject sentence and has discovered the posted standard inadvertently omitted the attachment 1 that described the plan elements. The drafting team incorporated the contents of attachment 1 <u>directly</u> into the standard <u>and added more specificity to the associated requirements that linked to specific levels of non-compliance directly.</u></p> <p><u>The current format for NERC standards includes specifying the response time for providing evidence in the Measures of the standard. The comment concerning the reporting timeline not an additional requirement but is used for compliance.</u></p>			
Dan Griffiths – PA Office of Consumer Advocate	Yes	Yes	<p>Generator testing frequency may be as much as 5 years under the proposed standard per Requirement 9. I believe that this is far too long given the critical function of system restoration. The need for more frequent testing is underlined by the fact that some Black Start generators in PJM, for example, do fail to start under normal operations. Also, there have been anecdotal comments in PJM regarding a lack of maintenance for some Black Start units. Thus, frequent testing ought to be done to ensure that Black Start resources are actually likely to be available.</p> <p>Almost every other standard in Phase III-IV has a reset period of 1 year and I urge that the retest period for "black start" generation be set to 1 year.</p> <p>Further, under 1.3 of Compliance, the proposed addition sets the record retention period to 3 years. This appears to conflict with the 5 year frequency of generator testing. Recommend, at a minimum, that all time frames in EOP-005-1 be aligned.</p>
<p><u>Response: The drafting team reviewed section B R.9 and discovered this requirement is redundant with R7. of the same standard along with EOP-009-1. The drafting team recommends deletion of Requirement R.9. Generator testing requirements are addressed EOP-009-0.</u></p>			

<p><u>The performance reset period is one year.</u></p> <p><u>The data retention section of the standard does require the Compliance Monitor to retain audit data for three years, but does not require the responsible entity to retain its data for any specific period of time.</u></p>			
<p>Gerald Rheault – Manitoba Hydro</p>	<p>Yes</p>	<p>Yes</p>	<p>In items R5, R6 and R7, the required action frequency should be specified as a measurable amount.</p> <p>In R1 the attachment (Attachment 1-EOP-005-0) contained in EOP-005-0 should be included instead of just being referenced.</p> <p>R5: should clarify objective of the test of telecommunications facilities.</p> <p>R11.5.2: What is the intent of this requirement?</p> <p>Measures:</p> <p>Why wouldn't documentation of the restoration plan be a measurement? R1 requires a plan, but does not explicitly say you have to document it. The first sentence on part 5 "The Transmission Operator ...at all times" requires a plan to be provided to the RRO.</p> <p>Why do we need 11 requirements if you are only going to measure compliance to two requirements?</p>
<p>Response: The drafting team notes items R5, R6, and R7 are original V0 <u>requirements approved therefore modification concerning action frequency and modifying these</u> is outside the scope of the subject SAR.</p> <p><u>Attachment 1 was inadvertently omitted from the first draft of this standard. The drafting team added the language from Attachment 1 to the requirements in the standard as suggested.</u></p> <p><u>R5 already states that the telecommunication facilities to be tested are those that are needed to implement the restoration plan.</u></p> <p>The intent of R11.5.2 (currently R10.5.2) is to promote deliberate action in <u>typology-topology</u> assessment prior to interconnection of isolated areas.</p> <p>The requirements of NERC standards are intended to enhance the reliability of the bulk electric system; documentation, although required, does not directly enhance the reliability, but is required for demonstrating compliance.</p> <p>The drafting team has review the subject sentence and has discovered the posted standard inadvertently omitted the attachment 1 that described the plan elements. The drafting team incorporated the contents of attachment 1 into the standard directly<u>Many of the</u></p>			

<u>requirements in this standard are from Version 0 and adding measures for existing requirements is outside the scope of the SAR.</u>			
John K. Loftis, Jr. – Dominion – Electric Transmission	Yes	Yes	Recommend that Level 3 non-compliance be made not applicable and the current Level-3 description be moved to Level-4 as 2.4.3.
Southern Company Generation	Yes	Yes	
Southern Company Transmission	Yes	Yes	
SERC EC Planning Standards Subcommittee (PSS)	Yes	Yes	
Entergy	Yes	Yes	
Response: The drafting made this change to the draft standard.			
Midwest Reliability Organization	Yes	Yes	R5. The term "periodically" should be changed to some measurable frequency. R6 and R7 should have a required frequency added to the requirement. R1. Will need to remove reference to old version 0 document and create reference to new version 1 attachment 1.
Response: The drafting team notes items R5, R6, and R7 are original V0 approved therefore modification concerning action frequency is outside the scope of the subject SAR. The drafting team has review the subject sentence and has discovered the posted standard inadvertently omitted the attachment 1 that described the plan elements. The drafting team incorporated the contents of attachment 1 <u>directly</u> into the standard directly .			

Transmission Agency of Northern California	Yes	Yes	There appears to be a typo in Requirement R10. We suggest removing the word [associated] in the second line. In Requirement R9, Measure M1, and Level of Non-compliance 2.4.2, we suggest changing the word [simulation(s)] to [calculations]. In this context, simulations could lead some people to believe that powerflow studies need to be performed. However, in many cases, a simple hand or spreadsheet calculation may be all that is needed to show that the plan will work as designed.
<p>Response: The word “associated” has been removed. The drafting team believes “simulation” includes calculations and therefore should not be modified.</p>			
Doug Hohbough – First Energy Corp.	Yes	Yes	This analysis is best performed on a Dispatcher Training Simulator or similar computer model with dynamic capabilities containing the model of the system being studied. This may not be available to all members of the industry. Those organizations without this capability would be relegated to the testing method which may or maynot be a viable option depending upons system configurations.
<p>Response: Thank you for your comment.</p>			
Rebecca Berdahll – Bonneville Power Administration Karl Bryan – Corp of Engineers Jay Sietz – US Bureau of Reclamation Brenda Anderson Deborah M. Linke – US Bureau of Reclamation	Yes Yes	Yes Yes	R4 We recommend adding blackstart generator owner to the list of entities with whom the transmission operator will coordinated the blackstart restoration plan. R9 We recommend changing "startup functions" to "system restoration functions" to avoid confusion with the requirement to periodically demonstrate the ability of blackstart generators to start without grid support.
<p>Response: The drafting team believes the Transmission Operator should also coordinate with the Generation Operator and has</p>			

<p>included this in the standard (R4.). However, for the purpose of the standard itself, the drafting team believes this standard is not applicable to Generator Owners or Generator Operators.</p> <p>The drafting team reviewed section B R.9 and discovered this requirement is redundant with R7. of the same standard along with EOP-009-1. The drafting team recommends deletion of Requirement R.9.</p>			
<p>Karl A. Bryan - US Army Corps of Engineers</p>	<p>Yes</p>	<p>Yes</p>	<p>I think there also needs to be a requirement for the transmission operator to prove that the system restoration plan works as well as to prove that the blackstart generators are actually capable of energizing a line and picking up a load. My experience has been that blackstarting a generator is the easy step, it is picking up the transformer and transmission line charging currents that cause a generator the most problems.</p>
<p>Response: Physical testing of Blackstart generator capability is covered under EOP-009-0 <u>and is no longer duplicated in this standard</u>. The drafting team also believes that TO may not be able to test its plan by energizing a line and picking up a load due to system topology and reliability concerns therefore it maintains simulation as an acceptable alternative to physical plan validation per the standard.</p>			
<p>Resource Issues Subcommittee</p>	<p>Yes</p>	<p>Yes</p>	<p>1) In R11, Transmission Operators and Balancing Authorities should not take any action until coordination is made with their Reliability Coordinator(s). Suggest changing R11 to "Following a disturbance in which one or more area of the Bulk Electric System becomes isolated or blacked out, the affected Transmission Operators and Balancing Authorities shall begin immediately to implement the following steps:"</p> <p>2) In Compliance Section 2.4.2, suggest deleting "regional".</p>
<p>Response: <u>BIG ISSUE</u>—R11 was approved, as written, in Version 0. Making the suggested change would change the intent of R11 and is outside the scope of the SAR.</p> <p>The drafting team disagrees with deleting the word regional because the TO's plan needs to be compliant with the regional plan.</p>			
<p>Tennessee Valley Authority</p>	<p>Yes</p>	<p>Yes</p>	<p>In "Levels of Non-Compliance" section 2.4.2, delete the word "regional."</p>
<p>Response: The drafting team disagrees with deleting the word regional because the TO's plan needs to be compliant with the regional</p>			

plan.			
Transmission Issues Subcommittee	Yes	Yes	TIS has no additional comments.
PPL Corporation	Yes	Yes	
WECC Reliability Subcommittee	Yes	Yes	
Howard Rulf - WE Energies	Yes	Yes	
John Horakh – MACC	Yes	Yes	
Raj Rana – AEP	Yes	Yes	
Karl Kohlrus - City Water, Light & Power	Yes	Yes	
Carol L. Krysevig – Allegheny Energy Supply Co.	Yes	Yes	

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 a translation of planning measure IV.A.M2 and IV.A.M3, which were not included in the approval Version 0 reliability standards because they 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 [through June 13, 2005](#).
5. [The drafting team has reviewed comments on Draft 1, prepared a consideration of those comments and made changes incorporated into Draft 2.](#)
6. [The drafting team posted Draft 2 on September 1, 2005.](#)

Description of Current Draft:

This is ~~a first~~[the second](#) draft of the standard to be posted for industry comment.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Close Draft 1 comment period.	June 6 October 15 , 2005
2. Review comments from industry posting and determine if the draft standard is ready for ballot.	July 15 October 31 , 2005
3. Post for 30-day pre-ballot period.	August November 1, 2005
4. Conduct ballot.	September December 1 , 2005
5. Post for 30-day period prior to Board adoption.	October 1 January 6 , 2005-2006
6. Board adoption and effective date .	November 1 , 2005- February 7 , 2006
6.7. Effective date	April 1 , 2006

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.

Cranking Path: A portion of the electric system that can be isolated and then energized to deliver electric power from a generation source to enable the startup of one or more other generating units.

A. Introduction

1. **Title:** System Restoration Plans
2. **Number:** EOP-005-1
3. **Purpose:** To ensure plans, procedures, and resources are available to restore the electric system to a normal condition in the event of a partial or total shut down of the system.
4. **Applicability**
 - 4.1. Transmission Operators.
 - 4.2. Balancing Authorities.
5. **Proposed Effective Date:** ~~November 1, 2005~~ April 1, 2006.

B. Requirements

R1. Each Transmission Operator shall have a restoration plan to re-establish its electric system in a stable and orderly manner in the event of a partial or total shutdown of its system, including necessary operating instructions and procedures to cover emergency conditions, and the loss of vital telecommunications channels. The restoration plan must include the Requirements R1.1. through R1.9., as applicable:

R1.1. Plan and procedures outlining the relationships and responsibilities of the personnel necessary to implement system restoration.

R1.2. The provision for a reliable black-start capability plan including: fuel resources for black start power for generating units, available cranking and transmission paths, and communication adequacy and protocol and power supplies.

R1.3. The plan must account for the possibility that restoration cannot be completed as expected.

R1.4. The necessary operating instructions and procedures for synchronizing areas of the system that have become separated.

R1.5. The necessary operating instructions and procedures for restoring loads, including identification of critical load requirements.

R1.6. A set of procedures for simulating and, where practical, actually testing and verifying the plan resources and procedures.

R1.7. Documentation must be retained in the personnel training records that operating personnel have been trained annually in the implementation of the plan and have participated in restoration exercises.

R1.8. The functions to be coordinated with and among Reliability Coordinators and neighboring Transmission Operators. (The plan should include references to coordination of actions among neighboring Transmission Operators and Reliability Coordinators when the plans are implemented.)

~~**R1.** Notification shall be made to other operating entities as the steps of the restoration plan are implemented. Each Transmission Operator shall include the applicable elements listed in EOP-005 in developing a restoration plan.~~

R1.9.

Standard EOP-005-1 — System Restoration Plans

- R2.** Each Transmission Operator shall review and update its restoration plan at least annually and whenever ~~it makes~~ changes in the power system network **occur that affect its restoration plan**, and shall correct deficiencies found during the simulated restoration exercises.
- R3.** Each Transmission Operator shall develop restoration plans with a priority of restoring the integrity of the Interconnection **with emphasis on restoring offsite power to nuclear stations**.
- R4.** Each Transmission Operator shall coordinate its restoration plans with Balancing Authorities within its area, its Reliability Coordinator, and neighboring Transmission Operators and Balancing Authorities.
- R5.** Each Transmission Operator and Balancing Authority shall periodically test its telecommunication facilities needed to implement the restoration plan.
- R6.** Each Transmission Operator and Balancing Authority shall train its operating personnel in the implementation of the restoration plan. Such training shall include simulated exercises, if practicable.
- R7.** Each Transmission Operator and Balancing Authority shall verify the restoration procedure by actual testing or by simulation.
- ~~**R8.** Each Transmission Operator shall verify that the number, size, **availability**, and location of system blackstart generating units are sufficient to meet Regional Reliability Organization restoration plan requirements **for the Transmission Operator's area**.~~
- ~~**R9-R8.** The Transmission Operator shall demonstrate, through simulation or testing, that its blackstart generating unit(s) can perform the startup functions as stated in the Transmission Operator's restoration plan. The Transmission Operator shall perform such simulation or testing at least every five years, and shall provide documentation to the Regional Reliability Organization on request.~~
- ~~**R10-R9.** The Transmission Operator shall document the ~~cranking path~~ **Cranking Paths** or maintain ~~cranking path~~ **Cranking Path** diagrams, including initial switching requirements, ~~associated~~ between each blackstart generating unit and the unit(s) to be ~~started~~ **cranked** and shall provide documentation to the Regional Reliability Organization upon request.~~
- ~~**R11-R10.** Following a ~~disturbance~~ **Disturbance** in which one or more areas of the Bulk Electric System **(BES)** become isolated or blacked out, the affected Transmission Operators and Balancing Authorities shall begin immediately to return the ~~Bulk Electric System~~ **BES** to normal.~~
- ~~**R11.1-R10.1.** The affected Transmission Operators and Balancing Authorities shall work in conjunction with their Reliability Coordinator(s) to determine the extent and condition of the isolated area(s).~~
- ~~**R11.2-R10.2.** The affected Transmission Operators and Balancing Authorities shall take the necessary actions to restore ~~Bulk Electric System~~ **BES** frequency to normal, including adjusting generation, placing additional generators online, or load shedding.~~
- ~~**R11.3-R10.3.** The affected Balancing Authorities, working with their Reliability Coordinator(s), shall immediately review the Interchange Schedules between those Balancing Authority Areas or fragments of those Balancing Authority Areas within the separated area and make adjustments as needed to facilitate the restoration. The affected Balancing Authorities shall make all attempts to maintain the adjusted Interchange Schedules, whether generation control is manual or automatic.~~
- ~~**R11.4-R10.4.** The affected Transmission Operators shall give high priority to restoration of off-site power to nuclear stations.~~

~~R11.5.R10.5.~~ The affected Transmission Operators may resynchronize the isolated area(s) with the surrounding area(s) when the following conditions are met:

~~R11.5.1.R10.5.1.~~ Voltage, frequency, and phase angle permit.

~~R11.5.2.R10.5.2.~~ The size of the area being reconnected and the capacity of the transmission lines effecting the reconnection and the number of synchronizing points across the system are considered.

~~R11.5.3.~~ Reliability Coordinator(s) and adjacent areas are notified and Reliability Coordinator approval is given.

~~R10.5.3.~~

~~R11.5.4.R10.5.4.~~ Load is shed in neighboring areas, if required, to permit successful interconnected system restoration.

C. Measures

- M1. ~~The Transmission Operator shall , within 30 calendar days of a request, provide its Regional Reliability Organization with documentation of simulations or tests that demonstrate the resources (including ~~eranking path~~Cranking Paths) identified in the Transmission Operator's restoration plan are sufficient to support the Transmission Operator's restoration plan.~~ ~~The Transmission Operator shall, within 30 calendar days of a request, provide its Regional Reliability Organization with documentation of simulations or tests that demonstrate the blackstart units in its area are able to perform the functions of the restoration plan.~~
- M2. The Transmission Operator shall, within 30 calendar days of a request from its Regional Reliability Organization, ~~provide~~ make available documentation or a diagram showing the number, size and location of system blackstart generating units and the associated ~~eranking path~~Cranking Paths for review at the Transmission Operator's locations.

D. Compliance

1. Compliance Monitoring Process
 - 1.1. **Compliance Monitoring Responsibility**

Regional Reliability Organization.
 - 1.2. **Compliance Monitoring Period and Reset Timeframe**

One calendar year.
 - 1.3. **Data Retention**

The Transmission Operator must have its plan to reestablish its electric system available for review by the Regional Reliability Organization at all times.

The Compliance Monitor shall retain any audit data for three years.
 - 1.4. **Additional Compliance Information**

The Transmission Operator 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:** Plan exists but has not been reviewed annually.

- 2.2. Level 2: Plan exists but does not address one of the ~~Requirements~~ elements listed in ~~Attachment 1-EOP-005~~EOP-005 R1.1 to R1.9.
- 2.3. Level 3: ~~Not Applicable~~The Transmission Operator did not provide documentation or a diagram showing the number, size and location of system blackstart generating units and the associated cranking paths.
- 2.4. Level 4: There shall be a level four non-compliance if any of the following conditions exist:
 - 2.4.1 Plan exists but does not address two or more of the ~~requirements~~ Requirements in ~~EOP-005+ R1.1 to R1.9, Attachment 1-EOP-005,~~ or ~~There is no restoration plan in place.~~ of
 - 2.4.2
 - ~~2.4.2.2.4.3~~ 2.4.2.2.4.3 The Transmission Operator's ~~s~~Simulation or test results demonstrating that ~~itsthe restoration plan blackstart generating unitscan perform its-can perform their~~ intended functions ~~wasereere~~ not provided, or the results were not compliant with the regional restoration plan.~~.~~ of
 - 2.4.4 ~~The Transmission Operator d~~Did not make available documentation ~~or a diagram~~ showing the number, size and location of system blackstart generating units and the associated cranking pathCranking Paths.

E. Regional Differences

None identified.

Version History

Version	Date	Action	Change Tracking
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Members	Reliability Need?	Acceptable Transition?	Comments
Dan Griffiths – PA Office of Consumer Advocate	Yes	Yes	<p>I believe that the language in the Purpose section is insufficiently precise. I suggest that the first sentence be modified to read:</p> <p>"To ensure that accurate, actual demand data is available and to support assessments and validation of past events and databases."</p>
<p>Response: Adopted revision to clarify purpose statement.</p>			
Mohan Kondragunta – Southern California Edison WECC Reliability Subcommittee	Yes	No	<p>SCE agrees with the data reporting requirements, but has a concern with the LSE as the responsible entity. Within the WECC region, control areas are currently the reporting entity. Prior to legislation, perhaps a backstop should be created wherein the balancing authority (BA) is responsible for providing data for LSEs within their area if the LSE is not providing the data.</p>
<p>Response: Functional model designates LSE as responsible for developing and reporting load forecast data. Regions and balancing authorities may have procedures or agreements that delegate the task to others, but ultimately the LSE has the information and the responsibility.</p>			
Kansas City Power and Light	Yes	No	<p>It appears the drafting team has chosen to rewrite this proposed standard and add new requirements. The Planning Authority should not be deleted from this standard.</p>
<p>Response: This standard addresses a regional procedure for forecasting and reporting demand data. The procedures need to be consistent across a wide area, such as a region, to ensure the data is consistent and valid for planning and reliability assessments. The related standards in Version 0 assign similar tasks to the RRO. There is still uncertainty in the functional model whether the Planning Authority is a wide-area function or can be a local entity.</p>			

<p>Ronnie Frizzell - Arkansas Electric Coop. Corp.</p>	<p>Yes</p>	<p>No</p>	<p>I oppose deleting the Planning Authority from this standard. There are cases where the RRO is not the Planning Authority and vice versa. This standard is to require the data for modeling purposes. The RRO is not necessarily the one building the models.</p> <p>Instead of a translation of the IID.M2 it looks like the drafting team decided to completely rewrite MOD-16. The translation goes way beyond the requirement to ensure no data is omitted or counted multiple times.</p> <p>The measures should be swapped. M2 measures R1 and M1 measures R2. Renumber M1 to M2 and M2 to M1 and reorder them.</p> <p>I disagree with the comment that it is not necessary to state requirements in other standards. This is done for reference to ensure that the requirements of one standard that apply to portions of another standard are accurate and not overlooked by the party responsible for compliance. Therefore I disagree with the deletion in R2</p> <p>D 1.1.1 compliance monitoring should include the RRO for monitoring the PA.</p>
<p>Response: This standard addresses a regional procedure for forecasting and reporting demand data. The procedures need to be consistent across a wide area, such as a region, to ensure the data is consistent and valid for planning and reliability assessments. The related standards in Version 0 assign similar tasks to the RRO. There is still uncertainty in the functional model whether the Planning Authority is a wide-area function or can be a local entity.</p> <p><u>The cross reference was returned to the standard as suggested.</u></p> <p>The measures will be renumbered.</p>			
<p>FRCC</p>	<p>Yes</p>	<p>No</p>	<p>Agree that the amount of controllable DSM load should be reported (R4) but there should not be a requirement to report the location of customer load. The amount of controllable load is needed to determine the level of adequacy of Resources. Collecting the location of controllable load would be used only in situations where deliverability of resources is a concern. If there is a requirement to report</p>

			<p>the location of controllable customer load, it should only be a requirement on an aggregated basis over a geographic region when there are deliverability concerns. Requiring that entities report the location of all controllable customer load is burdensome and not worthwhile.</p> <p>R6 should be changed to "Each Regional Reliability Organization shall use" (delete "A requirement that" at the beginning of R6), since the RRO should not develop a procedure requiring itself to something.</p> <p>M1 should be in Section C. (Measures) and the requirements at the end of the measure should be R2 to R5, not R1 to R6.</p> <p>Compliance section should be Section D and the requirements in Level 2 and 4 of non-compliance should both be R2 - R5 (not R1 only).</p>
<p>Response: This comment recommends changes to an approved V0 standard. Only R1.2 has been introduced for the Phase III-IV planning standards scope.</p> <p>Electrical location is necessary for modeling purposes.</p> <p>Formatting and numbering errors were corrected.</p>			
<p>Individual Members of CCMC</p> <p>Joseph D Williamson – PJM</p>	<p>Yes</p> <p>No</p>	<p>No</p> <p>No</p>	<p>R2-R7 should be sub-bullets of R1.</p> <p>Can't tell if compliance is to be measured against R1 or R1 through R7. It appears that the "clean version" file is different from the mapping file.</p> <p>Standard is missing section C heading for Measures. It appears that the "clean version" file is different from the mapping file.</p> <p>Measure 1 adds a requirement not contained in the Requirements for this standard. This should be in requirements..</p>

Response: Formatting and numbering errors were corrected.			
Consolidated Edison	Yes	No	<p>R1.5 the use of the actual and forecast data as directly provided by the LSE must be analyzed to ensure it is properly aggregated to reflect coincident peak demands for system modeling and reliability analyses. It is suggested that the word "incorporate" be used instead of "use" in that Requirement.</p> <p>Also there is a formatting error in this Standard. M1 as it appears in the Requirements Section needs revision. R1 should be the Section and R2-R8 should be "sub" requirements due to the language at the end of R1.</p>
Cinod Kotecha	Yes	No	
IESO – Ontario	Yes	No	
Alan Adamson – NYSRC	Yes	No	
Kathleen Goodman – ISO-NE	Yes	No	
NPCC CP9 RSWG	Yes	No	
Response: R1.5 is already approved in V0 and is outside the scope of the current project. Formatting and numbering errors were corrected.			
Michael C. Calimano – NYISO	Yes	No	Please note the formatting correction in NPCC’s comment
Response: Formatting and numbering errors were corrected.			
SPP Transmission Working Group	Yes	No	Under B (requirement) item M1 be removed it is not a requirement
Response: Formatting and numbering errors were corrected.			
Peter Burke – American Transmission	Yes	No	The formatting of and the number of Requirements and Measures listed in the clean Draft1 standard document is inconsistent with the translation mapping document. The version in translation mapping document is more acceptable

