

August 22, 2019

Arizona Public Service  
Attn: Gary Nolan  
MS 3200  
PO Box 53933  
Phoenix, AZ 85072-3933  
[Gary.Nolan@aps.com](mailto:Gary.Nolan@aps.com)

Dear Gary Nolan:

Thank you for submitting a Standard Authorization Request (SAR) dated April 18, 2018 for BAL-002-3 Requirement R1.1.

Pursuant to Section 4.1 of the NERC Standard Processes Manual (SPM), Appendix 3A to the NERC Rules of Procedure, I am writing to inform you that on August 21, 2019, the Standards Committee (SC) reviewed and rejected the SAR submitted by Arizona Public Service (AZPS) for good cause. The SAR was rejected on the grounds that the meaning of the requested modification (i.e., modify Requirement Part R1.1 of this standard to include interconnection frequency assessment) would modify the original intent of standard, which is the demonstration of the deployment of reserves to recover from Reportable Balancing Contingency Events (RBCEs). Further technical rationale and explanation can be found in the attached supplemental material provided by the Resources Subcommittee of the Operating Committee.

Sincerely,



Andrew Gallo  
Chair, NERC Standards Committee

Enclosures:  
Standards Committee Background Document(s)  
BAL-002-3 SAR

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## **BAL-002-3 Standard Authorization Request**

### **Action**

Reject the Standard Authorization Request (SAR) for BAL-002-3, dated April 18, 2018, and provide a written explanation for the rejection to the sponsor within 10 days of the rejection decision.

### **Background**

NERC received a SAR requesting modifications to Reliability Standard BAL-002-3 Disturbance Control Standard—Contingency Reserve for Recovery from a Balancing Contingency Event. The SAR states that the proposed change (e.g., allowing the compliance with BAL-002-2 R1 to have been reached once Interconnection Frequency has recovered) would prevent the recovery of one event to contribute to the creation of another event, High Frequency Trigger Limit – BAAL Exceedance (BAL-001-2 R2). The SAR further states that operating in such a manner as to intentionally increase Frequency when Frequency is already high is not permissible in normal operations, it should similarly be avoided and discouraged during the emergency operations.

Pursuant to Section 4.1 of the Standard Processes Manual, NERC staff recommended to the Standards Committee (SC) at its July 18, 2018 meeting to delay action on the SAR and consult with the NERC Operating Committee (OC) for further technical review. The SC agreed and the SAR was forwarded to the OC on July 19, 2018. The Resources Subcommittee (RS) of the OC considered this SAR at length at its October 2018 meeting. After reviewing the SAR, the RS recommended to the OC that the SAR should not go forward as written. The requested modification (i.e., modify Requirement Part R1.1 of this standard to include interconnection frequency assessment) would modify the original intent of standard, which is the demonstration of the deployment of reserves to recover from Reportable Balancing Contingency Events (RBCEs). Further technical rationale and explanation can be found in the attached supplemental material provided by the Resources Subcommittee of the OC.

# Standard Authorization Request (SAR)

Complete and please email this form, with attachment(s) to: [sarcomm@nerc.net](mailto:sarcomm@nerc.net)

The North American Electric Reliability Corporation (NERC) welcomes suggestions to improve the reliability of the bulk power system through improved Reliability Standards.

Requested information			
SAR Title:	BAL-002-3 – Disturbance Control Standard—Contingency Reserve for Recovery from a Balancing Contingency Event		
Date Submitted:	April 18, 2018		
SAR Requester			
Name:	Gary Nolan		
Organization:	Arizona Public Service		
Telephone:	602-250-1135	Email:	Gary.Nolan@aps.com
SAR Type (Check as many as apply)			
<input type="checkbox"/> New Standard	<input type="checkbox"/> Imminent Action/ Confidential Issue (SPM Section 10)	<input type="checkbox"/> Variance development or revision	<input type="checkbox"/> Other (Please specify)
<input checked="" type="checkbox"/> Revision to Existing Standard			
<input type="checkbox"/> Add, Modify or Retire a Glossary Term			
<input type="checkbox"/> Withdraw/retire an Existing Standard			
Justification for this proposed standard development project (Check all that apply to help NERC prioritize development)			
<input type="checkbox"/> Regulatory Initiation	<input type="checkbox"/> NERC Standing Committee Identified	<input type="checkbox"/> Enhanced Periodic Review Initiated	<input checked="" type="checkbox"/> Industry Stakeholder Identified
<input type="checkbox"/> Emerging Risk (Reliability Issues Steering Committee) Identified			
<input type="checkbox"/> Reliability Standard Development Plan			
Industry Need (What Bulk Electric System (BES) reliability benefit does the proposed project provide?):			
With the deployment of Reliability Based Control “RBC” (BAL-001-2 R2) which encourages Balancing Authorities to operate to not further degrade or escalate off-nominal Frequency, the recovery to Reportable Balancing Contingency Events can require a Balancing Authority to further contribute to off-nominal high Frequency, when Frequency has been restored prior to Reporting ACE having been recovered. It should be considered that a Responsible Entity has recovered from a Reportable Balancing Contingency Event if either 1) Reporting ACE has reached zero or Pre-Reporting Contingency Event ACE Value (BAL-002-2 R1.1) or 2) Interconnection Frequency has reached or exceeded 60 Hz and/or the Balancing Authority has entered a permissible BAAL <sub>LOW</sub> and BAAL <sub>HIGH</sub> operating range .			
Purpose or Goal (How does this proposed project provide the reliability-related benefit described above?):			
This proposed change (e.g. allowing the compliance with BAL-002-2 R1 to have been reached once Interconnection Frequency has recovered) prevents the recovery of one event to contribute to the creation of another event, High Frequency Trigger Limit – BAAL Exceedance (BAL-001-2 R2). Since			

Requested information
operating in such a manner as to intentionally increase Frequency when Frequency is already high is not permissible in normal operations, it should similarly be avoided and discouraged during the emergency operations.
<b>Project Scope (Define the parameters of the proposed project):</b>
Modify BAL-002-2 R1.1 to include one additional condition to account for Interconnection Frequency reaching or exceeding 60 Hz; and/or the Balancing Authority has entered a permissible BAAL <sub>LOW</sub> and BAAL <sub>HIGH</sub> operating range; or a similar reasonable measurement that demonstrate the BES has recovered from the event and has transitioned back to normal operations.
<b>Detailed Description (Describe the proposed deliverable(s) with sufficient detail for a drafting team to execute the project. If you propose a new or substantially revised Reliability Standard or definition, provide: (1) a technical justification<sup>1</sup> which includes a discussion of the reliability-related benefits of developing a new or revised Reliability Standard or definition, and (2) a technical foundation document (e.g. research paper) to guide development of the Standard or definition):</b>
With the integration of Variable Energy Resources and Reliability Based Control, currently the Interconnection may restore Frequency after a Reportable Balancing Contingency Event and at times Frequency may continue trending upwards post frequency restoration. Meanwhile, if the Balancing Authority or Reserve Sharing Group has not restored its Reporting ACE, they must continue to contribute additional generation resources onto the grid in order to comply with BAL-002-2 R1.1. In the interest of reliability, it is necessary now to consider a Balancing Authority's compliance with the Disturbance Control Standard and the Balancing Authority ACE Limit (BAAL) simultaneously to prevent intentional over generation during these events.
It is proposed that BAL-002-2 R1.1 be modified to allow a Balancing Authority or Reserve Sharing Group to be considered having recovered their Reporting ACE if Interconnection Frequency has reached or exceeded 60 Hz and/or has entered a permissible BAAL <sub>LOW</sub> and BAAL <sub>HIGH</sub> operating range.
<b>Cost Impact Assessment, if known (Provide a paragraph describing the potential cost impacts associated with the proposed project):</b>
There would be minimal to no cost impact as the results of this modification would merely change how Reportable Events are determined to be compliant with the requirement.
<b>Please describe any unique characteristics of the BES facilities that may be impacted by this proposed standard development project (e.g. Dispersed Generation Resources):</b>
None.
<b>To assist the NERC Standards Committee in appointing a drafting team with the appropriate members, please indicate to which Functional Entities the proposed standard(s) should apply (e.g. Transmission Operator, Reliability Coordinator, etc. See the most recent version of the NERC Functional Model for definitions):</b>
Balancing Authorities and Reserve Sharing Groups

<sup>1</sup> The NERC Rules of Procedure require a technical justification for new or substantially revised Reliability Standards. Please attach pertinent information to this form before submittal to NERC.

Requested information
Do you know of any consensus building activities <sup>2</sup> in connection with this SAR? If so, please provide any recommendations or findings resulting from the consensus building activity.
No.
Are there any related standards or SARs that should be assessed for impact as a result of this proposed project? If so which standard(s) or project number(s)?
None.
Are there alternatives (e.g. guidelines, white paper, alerts, etc.) that have been considered or could meet the objectives? If so, please list the alternatives.

No.

Reliability Principles	
Does this proposed standard development project support at least one of the following Reliability Principles ( <a href="#">Reliability Interface Principles</a> )? Please check all those that apply.	
<input checked="" type="checkbox"/>	1. Interconnected bulk power systems shall be planned and operated in a coordinated manner to perform reliably under normal and abnormal conditions as defined in the NERC Standards.
<input checked="" type="checkbox"/>	2. The frequency and voltage of interconnected bulk power systems shall be controlled within defined limits through the balancing of real and reactive power supply and demand.
<input type="checkbox"/>	3. Information necessary for the planning and operation of interconnected bulk power systems shall be made available to those entities responsible for planning and operating the systems reliably.
<input type="checkbox"/>	4. Plans for emergency operation and system restoration of interconnected bulk power systems shall be developed, coordinated, maintained and implemented.
<input type="checkbox"/>	5. Facilities for communication, monitoring and control shall be provided, used and maintained for the reliability of interconnected bulk power systems.
<input type="checkbox"/>	6. Personnel responsible for planning and operating interconnected bulk power systems shall be trained, qualified, and have the responsibility and authority to implement actions.
<input type="checkbox"/>	7. The security of the interconnected bulk power systems shall be assessed, monitored and maintained on a wide area basis.
<input type="checkbox"/>	8. Bulk power systems shall be protected from malicious physical or cyber attacks.

Market Interface Principles	
Does the proposed standard development project comply with all of the following <a href="#">Market Interface Principles</a> ?	Enter (yes/no)
1. A reliability standard shall not give any market participant an unfair competitive advantage.	Yes
2. A reliability standard shall neither mandate nor prohibit any specific market structure.	Yes
3. A reliability standard shall not preclude market solutions to achieving compliance with that standard.	Yes

<sup>2</sup> Consensus building activities are occasionally conducted by NERC and/or project review teams. They typically are conducted to obtain industry inputs prior to proposing any standard development project to revise, or develop a standard or definition.

Market Interface Principles	
4. A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards.	Yes

Identified Existing or Potential Regional or Interconnection Variances	
Region(s)/ Interconnection	Explanation
<i>e.g.</i> NPCC	

### For Use by NERC Only

SAR Status Tracking (Check off as appropriate)	
<input type="checkbox"/> Draft SAR reviewed by NERC staff	<input type="checkbox"/> Final SAR endorsed by the SC
<input type="checkbox"/> Draft SAR presented to SC for acceptance	<input type="checkbox"/> SAR assigned a Standards Project by NERC
<input type="checkbox"/> Draft SAR approved for posting by the SC	<input type="checkbox"/> SAR denied or proposed as Guidance document

### Version History

Version	Date	Owner	Change Tracking
1	June 3, 2013		Revised
1	August 29, 2014	Standards Information staff	Updated template
2	January 18, 2017	Standards Information staff	Revised
2	June 28, 2017	Standards Information staff	Updated template

## **Recommendation for Disposition of the Arizona Public Service Standard Authorization Request**

### **Background**

NERC received a Standard Authorization Request (SAR) from Arizona Public Service to modify Reliability Standard BAL-002-2(i) Disturbance Control Standard—Contingency Reserve for Recovery from a Balancing Contingency Event. The SAR states the proposed change (allowing compliance with proposed BAL-002-3 R1 once Interconnection Frequency has recovered) would prevent the recovery of one event to create another event, High Frequency Trigger Limit – BAAL exceedance (BAL-001-2 R2). The SAR further states that operating in such a manner as to intentionally increase Frequency when Frequency is already high should be avoided and discouraged during emergency operations.

Pursuant to Section 4.1 of the Standard Processes Manual, NERC staff recommended to the Standards Committee (SC) that the SAR be sent to the NERC Operating Committee (OC) for further technical review. The SC agreed and the SAR was forwarded to the OC on July 19, 2018. The OC reviewed the request and forwarded the SAR to the NERC Resources Subcommittee (RS) for review.

### **Recommendation**

The RS considered this SAR at length at its October 2018 meeting. The SAR author (Gary Nolan, Arizona Public Service) was invited to, and did present his position during the agenda item. He also participated in much of the discussion subsequent to his presentation. The RS statement (absent the dissenting opinion) was the motion as voted. The motion passed 17-1, no abstentions. Per the RS charter, the opportunity to include a dissenting opinion was offered, and that opinion (unedited) was included in the report back to the OC.

The RS brought their final recommendation to the OC at the March 5-6, 2019 meeting and the OC unanimously approved the following response:

The Resources Subcommittee opinion on the soundness of the request is that the SAR should not go forward as written. The recommended modification of R1.1 of this standard to include interconnection frequency assessment will modify the original intent of standard, which is the demonstration of the deployment of reserves to recover from Reportable Balancing Contingency Events (RBCEs).

However, the concerns raised in this SAR can be addressed by other means.

Dissenting Opinion on BAL-002: “The SAR request has technical merit based on the fact that it is contrary to reliability for the rules to incent resources to continue to inject power into the interconnection when the frequency is already high and rising. There are many complicating issues and many potential solutions that should be presented to the industry for discussion—this is what the SAR process does.”

## Technical Rationale

For reference, the key proposal from the SAR is (last paragraph of the Detailed Description):

It is proposed that BAL-002-2 R1.1 be modified to allow a Balancing Authority or Reserve Sharing Group to be considered having recovered their Reporting ACE if Interconnection Frequency has reached or exceeded 60 Hz and/or has entered a permissible BAAL<sub>LOW</sub> and BAAL<sub>HIGH</sub> operating range.

The proposal is in direct contradiction to the intent of BAL-002-3. As written, it proposes the BA/RSG “to be considered having recovered ...” without any actual recovery of the BA/RSG ACE. The purpose of BAL-002-3 is “To ensure the Balancing Authority or Reserve Sharing Group balances resources and demand and returns the Balancing Authority's or Reserve Sharing Group's Area Control Error to defined values (subject to applicable limits) following a Reportable Balancing Contingency Event.” There are several conditions in the standard (see R1.3 and following) which exempt a BA/RSG from compliance, but the expectation is still to “deploy Contingency Reserve, within system constraints, to respond to all Reportable Balancing Contingency Events...” and to have “provided ... an ACE recovery plan, including target recovery time ...”. The proposal does not attempt to balance resources and demand or return ACE to defined values; it contradicts the purpose of the standard.

BAL-002 requires that the BA/RSG return ACE to the lower of pre-disturbance ACE or zero; in either case, the BA/RSG would not be injecting MWs into the interconnection during high frequency from an ACE perspective. Even when ACE is zero, the ACE would be drawing in MWs (due to the Frequency Bias component) so as to pull high frequency back towards Scheduled Frequency. In any case, frequency above or below Scheduled Frequency, the BA needs to demonstrate deployment of reserves to recover ACE. The reason why recovery is necessary is not just to be ready for the BA's next contingency, but for any such contingency on the Interconnection. Frequency can swing in the other direction at any time. If the BA has not deployed its reserves as required, it may not be positioned to address its balance in a manner that would not contribute to the severity of the next event on the system.

The proposal presumes that injecting more power or shedding load are the only solutions, but those are not necessarily the only means to recover ACE. One such way to accomplish this is to request emergency assistance from other BAs with a large positive ACE. Given the scenario described, the majority (possibly even the contingent BA prior to the loss) of BAs in the interconnection would have positive ACEs (only way frequency can be above scheduled). The schedule transfer does not add power to the interconnection, but both the contingent and other BAs have changed their respective ACEs to more closely balance resources and demand.

## Other Means to Address

The dissenting opinion notes “many complicating issues and many potential solutions” and the RS majority recognized this in pointing out that there are other means to address the concern. Although the SAR process is one way, it is not the most efficient in this



case. Compliance guidance, reliability guidelines, and/or reference documents can be developed to instruct BAs/RSGs on how this should be addressed, including modifications to the Operating Process and Operating Plan (see R2) to better prepare for such situations and manage reserves so that injection of power or firm load shed is not the default response. An effort to develop any of these documents, in concert with the appropriate NERC technical committees, could be completed more quickly than the entire standard revision process. Such an effort will provide different solution(s) than proposed but will align with and not circumvent the requirements in the standard.