NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Consideration of Comments

WECC's Proposed Regional Variance to NERC Standard BAL-001-0.1a Real Power Balancing Control Performance

The Regional Standards Group thanks all commenters who submitted comments on the proposed regional variance to NERC Standard BAL-001-0.1a. This standard was posted for a 45-day public comment period from January 23 – March 9, 2012. Stakeholders were asked to provide feedback on the standard through a special electronic comment form. There were six sets of comments, including comments from eight different people from six entities representing five of the 10 Industry Segments as shown in the table on the following pages.

All comments submitted may be reviewed in their original format on the standard's project page:

http://www.nerc.com/filez/regional_standards/regional_reliability_standards_under_development.html

If you feel that your comment has been overlooked, please let us know immediately. The goal is to give every comment serious consideration in this process! If you feel there has been an error or omission, you can contact the Vice President of Standards and Training, Herb Schrayshuen, at 404-446-2560 or at herb.schrayshuen@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.[1]

[1] The appeals process is in the Reliability Standards Development Procedures: http://www.nerc.com/standards/newstandardsprocess.html.

Index to Questions, Comments, and Responses

The Industry Segments are:

1 — Transmission Owners
2 — RTOs, ISOs
3 — Load-serving Entities
4 — Transmission-dependent Utilities
5 — Electric Generators
6 — Electricity Brokers, Aggregators, and Marketers
7 — Large Electricity End Users
8 — Small Electricity End Users
9 — Federal, State, Provincial Regulatory or other Government Entities
10 — Regional Reliability Organizations, Regional Entities

Group/Individual		Commenter	Organization	Registered Ballot Body Segment									
				1	2	3	4	5	6	7	8	9	10
1.	Group	Chris Higgins	Bonneville Power Administration	X		X		X	X				
	Additional Member	**Additional Organization**	**Region**	**Segment Selection**									
	1. James	Murphy	WECC	1									
2.	Group	Nicholas L. Hall	Constellation Energy Control and Dispatch					X					
	Additional Member	**Additional Organization**	**Region**	**Segment Selection**									
	1. Brenda Powell	Constellation Energy Commodities Group	WECC	5									
3.	Individual	Janet Smith, Regulatory Affairs Supervisor	Arizona Public Service Company	X		X		X	X				
4.	Individual	Chris Chavez for Mike Gentry	Salt River Project	X		X		X	X				
5.	Individual	Sandra Shaffer	PacifiCorp	X		X		X	X				
6.	Individual	Howard Illian	Energy Mark, Inc.								X		

1. **Do you agree the proposed standard (variance) is being developed in a fair and open process, using the associated Regional Reliability Standards Development Procedure?**

Summary Consideration: Five of the six commenters agreed the WECC Variance to BAL-001-0.1a was developed in a fair and open process. The Process for Developing and Approving WECC Standards was followed until February 29, 2012, and the Reliability Standards Development Procedures were followed after March 1, 2012. All drafting team meetings and different versions of the WECC Variance to BAL-001-0.1a (WECC Variance) were accordingly posted and noticed on the WECC website at http://www.wecc.biz/Standards/Development/WECC-0068/default.aspx. The commenter, who did not agree that the process was fair and open, argues that the drafting team failed to present information that would argue against previous FERC rulings. With the creation of the WECC Variance to BAL-001-0.1a and BAL-004-WECC-2, the drafting team believes that it is making refinements and clarifications to address issues raised by FERC, such as defining large accumulations of inadvertent, and to address confusion in the industry that developed when FERC ruled on BAL-004-WECC-1, BAL-001-0.1a Appendix 2 Interpretation of Requirement R1, and BAL-003-0.1b Appendix 1 Interpretation of Requirement R3. The drafting team's technical report titled "Consolidation of NERC and Control ACEs – Using the Same ACE for Control and NERC Reporting" (Technical Report) provides justification for the WECC Variance. Once the WECC Variance and BAL-004-WECC-2 are approved, the drafting team has recommended that the interpretations be retired. The drafting team recognizes that the continent-wide NERC standards development process may have to be followed in order to retire the interpretations.

Organization	Yes or No	Question 1 Comment
Bonneville Power Administration	Yes	
Constellation Energy Control and Dispatch	Yes	
Arizona Public Service Company	Yes	
Salt River Project	Yes	
PacifiCorp	Yes	

Organization	Yes or No	Question 1 Comment
Energy Mark, Inc.	No	Comment 1: The information presented fails to create a sufficient record necessary to support the variance requested. The variance as presented fails to address the issues that resulted in the previous rule, ie. the reasons that the NERC Resources Subcommittee issued its original interpretation requiring the use of the ACE Equation as defined by NERC. This proposed standard (variance) fails to include any discussion of these issues. The information also fails to present any new information that would counter the previous ruling by the Federal Energy Regulatory Commission (FERC) that rejected the variance request in 2008. Therefore, the record presented for justification for approval of this standard is deficient because it fails to address any of the issues previously raised that were determined to be adequate grounds for rejection of this variance at that time. Comment 2: At a minimum, a record should be created to address the issues resulted in rejection of this variance previously.

Response: In developing the WECC Variance to BAL-001-0.1a, the standard drafting team followed the Process for Developing and Approving WECC Standards until February 29, 2012 and the Reliability Standards Development Procedures after March 1, 2012. All drafting team meetings and different versions of the WECC Variance were accordingly posted and noticed on the WECC website at http://www.wecc.biz/Standards/Development/WECC-0068/default.aspx. The drafting team's technical report titled "Consolidation of NERC and Control ACEs – Using the Same ACE for Control and NERC Reporting" (Technical Report) provides justification for the WECC Variance. The Technical Report was posted for industry comment with the second posting of the WECC Variance (November 4 – December 5, 2011), and all commenters agreed with the conclusions in the report. In addition, a Mapping Document and Issues Table detailing how the drafting team addressed each FERC directive were included with all WECC postings. The public postings, public meetings, and Technical Report provide the record and justification necessary to approve the WECC Variance and BAL-004-WECC-2.

With the creation of the WECC Variance and BAL-004-WECC-2, the drafting team believes that it is making refinements and clarifications to address confusion in the industry that developed when FERC ruled on BAL-004-WECC-1, BAL-001-0.1a Appendix 2 Interpretation of Requirement R1 and BAL-003-0.1b Appendix 1 Interpretation of Requirement R3. The drafting team recognizes that the continent-wide NERC standards development process may have to be followed in order to retire the NERC interpretations.

2. Does the proposed standard (variance) pose an adverse impact to reliability or commerce in a neighboring region or interconnection?

Summary Consideration: Five of the six commenters agreed the WECC Variance to BAL-001-0.1a did not pose an adverse impact to reliability or commerce in a neighboring region or Interconnection. Since the WECC Variance applies to only Western Interconnection, it cannot adversely impact other regions or Interconnections. The dissenting commenter felt the WECC Variance sets precedence with respect to the definition of Tie-line Bias Control. The drafting team notes that the proposed ACE equation contains the interchange and frequency components (Tie-Line Bias control components) of the NERC ACE equation as well as providing time error corrections that are considered an acceptable adjustment. The drafting team's Technical Report provides justification for the WECC Variance and documents improvement in the WECC frequency profile since the use of Automatic Time Error Correction. The main reason for the WECC Variance is to achieve a more accurate indication of actual control performance by coordinating performance measurements and control objectives.

Organization	Yes or No	Question 2 Comment
Bonneville Power Administration	No	
Constellation Energy Control and Dispatch	No	
Arizona Public Service Company	No	
Salt River Project	No	
PacifiCorp	No	
Energy Mark, Inc.	Yes	Comment 3: The proposed standard sets a precedence with respect to the definition of Tie-line Bias Control that is detrimental to reliability for all interconnections. Time Error Correction (TEC) is available as part of Tie-line Bias Frequency Control which is

Organization	Yes or No	Question 2 Comment
		use by the North American interconnections to coordinate the control among the BAs that make up the multi-BA interconnections. Although the NERC Operating Committee has determined that TEC is a commercial service, the continuation of this service remains open for discussion. Rules governing Tie-line Bias Frequency Control are described by Cohn (1967): 1) The requirement that all portions of the interconnection be included in one area or another, so that the sum of all area generation, loads and losses is the same as total system generation load and losses; 2) The need to have the algebraic sum of all area net interchange schedules equal to zero; 3) The use of a common scheduled frequency for all areas; 4) The absence of metering or computational errors. An additional basic requirement is that all BAs on the interconnection use a common ACE Equation as defined below as: ACE = (NIA - NIS) - 10B (FA - FS) – IME where: o NIA is the algebraic sum of actual flows on all tie lines. o NIS is the algebraic sum of scheduled flows on all tie lines. o B is the Frequency Bias Setting (MW/0.1 Hz) for the Balancing Authority. The constant factor 10 converts the frequency setting to MW/Hz. o FA is the actual frequency. o FS is the scheduled frequency. FS is normally 60 Hz but may be offset to effect manual time error corrections. o IME is the meter error correction factor typically estimated from the difference between the integrated hourly average of the net tie line flows (NIA) and the hourly net interchange demand measurement (megawatt-hour). This term should normally be very small or zero. The last term in the ACE Equation corrects for metering errors as required by the basic rules. It is acceptable to modify the ACE Equation as long as the four basic rules stated by Cohn are followed. The proposed variance fails to follow these four basic rules. As a consequence, implementation of the proposed variance will fail to meet the requirements necessary to qualify as Tie-line Bias Control. Comment 4: The variance as proposed will not be in compliance with Standard BAL-003-0.1b - Frequency Response and Bias; Requirement R3. Each Balancing Authority shall operate its Automatic Generation Control (AGC) on Tie Line Frequency Bias, unless such operation is adverse to system or Interconnection reliability. Comment 5: The variance as proposed will not be in compliance with Standard BAL-005-0.1b - Automatic Generation Control,

Organization	Yes or No	Question 2 Comment
		Requirements R6. The Balancing Authority's AGC shall compare total Net Actual Interchange to total Net Scheduled Interchange plus Frequency Bias obligation to determine the Balancing Authority's ACE. Single Balancing Authorities operating asynchronously may employ alternative ACE calculations such as (but not limited to) flat frequency control. If a Balancing Authority is unable to calculate ACE for more than 30 minutes it shall notify its Reliability Coordinator. and R7. The Balancing Authority shall operate AGC continuously unless such operation adversely impacts the reliability of the Interconnection. If AGC has become inoperative, the Balancing Authority shall use manual control to adjust generation to maintain the Net Scheduled Interchange. Comment 6: This proposed variance seeks to implement a commercial service in a manner that fails to meet the reliability requirements in current reliability standards. This alone should be sufficient grounds for the rejection of this variance.

Response: The drafting team disagrees with the statements made by the commenter.

Concerning the proposed WECC Variance setting precedence with respect to the definition of Tie Line Bias control that is detrimental to reliability, the drafting team believes the proposed ACE equation is not detrimental because it contains the Interchange and frequency components (the Tie-Line Bias control components) thus meeting Tie Line Bias control requirements.

Concerning compliance with BAL-003 and BAL-005 the drafting team conducted a review of the NERC Reliability Standards including Standard BAL-005-0.1b Requirement R6 to determine if there were any conflicts and adverse impacts with the proposed WECC Variance. The drafting team does not believe that implementation of the WECC Variance would result in a violation of the NERC requirements identified by the commenter because the proposed WECC Variance still contains the Net Actual Interchange, Net Schedule Interchange and Frequency Bias obligation component of the traditional Tie Line Bias Control mode.

The drafting team disagrees with comment 6 and believes the proposed WECC Variance meets or exceeds the current NERC frequency control requirements. As shown in the Technical Report the implementation of Automatic Time Error Correction (ATEC) into the ACE equation reduces frequency error and provides better frequency control, over time. In addition, since the Western Interconnection has been using the ATEC ACE to control with since 2003 and BAL-004-WECC-1 has been in effect since July 1, 2009, Balancing Authorities operating in the Western Interconnection have not observed negative reliability impacts due to ATEC. On the contrary, as shown in the Technical Report, the Western Interconnection Balancing Authorities observed an improvement in the

Organization	Yes or No	Question 2 Comment
		frequency error profile until the Reliability-based Control (RBC) Field Trial began. The improvement in the frequency error profile attests to better control of the Interconnection frequency thus providing justification for the WECC Variance and BAL-004-WECC-2.

3. Does the proposed standard (variance) pose a serious and substantial threat to public health, safety, welfare, or national security?

Summary Consideration: Five of the six commenters agreed the WECC Variance did not pose a serious and substantial threat to public health, safety, welfare, or national security. The dissenting commenter did not feel the WECC Variance was developed with discussion nor was there a formal record. All meetings notes, technical papers, and public postings are publically available on the WECC website under Standards, WECC Under Development. The development record is clearly displayed at http://www.wecc.biz/Standards/Development/WECC-0068/default.aspx. **As described in the Technical Report there is improvement in frequency control and in the assessment of control performance while maintaining the ability to respond to frequency events. Based upon the results contained in the Technical Report, the drafting team does not believe there is a compelling reliability concern to implement the many design and control theory refinements suggested by the dissenting commenter.**

Organization	Yes or No	Question 3 Comment
Bonneville Power Administration	No	
Constellation Energy Control and Dispatch	No	
Arizona Public Service Company	No	
Salt River Project	No	
PacifiCorp	No	
Energy Mark, Inc.	Yes	Comment 7: The proposed variance poses a serious and substantial threat to reliability of the interconnection because it is being recommended for implementation without the presentation of any discussion or formal record with respect to its impact on the reliability of the interconnection. Comment 8: The

Organization	Yes or No	Question 3 Comment
		proposed variance requests a change in the definition of Area Control Error (ACE) without providing a record to indicate the impact that this change will have on reliability. ACE is the basic measure used to determine performance for reliability purposes. ACE is used in multiple reliability standards and requirements as a basic measure to indicate the performance of the Balancing Authority. This variance is proposed without the creation of any record indicating the impact that this change in the definition of ACE will have on these other reliability standards. Comment 9: ACE is used in the calculation of the CPS1 requirement. This CPS1 requirement as implemented provides the guarantee that: if all Balancing Authorities on an interconnection comply with the CPS1 requirement, then the Root Mean Square of the Frequency Error for that interconnection will be less than Epsilon 1. If the proposed variance is implemented, this guarantee will no longer be a result of compliance with the CPS1 requirement. Therefore, implementation of the proposed variance will be detrimental to reliability because it will invalidate other reliability measurements based upon ACE. There is no discussion in the record, either qualitive or quantative, indicating the impact of this change in the ACE definition on CPS1.Comment 10: ACE is used in the calculation of the CPS2 requirement. This CPS2 requirement is the only requirement addressed with respect to the impact that the ACE definition has on compliance. The discussion of the impact on the implementation of this variance was qualitive only. The record fails to include any discussion of the quantitive impact of this variance on the quantitive effect on CPS2. Comment 11: A new requirement, Balancing Authority ACE Limit (BAAL), is under field trial on all of the North American interconnections. This new requirement uses ACE as one of the basic parameters in its calculation. BAAL also comes with a reliability guarantee; If all Balancing Authorities are within their BAAL then the interconnection will have a frequency error less than the BAAL frequency limit. Implementation of the proposed variance will also invalidate this guarantee. Therefore, implementation of the proposed variance will be detrimental to reliability because it will invalidate other reliability measurements based upon ACE. There is no discussion in the record, either qualitive or quantative, indicating the impact of this

Organization	Yes or No	Question 3 Comment
		change in the ACE definition on BAAL. Comment 12: ACE is used in the calculation of the Recovery Criterion in Standard BAL-002-0 - Disturbance Control Performance requirement R4. If the proposed variance is implemented, this required recovery will be affected. Therefore, implementation of the proposed variance could be detrimental to reliability because it will change other reliability measurements based upon ACE. There is no discussion in the record, either qualitive or quantative, indicating the impact of this change in the ACE definition on the Disturbance Control Standard. Comment 13: This request for a variance fails to meet the requirement that it demonstrate that the variance is not inconsistent with or less stringent than the NERC reliability standard. Comments 8 through 12 above provide evidence that this requirement is less stringent than the NERC reliability requirements indicated in the above comments 8 through 12. Comment 14: In its request the drafting team indicated that, "Replacing the NERC ACE equation with an ATEC ACE equation is an alternative methodology with the same reliability objective as the existing BAL-001-0.1a standard." Although the alternative methodology has the same reliability objective as the existing standard, this fact does not relieve the alternative methodology from having a sound technical basis consistent with the maintenance of reliability. This proposed alternative methodology contains many technical errors and misrepresentations that make it unsuitable for implementation as currently defined. Comment 15: The justification for the change in the ACE Equation to implement ATEC begins with the concept of Primary Inadvertent Interchange and Secondary Inadvertent Interchange. This concept as developed by Nathan Cohn fails to have a sound technical basis. This can be easily demonstrated. A careful reading of the technical paper upon which the ATEC methodology is based reveals the following quotation. "A primary component of over-generation or under-generation in one area is matched by the sum of related (N-1) secondary components of under-generation and over-generation respectively in other areas. Similarly, a primary component of export or import in one area is matched by the sum of related (N-1) secondary components of import or export respectively in other areas." If this statement is true then all Primary Inadvertent must be exactly matched by Secondary

Organization	Yes or No	Question 3 Comment
		Inadvertent. The counter example is easily provided by considering an hour that has inadvertent but no time error change. In this case all inadvertent for the hour is defined as Primary Inadvertent. Therefore, the basis for the Primary Inadvertent / Secondary Inadvertent calculation presented in the Cohn technical paper is incorrect in its development. Therefore, the stated methodology lacks a sound technical basis for acceptance. In addition, the concept of "stranded inadvertent" is refuted by this example. Inadvertent cannot be stranded without validation of the concept of Primary Inadvertent Interchange and Secondary Inadvertent Interchange. However, minor modifications in the suggested methodology would correct the technical errors and make it appropriate for implementation. This commentor fails to understand why technically competent parties continue to ignor the obvious technical errors in this methodology and resist correcting them. Comment 16: Although Cohn is mistaken in his analysis of Primary Inadvertent Interchange and Secondary Inadvertent Interchange, he does provide a valid way to concurrently correct time error and payback inadvertent interchange. The method he ultimately recommends is mathematically equivalent to the independent payback of traditional inadvertent interchange and the independent correction of time error with both methods using the same period over which the payback and correction are implemented. This concurrent TEC and inadvertent payback is performed with a single process simply because Cohn choses to implement both as schedules represented with MW offsets as opposed to the traditional method of providing inadvertent payback with MW offsets and TEC with frequency offsets. He also choses to implement both with the same implementation period (H). Since the concept of "stranded inadvertent" is not valid, there is no reason to assume that the inadvertent payback implementation period and the TEC implementation period should be the same. Comment 17: The inadvertent payback and TEC are implemented over the same period in the proposed variance. This period is defined as H in the standard and is set at 3 hours. There is no justification offered and no discussion with respect to how this parameter was determined. Therefore, there is no record to support the setting of this parameter. Comment 18: The setting of Lmax and limiting the Time Error and Inadvertent

Organization	Yes or No	Question 3 Comment
		Payback adjustment to less than this value is the reason that the method suggested is not compatible with Tie-line Bias Control. When the PII payback is limited to this value, the resulting interchange schedules fail to meet the criteria that they balance and unilateral scheduled interchange results. This unilateral interchange is the reason that the method suggested does not conform to appropriate Tie-line Bias control methodology. If this single limitation is removed from the standard, it will conform to Tie-line Bias Control and can easily be modified to be compatible with all of the ACE based reliability requirements. Comment 19: The justification for the PII limit is based upon the amount of scheduled payback within the Lmax limit. However, one of the reliability effects of the limit is based upon the difference between the Lmax limit and the scheduled payback without the limit since this is the amount of unilateral payback that is required by the limit. There has been no attempt to evaluate this difference and determine its affect qualitively and quantitively on the other reliability measure based upon the current definition of ACE. Comment 20: Experience on the Eastern Interconnection has demonstrated that TEC has an impact on reliability. This is the reason that NERC is investigating the elimination of TEC. These investigations have revealed the following: 1) time error correction in any form detrimentally impacts reliability because it requires an offset in scheduled frequency from 60 Hz moving the operating point closer to the underfrequency and overfrequency relay limits; 2) setting the frequency offset to values smaller than the 20 mHz value currently in use will reduce the detrimental reliability effects. Comment 21: It has also been demonstrated that a reduction in the equivalent frequency offset used for time error correction will result in a reduction the the probability risk associated with TEC. The proposed variance sets Lmax above the value equivalent to the current 20 mHz offset of frequency. As a result, the proposed method could create greater reliability risk than the current 20 mHz offset and put the interconnection at greater reliability risk than the current manual method. As recommended above, a lower reliability risk associated with a smaller frequency offset can be achieved by setting H to a value significantly greater than 3 hours. For example, a 20 mHz offset results in a maximum rate of correction

Organization	Yes or No	Question 3 Comment
		of 1.2 seconds per hour and a 10 mHz offset results in a maximum rate of correction of 0.6 seconds per hour. If H were set at 24 hours, then the proposed method would result in a 0.4167 seconds per hour correction rate assuming a maximum time error of 10 seconds (10/24), significantly reducing the reliability risk due to frequency offset. Comment 22: By considering the choice of how quickly to implement the payback of inadvertent and the correction of time error, those selecting the value of the H parameter are also determining the risk that the payback terms will exceed reliability limits with respect to the magnitude of additional transmission flows required to implement the TEC and inadvertent payback. Choosing a small value for H insures that the effective frequency offset for TEC and the effective inadvertent payback will be large and have a correspondingly large reliability risk. Choosing a large value for H insures that the effective frequency offset for TEC and the effective inadvertent payback will be small and have a correspondingly small reliability risk. As an alternative to setting a value for Lmax, the drafting team could choose a large value for H and eliminate the need to set a value for Lmax while reducing the reliability impact of the frequency offset for TEC and the reliability impact on transmission loading for inadvertent payback. Comment 23: Since there is no advantage in using the same H value for both TEC and inadvertent payback, the standard should be modified to allow separate H values to be used for TEC and inadvertent payback allowing each to be set independently based upon the effect the implementation period has on reliability associated with each. The use of 24 hours for TEC and a value between 24 and 168 hours for Inadvertent Interchange Payback should provide acceptable values for two automatically calculated values without contributing detrimentally to reliability. Comment 24: When TEC and Inadvertent Interchange Payback are separated into two separate calculations, the advantage of representing them both as MW values is eliminated. This allows the correction of one of the other problems associated with implementation of the proposed variance; the inability to represent the scheduled frequency correctly. Since scheduled frequency is used not only in the ACE Equation but also in the CPS1 and BAAL calculations, it is necessary to calculate the frequency offset explicitly for these two

Organization	Yes or No	Question 3 Comment
		reliability measures. This is more easily achieved when the calculation for TEC is performed in the frequency domain and the calculation for Inadvertent Interchange Payback is performed in the MW domain. This is the final and necessary step required to modify the proposed method into a method that is fully compatible with Tie-line Bias control and the reliability measures that are based upon ACE. Comment 25: The resulting ACE Equation would then include two additional terms; 1) a term that would provide a balanced set of schedules for the interconnection that would be based upon the Inadvertent Interchange account of each Balancing Authority divided by the Hi value used for Inadvertent Interchange Payback, and 2) a term that would provide the same frequency offset for all Balancing Authorities on the interconnection that would be based on the Time Error divided by the Ht value used for TEC.

Organization	Yes or No	Question 3 Comment
		Response: The drafting team does not believe the proposed WECC Variance poses a serious and substantial threat to public health, safety, welfare, or national security. Concerning the impact on other NERC standards and reliability, the drafting team conducted a review of all NERC Reliability Standards to determine if there were any conflicts and adverse impacts due to the proposed WECC Variance. The proposed WECC Variance adjusts the ACE equation and ACE definition referenced in all NERC Reliability Standards. The drafting team did not identify conflicts with other NERC reliability requirements. As shown in the Technical Report, the implementation of ATEC into the ACE equation (1) reduces frequency error and provides better frequency control; (2) provides a more accurate CPS measurement for the assessment of control performance; and (3) does not reduce Interconnection reliability during frequency (DCS) events. Concerning the implementation, ATEC design, and ATEC theory comments; Balancing Authorities operating in the Western Interconnection have been using the ATEC ACE to control with since 2003 and BAL-004-WECC-1 has been in effect since July 1, 2009. During this time, Western Interconnection Balancing Authorities have not observed adverse impacts on reliability. On the contrary, as shown in the Technical Report, the Western Interconnection Balancing Authorities observed an improvement in the frequency error profile for Epsilon 1 and 10 until the beginning of the RBC Field Trial in 2010. The improvement in the frequency error profile over many years attests to better control of the Interconnection frequency. The establishment of values for H, L_{max}, and other ATEC parameters implemented when including the ATEC component in the ACE equation depends upon the design objectives. The value of H was set to three hours for ATEC control to ensure timely and equitable payback of Inadvertent Interchange. The values for L_{max} are set in a range to allow Balancing Authorities to meet existing NERC CPS2 requirements while facilitating the expeditious reduction of Primary Inadvertent Interchange. Since the current implementation of ATEC is achieving the design objectives without any adverse impacts to reliability, the drafting team does not believe there is a compelling reason to implement at this time the commenter's many design and control theory suggestions. Concerning the comments on BAAL, Balancing Authorities in the Western Interconnection are participating in the RBC Field Trial with ATEC in affect. Comments regarding effects of the field trial on the WECC Variance are beyond the scope of WECC Standards Request. Approval of the WECC Variance should be considered on its own merits irrespective of the outcome of the field trial.

4. Does the proposed standard (variance) pose a serious and substantial burden on competitive markets within the interconnection that is not necessary for reliability?

Summary Consideration: Five of the six commenters agreed the WECC Variance to BAL-001-0.1a did not pose a serious and substantial burden on competitive markets within the Interconnection that is not necessary for reliability. The WECC Variance combined with BAL-004-WECC-2 provides the benefit of managing Inadvertent Interchange through a timely and equitable process. The WECC Variance does not prevent any entity from competing in any competitive market. As shown in the Technical Report, inclusion of ATEC in the ACE equation reduces frequency error and provides better frequency control, not a reduction in reliability.

Organization	Yes or No	Question 4 Comment
Bonneville Power Administration	No	
Constellation Energy Control and Dispatch	No	
Arizona Public Service Company	No	
Salt River Project	No	
PacifiCorp	No	
Energy Mark, Inc.	Yes	Comment 26: The delivery of Time Error Correction and Inadvertent Interchange Payback services results in a reduction in reliability of the interconnection as the result of the delivery of commercial services.
Response: The drafting team believes the proposed WECC Variance does not pose a serious and substantial burden on competitive markets within the Interconnection that is not necessary for reliability. The drafting team disagrees with the statements made by the commenter because the WECC Variance combined with BAL-004-WECC-2 provides the benefit of managing Inadvertent Interchange		

Organization	Yes or No	Question 4 Comment
		through a timely and equitable process. The WECC Variance does not prevent any entity from competing in any competitive market or from delivering commercial services. As shown in the Technical Report, the implementation of ATEC into the ACE equation reduces frequency error and provides better frequency control. The report shows that the frequency profile for the Western Interconnection improved until the beginning of the Reliability-based Control Field Trial. The improvement in the frequency error profile attests to better control of the Interconnection frequency.

5. Does the proposed regional standard (variance) meet at least one of the following criteria?

- **The proposed standard (variance) has more specific criteria for the same requirements covered in a continent-wide standard.**
- **The proposed standard (variance) has requirements that are not included in the corresponding continent-wide reliability standard.**
- **The proposed regional difference is necessitated by a physical difference in the bulk power system.**

Summary Consideration: Five of the six commenters agreed the WECC Variance to BAL-001-0.1a met the criteria for a regional standard (variance). Since one commenting entity provides Balancing Authority control services in multiple Interconnections, it had concerns about the implementation plan. However, the commenter is already controlling with the proposed ACE equation in the Western Interconnection, and the drafting team felt the transition to the proposed WECC Variance would not take longer than the time outlined in the implementation plan. One dissenting commenter felt the WECC Variance was less stringent than current NERC requirements. The Technical Report shows an improved frequency profile, implying more stringent control than the current NERC requirements.

Organization	Yes or No	Question 5 Comment
Bonneville Power Administration	Yes	
Constellation Energy Control and Dispatch	Yes	The proposed variance does meet these criteria, yet still poses some concerns, as follows: CECD agrees that a variance reconciling control ACE and NERC reporting ACE brings important clarity and consistency to this standard for Balancing Authorities in the Western Interconnection. However, CECD has some concerns about the Implementation Plan proposed in the Variance Request. The Variance Request assumes that the transition to calculating and reporting CPS performance using ATEC ACE would be a minimally invasive process, with little impact. However, this assumption has not been verified. The WECC assumption fails to recognize that no Balancing Authority is currently equipped to calculate and report CPS according to ATEC adjusted ACE, as WECC and NERC previously considered this activity a violation of BAL-001. Thus, all Balancing Authorities in the Western Interconnection will have

Organization	Yes or No	Question 5 Comment
		to reconfigure various elements of their energy management systems to accommodate this variance. The time and effort required to make these modifications is not clear, and the proposed Implementation plan provides only a brief window for making these modifications. The implementation plan is particularly problematic for entities with Balancing Authority assets in multiple interconnections since this variance will require the energy management system in use to employ several separate and distinct mechanisms for calculating CPS and NERC ACE, depending on the interconnection in which a particular asset is located. The drafting team should take these concerns into consideration and revise the Implementation Plan, allowing for a more flexible time-frame and/or process for Balancing Authorities to make this change. The issue resolved by this variance poses no significant risk to reliability and a Balancing Authority should not risk violation of this standard because of an overly aggressive implementation.
Response: During the first posting of the WECC Variance to BAL-001-0.1a, a commenter expressed concerns about the time needed to make required modifications for using only one ACE for controlling and reporting. The drafting team members reviewed their own ATEC implementations and agreed that some time will be needed for implementation. The drafting team believes that three to six months identified in the implementation plan is sufficient time to modify the CPS statistics gathering and reporting algorithms to reference ACE with ATEC since Balancing Authorities in WECC are already using ATEC in their EMS, particularly if entities begin making plans for such changes in advance of FERC's approval.		
Arizona Public Service Company	Yes	
Salt River Project	Yes	
PacifiCorp	Yes	
Energy Mark, Inc.	No	Comment 27: The proposed variance results in all ACE based measures being less stringent from a reliability perspective than the current standard interpretation. This is inconsistent with the requirement that regional standards be more stringent than

Organization	Yes or No	Question 5 Comment
		the NERC continent wide standard. It therefore fails to meet the requirements to be considered as a regional standard. Comment 28: It might be acceptable to claim that the only way to achieve the desired result is the proposed variance, but these comments provide methods that are totally compatible with the NERC continent wide standards that could be implemented in place of the proposed variance. Therefore, the issue in not technical, the issue is whether or not it is worth the effort to conform with the continent wide standard. This question should have only one answer, comply with the continent wide standards.

Response: The drafting team believes the proposed WECC Variance meets the standard of justification for a Regional Variance as an alternative methodology, with the same reliability objective as the NERC Reliability Standard BAL-001-0.1a. In addition, the proposed WECC Variance to BAL-001-0.1a is consistent with — or more stringent than — the NERC BAL-001-0.1a Reliability Standard. The reasons the WECC Variance meets the standard of justification are:

1. The addition of I_{ATEC} to the ACE equation and adjustment to the control performance target used for controlling frequency and interchange improves the frequency error profile over time. As shown in the Technical Report, the Western Interconnection observed an improvement in the frequency error profile until the beginning of the Reliability-based Control Field Trial. The improvement in the frequency error profile attests to better control of Interconnection frequency.
2. The addition of I_{ATEC} to the ACE equation and adjustment to the control performance target provides better frequency control by providing frequency control closer to the targeted frequency bounds that epsilon 1 ($\in_1$) and epsilon 10 ($\in_{10}$) are based upon.
3. The Regional Variance provides a better CPS measurement for the assessment of control performance by allowing the use of the same control performance target for control and reporting. The Control Performance measurement (CPS1 and CPS2) is a measurement of the how close the Balancing Authority performs to the control performance target.
4. The proposed ACE equation allows the same Balancing Authority response to frequency events (DCS) as the old ACE equation.
5. It identifies a maximum (absolute value) ceiling for Accumulated Primary Inadvertent Interchange for each of the On-Peak and Off-Peak periods.

END OF REPORT