1. The Commission approves the attached Stipulation and Consent Agreement (Agreement) among the Office of Enforcement (Enforcement), the North American Electric Reliability Corporation (NERC), Western Electricity Coordinating Council (WECC), and Peak Reliability (Peak). This order is in the public interest because it resolves on fair and reasonable terms an investigation of WECC (as the Reliability Coordinator (RC) for the Western Interconnection (WECC RC)), conducted by Enforcement in coordination with NERC and the Commission’s Office of Electric Reliability (OER), into possible violations of Reliability Standards associated with WECC RC’s oversight of a portion of the Bulk-Power System (BPS) and a blackout that occurred on September 8, 2011 (the September 8 event or the event). WECC agrees to pay a civil penalty of $16,000,000, of which $3,000,000 will be paid to the United States Treasury and NERC, divided in equal amounts, and $13,000,000 will be invested in reliability enhancement measures identified below that go above and beyond the Agreement’s mitigation and reliability activities or what the Reliability Standards require (Reliability Enhancements). Peak did not exist as a separate entity at the time of the September 8 event, but is a party to the Agreement as the successor to WECC as the RC for the Western Interconnection. WECC and Peak also commit to certain mitigation and reliability activities, subject to compliance monitoring, as detailed in the Agreement.

I. Background

2. WECC is a non-profit, public service corporation and is not a load-serving entity. At the time of the event, WECC acted as both the Regional Entity (WECC RE) and the RC for the Western Interconnection. The WECC region at the time of the event extended from Canada to Mexico, was nearly 1.8 million square miles in size and served a population of 78 million. It included the Canadian provinces of Alberta and British Columbia, the northern part of Baja California, Mexico, the states of Washington,
3. WECC’s RE and RC functions were organized separately, but reported to the same WECC executive management. WECC RC was a NERC Registered Entity, and was the highest level of authority responsible for the reliable operation of the Bulk Electric System (BES) in the Western Interconnection.

4. The RC of the Western Interconnection (formerly WECC RC, now Peak) is responsible for overseeing operation of the Western Interconnection in real time, receiving data from entities throughout the entire Interconnection, and providing high-level situational awareness for the entire system. The RC has the authority to prevent or mitigate emergency operating conditions in the next-day and real-time timeframes. The RC may issue directives to other functional entities to ensure reliable operations. The RC performs reliability analyses including next-day planning and real-time contingency analysis (RTCA) for the Western Interconnection. The RC may also assist transmission operators (TOPs) in mitigating equipment overloads and coordinating restoration plans, contingency plans, and reliability-related services.

5. As the RE, WECC or its delegate, among other things, monitors compliance of Registered Entities (including, formerly, WECC RC and currently, Peak) with the Reliability Standards, under delegated authority from NERC.

6. On March 16, 2007, in Order No. 693, the Commission approved the initial Reliability Standards, which became mandatory and enforceable within the contiguous United States on June 18, 2007.

7. After the event, WECC sought approval from the Commission to establish a new entity to perform the RC and interchange authority (IA) functions in the Western Interconnection. The bifurcation of WECC into two separate entities, WECC and Peak, received final approval from the Commission on February 12, 2014. With the Commission’s approval, WECC sub-delegated the RC and IA functions in the Western Interconnection to Peak. WECC has retained its RE responsibilities.

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8. WECC and Peak are subject to the Commission’s regulation under section 215 of the Federal Power Act (FPA).  

9. The investigation of WECC arose out of a system disturbance that occurred on the afternoon of September 8, 2011 in the Pacific Southwest, which resulted in cascading outages and left approximately 2.7 million customers (equivalent to five million or more individuals) without power, some for multiple hours extending into the next day. The total load loss for the event was in excess of 30,000 MWh. The event started with a three-phase fault which led to the loss of Arizona Public Service Company’s (APS) Hassayampa-N. Gila 500 kV transmission line (H-NG). This transmission line is a segment of the Southwest Power Link (SWPL), a major transmission corridor transporting power in an east-west direction, from generators in Arizona, through Imperial Irrigation District’s (IID) service territory, into Southern California. 

10. With the SWPL’s major east-west corridor broken by the loss of H-NG, power flows instantaneously redistributed throughout the electric system in the Pacific Southwest and Southern California, increasing flows through lower voltage systems parallel to the SWPL as power continued to flow on a hot day during hours of peak demand.

11. These redistributed flows traveled through IID’s and Western Area Power Administration-Desert Southwest Region’s (Western-DSW) facilities, onto WECC Path 44, an aggregation of five 230 kV transmission lines that deliver power in a north-south direction from Southern California Edison Company’s (SCE) territory in Los Angeles to San Diego Gas & Electric (SDG&E). The increased power flows parallel to the SWPL, together with lower than peak generation levels in California and Mexico, led to significant voltage deviations and transmission equipment overloads. The flow redistributions, voltage deviations, and resulting overloads had a cascading effect, as transmission and generation equipment tripped offline in a relatively short time period. Just seconds before the blackout, Path 44 carried all flows into San Diego as well as parts of Arizona and Mexico. This excessive loading on Path 44 initiated an intertie separation scheme owned and operated by SCE at the San Onofre switchyard. The California Independent System Operator (CAISO) is responsible for many of the TOP functions for SCE under a Coordinated Functional Registration. Initiation of the intertie separation scheme at the San Onofre switchyard separated SDG&E from Path 44, contributed to tripping the San Onofre Nuclear Generating Station nuclear units offline, and eventually resulted in the complete blackout of San Diego and Comisión Federal de Electricidad’s Baja California Control Area in Mexico. 

12. WECC RC was the highest reliability authority at the time of the event and maintained a wide-area view of the entire Interconnection. WECC RC was staffed with  

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two operators (one real-time operator and one study desk operator) in each of its two regional offices at the time of the event.

13. Promptly after WECC RC’s alarms reflected the loss of H-NG, WECC RC operators contacted APS, the operator of H-NG, to discuss the status of H-NG. APS operators informed WECC RC operators that APS could restore H-NG within minutes. WECC RC operators relied on the statement by APS operators that APS could restore H-NG within minutes, and issued no reliability directives in connection with the event, which lasted only 11 minutes (not including restoration). WECC RC and APS operators did not discuss the existing large phase angle difference between Hassayampa and N. Gila that needed to be addressed before H-NG could be returned to service.

14. Prior to the event, WECC RC conducted a next-day study for the entire Western Interconnection, using a model that included, among other equipment, IID’s 230/92 kV transformers. However, the study did not include the effects of the S-Line remedial action scheme (RAS) and separation scheme at the San Onofre switchyard. At the time of the event, WECC excluded from its interpretation of the definition of special protection systems/remedial action schemes (SPSs/RASs) certain types of protection systems, including the S-Line RAS and the separation scheme at the San Onofre switchyard. As a result, WECC RC and the TOPs did not study those systems and schemes. Additionally, WECC RC only reviewed the TOPs’ next-day studies when it identified an issue in its own next-day study. WECC RC did not review IID’s next-day study for September 8.

15. WECC RC was responsible for monitoring all critical facilities in the Western Interconnection, which may include facilities below 100 kV, as necessary to ensure that at any time, regardless of unplanned events, it was able to determine system operating limits (SOLs) and interconnection reliability operating limits (IROLs), and to know the status of all critical facilities whose failure could result in an SOL or IROL exceedance. On September 8, a WECC RC operator was alerted by an alarm in real time to the fact that IID’s 230/92 kV Coachella Valley transformers had tripped (WECC RC had real-time visibility of the transformers even though they were not classified as BES facilities at the time), but was unaware that those transformers tripping could result in a previously unidentified IROL. The September 8 event also exposed SOLs that were previously unrecognized by WECC RC, by revealing that operating WECC Path 44 to an SOL of 2,200 MW, and H-NG (a portion of WECC Path 49), to a limit of 1800 MW, would expose the WECC RC area to cascading outages.

16. Prior to the event, the Operating Practices Subcommittee of WECC’s Operating Committee stated an operating philosophy that no IROLs existed under normal operating conditions. As a result, WECC RC did not recognize any IROLs in the Western Interconnection. Following the exposure of the Coachella Valley 230/92 transformers IROL by the September 8 event, WECC RC has since recognized the existence of several IROLs in the Western Interconnection, and Peak continues to analyze the Interconnection
for additional IROLs. At the time of the event WECC RC also delegated to TOPs the responsibility for identifying criteria that determine when violating an SOL qualifies as an IROL.

17. WECC RC was aware of post-contingency overloads within Western-DSW and IID, but did not alert Western-DSW and IID to these potential transmission problems.

II. Investigation

18. On September 9, 2011, the Commission and NERC announced a joint inquiry to determine how the blackout occurred and to make recommendations to avoid similar situations in the future. The inquiry team, comprised of Commission and NERC staff, used on-site visits and interviews, detailed computer modeling, event simulations, and system analyses to make its findings and recommendations for preventing similar events in the future. The inquiry determined that entities responsible for planning and operating the BPS were not prepared to ensure reliable operation or prevent cascading outages in the event of a single contingency. On May 1, 2012, the inquiry team published a report entitled Arizona-Southern California Outages on September 8, 2011, Causes and Recommendations (the Report), which is hereby incorporated by reference. The Report discusses a detailed sequence of events, simulations, and findings related to the causes of the cascading outages. The Report also makes twenty-seven recommendations related to next-day planning, seasonal planning, near- and long-term planning, situational awareness, consideration of BES equipment, SOLs and IROLs, and protection systems.

19. Following publication of the Report, Enforcement, OER, and NERC staff reviewed the data gathered during the inquiry for compliance implications. At the direction of the Commission, Enforcement initiated non-public investigations of several entities, including WECC, under Part 1b of the Commission’s regulations, 18 C.F.R. Part 1b (2014), which were conducted jointly with NERC.

20. Enforcement and NERC determined that WECC violated the Facilities Design, Connection and Maintenance (FAC) and Interconnection Reliability Operations and Coordination (IRO) groups of Reliability Standards. The IRO Reliability Standards “detail the responsibilities and authorities of [an RC],” and “establish requirements for data, tools and wide-area view, all of which are intended to facilitate [an RC’s] ability to perform its responsibilities and ensure the reliable operation of the interconnected grid.” The FAC standards at issue aim to ensure that SOLs are determined based on an established methodology.


5 Order No. 693 at P 888.
21. Enforcement and NERC determined that WECC RC violated nine Requirements of five Reliability Standards: FAC-011-2 R3; FAC-014-2 R1; IRO-003-2 R1 and R2; IRO-004-1 R1; and IRO-005-2 R5, R9, R12, and R15—stemming from its role in the September 8 event.

22. Enforcement and NERC staff determined that WECC RC violated IRO-003-2 R1 and R2 because WECC RC was unaware that IROLs such as the Coachella Valley 230-92 kV transformers existed in its control area, and thus did not determine or prevent IROL violations on September 8, 2011.

23. Enforcement and NERC staff determined that WECC RC violated IRO-004-1 R1 and IRO-005-2 R5, R9, and R15 because it did not identify the cause of potential and actual SOL and IROL violations on Paths 44 and 49, mitigate the violations, and alert impacted TOPs and BAs in its area.

24. Enforcement and NERC staff determined that WECC RC violated IRO-005-2 R12 because it was not aware of the impact of the S-line RAS and separation scheme at the San Onofre switchyard.

25. Enforcement and NERC staff determined that WECC RC violated FAC-011-2 R3 and FAC-014-2 R1 as a result of inadequacies in its SOL methodology that resulted in the establishment of unreliable SOLs for Paths 44 and 49 and the failure to identify IROLs.

III. Stipulation and Consent Agreement

26. Enforcement, NERC, WECC and Peak resolved this matter by means of the attached Agreement. WECC stipulates to the facts recited in the Agreement and agrees to pay a civil penalty of $16,000,000, of which $3,000,000 will be paid to the United States Treasury and NERC, divided in equal amounts, and $13,000,000 will be invested by WECC and Peak in Reliability Enhancements that go above and beyond the requirements of the Reliability Standards, as described in the Agreement. WECC and Peak also agree to mitigation and reliability activities, and to submit to compliance monitoring, as specified in the Agreement. WECC neither admits nor denies that its actions constituted violations of the Reliability Standards.

27. In determining the appropriate sanction, Enforcement considered that WECC has made significant efforts to date to address reliability concerns identified in the inquiry and investigation and also by WECC on its own initiative. WECC also cooperated with Enforcement and NERC during the investigation.
IV. Determination of the Appropriate Sanctions

28. The civil penalty amount is consistent with the Penalty Guidelines. Enforcement considered that the event caused a loss of 10,000 or more MWh of firm load, and WECC was allocated a share of the base penalty due to its role as the RC. WECC RC also had a prior history of violations of the Reliability Standards, including two violations based on conduct substantially similar to that at issue in this event. The civil penalty amount reflects credit for WECC’s cooperation during the course of the investigation, as well as credits for avoiding a trial-type hearing and having an effective compliance program.

29. The Commission concludes that the penalties and other sanctions set forth in the Agreement are a fair and equitable resolution of this matter and are in the public interest. The Commission also concludes that the reliability enhancement, mitigation and reliability activities set forth in the Agreement will enhance the reliability of the BPS and are therefore also fair and in the public interest.

The Commission orders:

The attached Stipulation and Consent Agreement is hereby approved without modification.

By the Commission. Chairman Bay is not participating.

(SEAL)

Kimberly D. Bose,
Secretary.

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7 Western Electricity Coordinating Council, 136 FERC ¶ 61,020 (2011) (including lack of awareness of SPS within its RC area under IRO-005-1 R12); Notice of Penalty, Docket No. NP11-259-000, September 9, 2011 (including failure to coordinate with TOPs to mitigate SOL exceedance under IRO-005-1 R9).
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION  

Western Electricity Coordinating Council ) Docket No. IN14-11-000  

STIPULATION AND CONSENT AGREEMENT  

I. INTRODUCTION  

1. Staff of the Office of Enforcement (Enforcement) of the Federal Energy Regulatory Commission (Commission), the North American Electric Reliability Corporation (NERC), Western Electricity Coordinating Council (WECC), and Peak Reliability (Peak) enter into this Stipulation and Consent Agreement (Agreement) to resolve a non-public investigation conducted by Enforcement and NERC pursuant to Part 1b of the Commission’s regulations, 18 C.F.R. Part 1b (2014). The investigation examined possible violations of NERC Reliability Standards by WECC as the Reliability Coordinator (RC) for the Western Interconnection (WECC RC) related to a system event in the Pacific Southwest on September 8, 2011 (September 8 event or event). WECC neither admits nor denies that WECC RC violated the Reliability Standards described in the Agreement, but agrees to pay a total civil penalty of $16,000,000, of which $3,000,000 will be paid to the United States Treasury and NERC, divided in equal amounts, and $13,000,000 will be invested in reliability enhancement measures identified below that go above and beyond the Agreement’s mitigation and reliability activities or what the Reliability Standards require (Reliability Enhancements). Peak did not exist as a separate entity at the time of the September 8 event, but is a party to the Agreement as the successor to WECC as the RC for the Western Interconnection. WECC and Peak also commit to certain measures, subject to compliance monitoring, as detailed in the Agreement.  

II. STIPULATED FACTS  

2. Enforcement, NERC, and WECC and Peak hereby stipulate and agree to the following facts.  

A. WECC  

3. WECC is a non-profit, public service corporation and is not a load-serving entity. WECC is funded by assessments to load-serving entities, among others. At the time of the event, WECC acted as both the Regional Entity (WECC RE) and the RC for the Western Interconnection. These functions were organized separately, but reported to the same WECC executive management. WECC RC was a NERC Registered Entity, and was the highest level of authority responsible for the reliable operation of the Bulk Electric System (BES) in the Western Interconnection.
The RC of the Western Interconnection (formerly WECC RC, now Peak) is responsible for overseeing operation of the Western Interconnection in real time, receiving data from entities throughout the entire Interconnection, and providing high-level situational awareness for the entire system. The RC has the authority to prevent or mitigate emergency operating conditions in the next-day and real-time timeframes. The RC may issue directives to other functional entities to ensure reliable operations. The RC performs reliability analyses including next-day planning and real-time contingency analysis (RTCA) for the Western Interconnection. The RC may also assist transmission operators (TOPs) in mitigating equipment overloads and coordinating restoration plans, contingency plans, and reliability-related services.

As the RE, WECC or its delegate, among other things, monitors compliance of Registered Entities (including, formerly, WECC RC and currently, Peak) with the Reliability Standards, under delegated authority from NERC.

After the event, WECC sought approval from the Commission to establish a new entity to perform the RC and interchange authority (IA) functions in the Western Interconnection. The bifurcation of WECC into two separate entities, WECC and Peak, received final approval from the Commission on February 12, 2014. With the Commission’s approval, WECC sub-delegated the RC and IA functions in the Western Interconnection to Peak. WECC has retained its RE responsibilities.

B. Event Description

During an 11-minute period on the afternoon of September 8, 2011, a system disturbance occurred in the Pacific Southwest, resulting in cascading outages and leaving approximately 2.7 million customers without power, some for multiple hours extending into the next day. The total load loss for the event was in excess of 30,000 MWh. The event started with a three-phase fault which led to the loss of Arizona Public Service’s (APS) Hassayampa-N. Gila 500 kV transmission line (H-NG). This transmission line is a segment of the Southwest Power Link (SWPL), a major transmission corridor transporting power in an east-west direction, from generators in Arizona, through the service territory of Imperial Irrigation District (IID), into Southern California.

With the SWPL’s major east-west corridor broken by the loss of H-NG, power flows instantaneously redistributed throughout the electric system in the Pacific Southwest and Southern California, increasing flows through lower voltage systems parallel to the SWPL as power continued to flow on a hot day during hours of peak demand.

9. These redistributed flows traveled through IID’s and Western Area Power Administration – Desert Southwest Region’s facilities (Western-DSW), onto WECC Path 44, an aggregation of five 230 kV transmission lines that deliver power in a north-south direction from Southern California Edison Company’s (SCE) territory in Los Angeles to San Diego Gas and Electric (SDG&E). The increased power flows parallel to the SWPL, together with lower than peak generation levels in California and Mexico, led to significant voltage deviations and transmission equipment overloads. The flow redistributions, voltage deviations, and resulting overloads had a cascading effect, as transmission and generation equipment tripped offline in a relatively short time period. Just seconds before the blackout, Path 44 carried all flows into San Diego as well as parts of Arizona and Mexico. This excessive loading initiated an intertie separation scheme owned and operated by SCE at the San Onofre switchyard. The California ISO (CAISO) is responsible for many of the TOP functions for SCE under a Coordinated Functional Registration. Initiation of the intertie separation scheme at the San Onofre switchyard separated SDG&E from Path 44, contributed to tripping the San Onofre Nuclear Generation Station nuclear units offline, and eventually resulted in the complete blackout of San Diego and Comisión Federal de Electricidad’s Baja California Control area.

10. WECC RC was the highest reliability authority at the time of the event and maintained a wide-area view of the entire Interconnection. WECC RC was staffed with two operators (one real-time operator and one study desk operator) in each of its two regional offices at the time of the event.

11. Promptly after WECC RC’s alarms reflected the loss of H-NG, WECC RC operators contacted APS, the operator of H-NG, to discuss the status of H-NG. APS operators informed WECC RC operators that APS could restore H-NG within minutes. WECC RC operators relied on the statement by APS operators that APS could restore H-NG within minutes, and issued no reliability directives in connection with the event, which lasted only 11 minutes (not including restoration). WECC RC and APS operators did not discuss the existing large phase angle difference between Hassayampa and N. Gila that needed to be addressed before H-NG could be returned to service.

12. Prior to the event, WECC RC conducted a next-day study for the entire Western Interconnection, using a model that included, among other equipment, IID’s 230 /92 kV transformers. However, the study did not include the effects of the S-Line remedial action scheme (RAS) and separation scheme at the San Onofre switchyard. At the time of the event, WECC excluded from its interpretation of the definition of special protection systems/remedial action schemes (SPSS/RASs) certain types of protection systems, including the S-Line RAS and the separation scheme at the San Onofre switchyard, among others. As a result, WECC RC and the TOPs did not study those systems and schemes. Additionally, WECC RC only reviewed the TOPs’ next-day studies when it identified an issue in its own next-day study. WECC RC did not review IID’s next-day study for September 8.
13. WECC RC was responsible for monitoring all critical facilities in the Western Interconnection, which may include facilities below 100 kV, as necessary to ensure that at any time, regardless of unplanned events, it was able to determine system operating limits (SOLs) and interconnection reliability operating limits (IROLs), and to know the status of all critical facilities whose failure could result in an SOL or IROL exceedance. On September 8, a WECC RC operator was alerted by an alarm in real time to the fact that IID’s 230/92 kV Coachella Valley transformers had tripped (WECC RC had real-time visibility of the transformers even though they were not classified as BES facilities at the time), but was unaware that those transformers tripping could result in a previously unidentified IROL. The September 8 event also exposed SOLs that were previously unrecognized by WECC RC, by revealing that operating WECC Path 44 to an SOL of 2,200 MW, and H-NG (a portion of WECC Path 49) to a limit of 1800 MW, would expose the WECC RC area to cascading outages.

14. Prior to the event, the Operating Practices Subcommittee of WECC’s Operating Committee stated an operating philosophy that no IROLs existed under normal operating conditions. As a result, WECC RC did not recognize any IROLs in the Western Interconnection. Following the exposure of the Coachella Valley 230-92 transformers IROL by the September 8 event, WECC RC has since recognized the existence of several IROLs in the Western Interconnection, and Peak continues to analyze the Interconnection for additional IROLs. At the time of the event WECC RC also delegated to TOPs the responsibility for identifying criteria that determine when violating an SOL qualifies as an IROL.

15. WECC RC was aware of post-contingency overloads within Western-DSW and IID, but did not alert Western-DSW and IID to these potential transmission problems.

III. INQUIRY AND INVESTIGATION

16. On September 9, 2011, the Commission and NERC announced a joint inquiry to determine how the blackout occurred and to make recommendations to avoid similar situations in the future. The inquiry team, comprised of Commission and NERC staff, used on-site visits and interviews, detailed computer modeling, event simulations, and system analyses to make its findings and recommendations for preventing similar events in the future. The inquiry determined that entities responsible for planning and operating the bulk-power system (BPS) were not prepared to ensure reliable operation or prevent cascading outages in the event of a single contingency. On May 1, 2012, the inquiry team published a report entitled Arizona-Southern California Outages on September 8, 2011, Causes and Recommendations (the Report), which is hereby incorporated by reference. The Report discusses a detailed sequence of events, simulations, and findings

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related to the causes of the cascading outages. The Report also makes twenty-seven recommendations related to next-day planning, seasonal planning, near- and long-term planning, situational awareness, consideration of BES equipment, SOLs and IROLs, and protection systems.

17. Following publication of the Report, Enforcement and NERC reviewed the data gathered during the inquiry for compliance implications. As a result of that review, Enforcement and NERC initiated non-public investigations of several entities, including WECC, under Part 1b of the Commission’s regulations, 18 C.F.R. Part 1b (2014).

18. Enforcement and NERC determined that WECC violated nine Requirements of five Reliability Standards, and found these violations undermined the reliability of the BPS and contributed to the September 8 event. Enforcement and NERC recognized, however, that after the event, and during the inquiry and investigation, WECC voluntarily began making improvements in its planning and operations, and implementing recommendations from the Report, that addressed many of the findings arising from the Report. WECC established an online Dashboard to track its progress. In addition, WECC cooperated with Enforcement and NERC during the investigation.

19. As part of the investigation, Enforcement and NERC reviewed WECC’s compliance program (as it existed at the time of the event) and found that WECC satisfied the criteria for an effective compliance program under the Commission’s Penalty Guidelines. Enforcement and NERC considered the elements of WECC’s compliance program set forth in this paragraph. At the time of the September 8 event, WECC RC had a formal compliance program. WECC RC had a designated Compliance Manager, who had direct access to WECC senior executives and, as necessary, the WECC board. All WECC team members were expected to collaborate in the implementation of practices and policies meant to ensure compliance with all rules and regulations. All WECC team members underwent mandatory training on the Reliability Standards relevant to their positions, as well as training on the benefits of compliance and the risks of non-compliance. Peak has built upon WECC’s compliance program. Under Peak’s current program, the Compliance Director reports directly to the President and Chief Executive Officer, with access to the Chair of the Board of Directors as needed. The Compliance Director is directly supported by an Operations Compliance Specialist and CIP Compliance Specialist, with all Peak team members required to collaborate to develop and implement policies, procedures, work practices and technologies to ensure compliance with the Reliability Standards. Peak has a “Compliance Open Door Policy” that encourages all team members to bring compliance issues to the attention of management, whether through direct report to the Compliance Director, or anonymous

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reporting to a third-party compliance reporting service provider. All Peak team members undergo mandatory compliance training relevant to their positions, and new hires are trained on the Reliability Standards, benefits of compliance, risks of non-compliance, the Compliance Open Door Policy, and Peak’s rewards for compliance and disciplinary measures for non-compliance.

IV. ENFORCEMENT AND NERC FINDINGS OF VIOLATIONS

20. Enforcement and NERC staff determined that WECC RC violated the following Requirements of the Reliability Standards: FAC-011-2 R3; FAC-014-2 R1; IRO-003-2 R1 and R2; IRO-004-1 R1; and IRO-005-2 R5, R9, R12, and R15. Enforcement and NERC staff determined that WECC RC violated IRO-003-2 R1 and R2 because WECC RC was unaware that IROLs existed in its control area and were violated on September 8, 2011. Enforcement and NERC staff determined that WECC RC violated IRO-004-1 R1 and IRO-005-2 R5, R9, and R15 because it did not identify the cause of potential and actual SOL and IROL violations, mitigate the violations, and alert impacted TOPs and Balancing Authorities (BAs) in its area. Enforcement and NERC staff determined that WECC RC violated IRO-005-2 R12 because it was not aware of the impact of the S-line RAS and separation scheme at the San Onofre switchyard. Lastly, Enforcement and NERC staff determined that WECC RC violated FAC-11-2 R3 and FAC-014-2 R1 for inadequacies in its SOL methodology that resulted in the establishment of unreliable SOLs and the failure to identify IROLs.

V. REMEDIES AND SANCTIONS

21. WECC stipulates to the facts as described in Section II of this Agreement, but neither admits nor denies Enforcement’s and NERC’s findings that WECC RC violated the Reliability Standards specified in Section IV. For purposes of settling any and all disputes within the jurisdiction of the Commission arising from any and all reliability matters related to the September 8 event, or Enforcement’s and NERC’s investigation, WECC agrees to the remedies and sanctions set forth in the following paragraphs assigned to WECC, including the entire cash payment to Treasury and NERC, and Peak agrees to the remedies assigned to Peak. Pursuant to the Revised Reliability Coordinator and Interchange Authority Agreement between the Western Electricity Coordinating Council and Peak Reliability (RC Agreement), Peak is responsible for reporting obligations and enforcement conditions relating to its role as the RC, and WECC is responsible for reporting obligations and enforcement conditions relating to its role as the RE.

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4 As noted in paragraphs 1 and 21, WECC neither admits nor denies the findings by Enforcement and NERC regarding violations of the Reliability Standards, and use of the term mitigation is not meant to imply otherwise.
A. Civil Penalty

22. WECC shall pay a total civil penalty of $16,000,000, of which $3,000,000 shall be paid, divided in equal amounts, to the United States Treasury and NERC. $1,000,000, divided equally between the United States Treasury and NERC, shall be due within ten days of the Effective Date of the Agreement. $1,000,000, divided equally between the United States Treasury and NERC, shall be due within one year from the Effective Date and $1,000,000, divided equally between the United States Treasury and NERC, shall be due within two years of the Effective Date. Enforcement and NERC agree to give WECC a partial civil penalty offset for the remaining $13,000,000 in exchange for WECC and Peak implementing the Reliability Enhancements as set forth in section V.B. The value of the Reliability Enhancements is expected to substantially exceed the amount of the offset.

B. Reliability Enhancements

23. In exchange for the $13,000,000 offset, WECC and Peak have completed or shall complete the following Reliability Enhancements:

   a. WECC RC partially increased, and Peak has continued to and shall increase, staffing of the RC function from the staffing in effect on September 8, 2011, by 61 full-time equivalent positions, including 18 RC operators. Peak shall maintain the additional 18 RC operator positions at least through December 31, 2016; and

   b. WECC completed bifurcation of the RE function of WECC from the RC function, with the RC function sub-delegated to Peak on February 14, 2014.

24. WECC and Peak will provide Enforcement and NERC with satisfactory evidence that investments to date in the Reliability Enhancements have substantially exceeded $13,000,000.

C. Completed and Required Mitigation and Reliability Activities

25. WECC and Peak, respectively, commit to the designated actions in this Section V.C. As indicated below, WECC and Peak affirm that they have already completed most of the mitigation and reliability activities, and shall complete all remaining mitigation and reliability activities no later than one year after the Effective Date of the Agreement, unless otherwise stated in Section V.C. WECC and Peak shall continue operating consistent with the completed and required mitigation and reliability activities, until they implement improved practices and procedures in accordance with the Reliability Standards in existence now or in the future. Until WECC and Peak have completed all mitigation and reliability activities and Reliability Enhancements, any material alterations in the mitigation and reliability activities set forth in Section V.C. shall be approved by
Enforcement and NERC staff, such approval not to be unreasonably withheld. WECC and Peak will individually or jointly report on the status of all mitigation and reliability activities described in this Section V.C. and submit evidence of progress and/or completion in their compliance monitoring reports to be submitted to Enforcement and NERC pursuant to Section V.D of this Agreement. WECC and Peak agree to work cooperatively to provide Enforcement and NERC staff with information necessary to confirm that all mitigation and reliability activities have been completed.

i. **Seasonal, Next-Day and Current-Day Planning**

26. Peak now shares its next-day study, as well as study inputs such as outages and interchange, electronically on a daily basis with all WECC entities that have executed the Universal Data Sharing Agreement (UDSA). WECC RC and Peak created additional formats for TOPs to review the RC studies, including Power System Simulator for Engineering (PSS/E) and Positive Sequence Load Flow (PSLF). After the September 8 event, WECC and Peak obtained executed UDSAs from all Western Interconnection BAs, TOPs and Transmission Owners (TOs). Peak and the TOPs are engaged in negotiations to renew the UDSA. The Peak Board of Directors has established a bridge policy to ensure that access to data sharing is maintained during the negotiations.

27. Peak has improved the forecasting of interchange between TOPs by working with BAs to identify the reasons for forecasting errors, and to improve the unit commitment data provided to the RC. Peak worked with the BAs to address unit commitment data issues that were identified by a task force that reviewed input data issues related to the RC’s next-day studies. All data issues related to unit commitment and interchange forecasting identified by the task force have been remedied.

28. By June 30, 2015, WECC will issue a guideline outlining best practices for next-day studies, which will be posted on the WECC website. WECC will monitor the effectiveness of this guideline through a next-day study working group and the annual Operational Practices Survey, or other appropriate means.

29. In February 2014, WECC issued its “Pre/Post-Contingency Guideline,” which guides TOPs to take pre-contingency mitigation measures when potential post-contingency conditions could exceed the TOPs’ highest emergency rating for a facility. The Guideline also reminds TOPs to consider the time necessary to take mitigation actions, and to consider the effect of relays that automatically isolate facilities without providing time for mitigating measures. WECC has posted this guideline on the WECC website, and will monitor its effectiveness through the annual Operational Practices Survey, or other appropriate means.

30. Peak shall coordinate the seasonal planning process for its RC area. Seasonal planning by TOPs in the Western Interconnection begins with the operational base cases prepared by WECC. WECC shall continue to prepare operational base cases. WECC
and Peak shall cooperate, to the extent applicable, to gather information from TOPs to update the operational base cases. WECC RC and Peak have worked with the sub regional study groups to facilitate a consistent method for seasonal planning, including consistency in system conditions to be evaluated and consistency in process. WECC RC also worked with the sub regional study groups to improve coordination between seasonal study planners and operators. Peak shall require, per its SOL methodology and seasonal coordination process, that the seasonal planning for the Western Interconnection includes all critical internal and external conditions and contingencies, including generation and transmission outages, transfers, and demand patterns, including non-peak demand patterns. Critical internal and external facilities may be sub-100 kV, if they impact the BES. To the extent required by changes to the Reliability Standards related to planning, Peak will consult with FERC and NERC on how to satisfy the measures contained in this paragraph.

31. WECC has developed a procedure to perform N-1 contingency analysis on operational base cases for the Western Interconnection. WECC will implement this procedure by June 30, 2015, and will provide the results of its analysis to the area coordinators within 30 days after WECC completes its analysis.

j. Near- And Long-Term Planning

32. WECC established the Planning Coordinator Function Task Force to identify the current Planning Coordinator (PC) issues in the Western Interconnection, evaluate gaps in PC coverage in the Western Interconnection and to develop a methodology, procedures and implementation plan for addressing the PC issues in the Western Interconnection. In addition, using the results of a survey issued to registered PCs, WECC has identified those facilities within each current PC area, as well as facilities in areas for which no PC has been identified. WECC shall provide the Planning Coordinator Function Task Force’s report (and any other deliverables) to Enforcement and NERC within 7 days of completion by the Task Force. After receipt of the report and deliverables, WECC, Peak, and FERC and NERC staff shall confer and cooperate in order to reach an agreement on a solution for the PC issues in the Western Interconnection, especially the gaps in PC coverage and seams issues.5

33. In July, 2014, WECC issued a BES Inclusion Guideline, which recognized that non-BES, or sub-100 kV, facilities may be important to the reliability of the Interconnection. The Guideline helps registered entities identify such facilities, and encourages, but does not require, registered entities to consider facilities for inclusion in

5 Seams issues refers to the fact that transmission lines, interchange and loop flow patterns, among other characteristics of the BES, cross the boundaries between entities or sub regional groups, and thus may not be consistently analyzed by any individual entity or sub regional group.
the BES through the NERC exception procedures. Among other situations that might qualify a non-BES facility for inclusion through the NERC exception procedures are facilities identified as a significant contributing factor in an event analysis report, or where the facility’s single-contingency outage changes the flow on any BES element by more than 10 percent. WECC will monitor the effectiveness of the guideline through its annual Operational Practices Survey, or other appropriate means.

k. Protection Systems

34. Peak has included 239 additional RASs, and greater specificity about the existing RASs, in the models used for Peak’s RTCA. Peak has also added 212 additional RASs to its Supervisory Control and Data Acquisition (SCADA) displays, and 4701 additional RAS Inter-Control Center Communication Protocol points, since the event.

35. By March 31, 2016, WECC will have developed the capability for entities to model RASs so that they can be added to its powerflow base cases. By June 30, 2016, WECC will update the Data Preparation Manual to include the requirement for data submitters to include RAS models in their submittal to WECC. WECC will produce the first powerflow base case to include RAS models by July 2016. By June 30, 2017, all WECC base cases shall include all (1) RASs, and (2) overcurrent protection relays with inter-TOP impact, known to WECC to exist in the Western Interconnection as of the Effective Date. In the interim, WECC collected and posted some data on RASs and relays with inter-TOP impact so that entities can model those impacts until those RASs and relays are modeled in the WECC base cases. Any RASs installed in the Western Interconnection after June 30, 2016 and known to WECC to exist shall be modeled in the base cases as soon as practicable in coordination with WECC’s established base case production schedule.

36. WECC developed and adopted the Regional Criterion entitled “Remedial Action Scheme Review and Assessment Plan, PRC-(012 through 14)-WECC-CRT-2,” which became effective January 1, 2014 (an earlier version became effective in October 2011). This criterion requires TOs, Generator Owners and Distribution Providers to submit data on RASs initially and before putting any changes or new RASs in service, to review the information in WECC’s Remedial Action Scheme Database annually for accuracy, and to assess their RASs for operation, coordination, and effectiveness at least once every five years, among other requirements. This criterion also requires WECC’s Remedial Action Scheme Reliability Subcommittee (RASRS) to review each RAS submitted to the RASRS for compliance with designated Reliability Standards, including Standards within the Transmission Planning and Protection Systems groups. As a result of this criterion, WECC has gathered data on multiple existing and new schemes. In addition, the RASRS chair issued a data request to all Western Interconnection TOPs requesting them to provide information on any tie line schemes or safety nets within their systems. That effort identified 25 additional RASs from seven entities that were incorporated into the Remedial Action Scheme Database. The information collected through the criterion will
facilitate the WECC modeling process and assist in the identification of interaction among RASs.

37. WECC prepared a white paper on “The Recognition of Power Plant Control, Protection and Operation in Transmission Simulation Studies,” which was posted on the WECC website.

38. In November, 2012, WECC issued its Guideline for Protection System Loadability. The guideline encourages TOPs to set load-responsive relays that are operated in parallel with the BES, but not subject to Reliability Standard PRC-023, to use one of the setting criteria from PRC-023. The Guideline also addresses phase angle differences used when reclosing a breaker, encouraging the TOPs to provide visibility of the phase angle difference by means that could include planning studies, State Estimator, Real-time Contingency Analysis (RTCA), Phasor Measurement Units, or synch check relays. WECC posted this guideline on the WECC website, and will monitor its effectiveness through the annual Operational Practices Survey, or other appropriate means.

1. Angular Separation

39. Since September 2011, WECC RC and Peak have improved the ability of the RC to estimate phase angle differences. Peak can monitor estimated or expected (post-contingency) phase angles using Real-time State Estimation and RTCA. A procedure exists, called Monitoring Heavy E-W Flows on SWPL, which describes action to be taken by the RC operator when exceeding phase angle line reclosure limits (synch check relay thresholds) on the SWPL. In addition to its focused monitoring of the phase angles on the SWPL, Peak also monitors fifteen other node-pairs in the Western Interconnection for, among other things, excessive phase angles. If a relevant line is open and results in the exceedance of a node-pair phase angle limit, Peak RC System Operators will see that exceedance in Peak’s Energy Management System (EMS) applications. An actual exceedance of a node-pair phase angle limit is detected and reported in Peak’s Real-time State Estimation. A post-contingency exceedance of a node-pair phase angle limit is detected and reported in Peak’s RTCA and study contingency analysis applications. The node-pair phase angle limits currently implemented in Peak’s EMS inform the RC System Operators that the relevant line cannot be reclosed because of the excessively high phase angle.
m. System Operating Limits and Interconnection Reliability Operating Limits

40. After September 8, 2011, WECC began using a new SOL methodology, and further refined that methodology with its “Phase II SOL Methodology,” Revision 7.0 of the SOL Methodology for the Operations Horizon, which became effective in March 2014. Among other things, the SOL Methodology currently in use by TOPs in the Western Interconnection and Peak instructs entities to assess projected system conditions as real time approaches to establish SOLs, and includes criteria for identifying the subset of SOLs that qualify as IROLs in real time, as well as a clearer definition of what is included in an SOL. The SOL methodology requires TOPs and the RC to operate in real time to the most restrictive of Facility Ratings, voltage limits, voltage stability limits, transient stability limits or WECC Path Ratings. Prior to the event, some TOPs operated only to Path Ratings or seasonally-determined SOLs. The SOL methodology also requires TOPs to use models for establishing SOLs and IROLs that include the entire WECC RC area, to include critical modeling details from other RC areas that would impact the facilities being studied, to model parallel sub-100 kV facilities (e.g., the Coachella Valley transformers), to include RASs/SPSs in their models where feasible, and to consider the impact of SPS/RAS actions when establishing SOLs and IROLs. Current IROLs recognized by Peak are posted online in the secure area of peakrc.org.

41. Peak shall make the following modifications to the SOL Methodology for the Operations Horizon:

   a. Peak shall not exclude all load loss due to RAS/SPS actions for the purpose of determining whether an IROL exists, because to do so would have allowed the Coachella Valley transformers to elude recognition as an IROL; and

   b. Peak shall justify the reason for the 1,000 MW cut-off for SOLs to be IROLs or establish a cut-off with technical justification.

n. Situational Awareness

42. Peak runs its RTCA every five minutes and Peak’s RTCA results and certain State Estimator Savecases are immediately available to all TOPs and BAs in real time in the secure area of peakrc.org.

43. WECC RC began flagging and alarming the two Coachella Valley transformers in its RTCA shortly after the September 8, 2011 event. Peak shall continue to flag and alarm the Coachella Valley transformers.
44. WECC RC and Peak have allowed TOPs to view the Coordinated Outage System once the TOPs executed the UDSA. All current TOPs have now executed the UDSA.\textsuperscript{6}

45. WECC and Peak have increased real-time data sharing among TOPs by developing the WECC Operations Network guideline. WECC has posted this guideline on the WECC website, and will monitor its effectiveness through the annual Operational Practices Survey, or other appropriate means.

46. Peak has modified its data request to require each TOP to provide telephone notification to Peak when the TOP loses real-time data or RTCA. Peak will modify the Data Request to require notification either by telephone or by WECCNET, if possible.

47. WECC has issued a Real-Time Tools Guideline. Among other recommendations for best practices, it guides TOPs on the scope of their network model (to allow identification of external contingencies, for example), on how often to update their state estimator (every 10 minutes) and RTCA (at least every 30 minutes). WECC has posted this guideline on the WECC website, and will monitor its effectiveness through the annual Operational Practices Survey, or other appropriate means.

\textbf{o. Emergency Operations}

48. WECC has issued an Emergency Operations Procedure, which, among other things, defines the RC operator’s role during emergency operations and in evaluating emergency conditions, including major system disturbances. The Procedure also provides specific guidance to RC operators on issuing “clear, concise and definitive” Reliability Coordinator Directives.

\textbf{p. Modeling}

49. WECC is developing the Base Case Coordination System (BCCS), to validate data automatically, build power flow base cases, and store dynamic data in a centralized, Web-accessible database. WECC is in the process of implementing the BCCS, and expects to fully implement the BCCS by June 30, 2016. WECC has offered training in the use of the BCCS to all TOPs in the Western Interconnection. If, despite its good faith and diligent efforts, WECC is unable to fully implement the BCCS due to irreconcilable technical issues or vendor performance, WECC, FERC and NERC staff shall confer and cooperate in order to reasonably address through other means any identified issues regarding validation of base case data or revision of power flow base cases.

\textsuperscript{6} See paragraph 26 regarding the renegotiation of the UDSA, and interim measures to preserve data sharing.
50. WECC and its Transmission Planners (TPs) have benchmarked their dynamic models against actual data from the September 8, 2011 event, as recommended by the Report. WECC worked with the TPs to identify modeling deficiencies and track improvements, and all modeling deficiencies identified as a result of the model validation process have been corrected.

51. WECC continues to reconcile its planning base cases to the Peak West-wide System Model used for operations, as recommended by the Report, and WECC and Peak continue to make any necessary changes in the two models.

52. WECC has added a generator tripping model to its base cases to provide an indication of when generators may trip during events.

53. WECC and Peak have conducted a two-phase study to identify facilities with at least one terminal below 100 kV that have an impact on the BES. In the first phase, WECC and Peak worked with TOPs to obtain a list of sub-100 kV facilities that the TOPs believed should be monitored due to potential loop flow, and performed a study using the Peak West-wide System Model. In the second phase, a study was conducted using WECC’s planning model. WECC and Peak identified additional sub-100 kV facilities to be added to the Peak West-wide System Model and Peak’s EMS model, and Peak is monitoring additional facilities identified by TOPs. Peak has alarmed all facilities identified through these studies in its EMS.

54. WECC will benchmark a base case, including dynamic models, on an annual basis, against actual system performance during the single most severe reportable disturbance that occurred on the Western Interconnection during the previous year. On a prospective basis, WECC will work with PCs and TPs to modify any discrepancies found between the base case (including dynamic models) and actual system performance.

55. WECC RC, and later Peak, implemented a voltage stability tool, the Region of Stability Excellence, or ROSE, which combines State Estimator and Phasor Measurement Unit (PMU) data for on-line calculation and visualization of the current operating point and its proximity to the voltage stability boundary, thus giving RC operators an improved awareness of system stability and potentially alerting them to impending system emergencies. Peak will fully implement ROSE by September 15, 2015. Peak will train all RC operators on ROSE.

D. Compliance Monitoring

56. WECC and Peak shall make semi-annual reports to Enforcement and NERC, which may be independent or joint reports, for one year after the Effective Date of this Agreement. Enforcement and NERC may require one additional year of semi-annual
reporting if circumstances indicate the need for further monitoring. The first semi-annual report for each entity shall cover the first six-month period after the Effective Date of this Agreement and shall be submitted to Enforcement and NERC staff within thirty days thereafter. The subsequent report(s) shall be due in six month increments thereafter. Each report shall detail the following: (1) actions taken as of the date of the report to satisfy the terms of the Agreement, including all Reliability Enhancements and (2) actions taken to improve reliability and/or reliability compliance, including investments in new measures and training activities during the reporting period. Peak shall also detail any additional possible violations, compliance exceptions, or self-logged issues of Reliability Standards by Peak identified by Peak or WECC or reported to WECC, and whether and how Peak has addressed those matters. The reports must include affidavits executed by officers of WECC and Peak, respectively, that the compliance reports are true and accurate and must also include corroborative documentation or other satisfactory evidence demonstrating or otherwise supporting the content of these reports. Corroborative documentation shall include, at a minimum, the Operational Practices Survey results and a description of any actions planned in response to the Operational Practices Survey results, or, in the alternative, the results of other applicable monitoring and a description of any actions planned in response to those results. If, after WECC and/or Peak have fulfilled the semi-annual reporting requirement, either entity has not yet completed or implemented its mitigation or reliability activities, it shall continue to update Enforcement and NERC semi-annually on the progress and completion of the mitigation or reliability activities not yet completed or implemented. Updates shall include corroborative documentation or other satisfactory evidence of progress, completion or implementation.

VI. TERMS

57. The “Effective Date” of the Agreement shall be the date on which the Commission issues an order approving the Agreement without material modification. When effective, the Agreement shall resolve any and all reliability claims relating to the September 8 event within the jurisdiction of the Commission, and that occurred on or before the Effective Date, as to WECC, Peak or any affiliated entity.

58. Commission approval of the Agreement without material modification shall release WECC and Peak and forever bar the Commission and NERC from holding WECC or Peak, any affiliated entity, and any successor in interest to WECC or Peak liable for any and all claims within the jurisdiction of the Commission, arising out of any and all reliability matters related to the September 8 event or conduct addressed and stipulated to in this Agreement, that occurred on or before the Agreement’s Effective Date.

59. Failure to make timely civil penalty payments or to comply with the Reliability Enhancements, mitigation and reliability activities, and monitoring agreed to herein, or
any other provision of the Agreement, shall be deemed a violation of a final order of the Commission issued pursuant to the Federal Power Act (FPA), 16 U.S.C. §792, et seq., and may subject WECC to additional action under the enforcement provisions of the FPA.

60. Failure to comply with the Reliability Enhancements, mitigation and reliability activities, and monitoring agreed to herein, or any other provision of the Agreement, shall be deemed a violation of a final order of the Commission issued pursuant to the Federal Power Act (FPA), 16 U.S.C. §792, et seq., and may subject Peak to additional action under the enforcement provisions of the FPA.

61. If WECC does not make any portion of the civil penalty payment described above at the time(s) agreed by the parties, interest payable to the United States Treasury and NERC shall begin to accrue pursuant to the Commission’s regulations at 18 C.F.R. § 35.19(a) (2) (iii) (2014) from the date that payment is due.

62. The Agreement binds WECC, Peak, and their agents, successors, and assignees. The Agreement does not create any additional or independent obligations on WECC or Peak, or any affiliated entity, its agents, officers, directors, or employees, other than the obligations identified in the Agreement.

63. The findings of violations detailed in the Agreement shall constitute prior violations for consideration in any future Commission or NERC enforcement proceeding against Peak or any successor.

64. The signatories to the Agreement agree that they enter into the Agreement voluntarily and that, other than the recitations set forth herein, no tender, offer or promise of any kind by any member, employee, officer, director, agent or representative of Enforcement, NERC, WECC or Peak has been made to induce the signatories or any other party to enter into the Agreement.

65. Unless the Commission issues an order approving the Agreement in its entirety and without material modification, the Agreement shall be null and void and of no effect whatsoever, and Enforcement, NERC, WECC, and Peak shall not be bound by any provision or term of the Agreement, unless otherwise agreed to in writing by Enforcement, NERC, WECC and Peak.

66. WECC and Peak agree that the Commission’s order approving the Agreement without material modification shall be a final and unappealable order assessing a civil penalty under the Federal Power Act. WECC and Peak waive findings of fact and conclusions of law, rehearing of any Commission order approving the Agreement without material modification, and judicial review by any court of any Commission order approving the Agreement without material modification.
67. The Agreement can be modified only if in writing and signed by Enforcement, NERC, WECC and Peak, and any modifications will not be effective unless approved by the Commission.

68. Each of the undersigned warrants that he or she is an authorized representative of the entity designated, is authorized to bind such entity and accepts the Agreement on the entity’s behalf.

69. The undersigned representatives of WECC and Peak affirm that he or she has read the Agreement, that all of the matters set forth in the Agreement are true and correct to the best of his or her knowledge, information and belief, and that he or she understands that the Agreement is entered into by Enforcement and NERC in express reliance on those representations.

70. The Agreement may be signed in counterparts.

71. The Agreement is executed in quadruplicate, each of which so executed shall be deemed to be an original.
Agreed to and accepted:

Larry Parkinson
Director, Office of Enforcement
Federal Energy Regulatory Commission
Date: 5/7/15

Charles A. Berardesco
Senior Vice President, General Counsel and Corporate Secretary
North American Electric Reliability Corporation
Date: 5/14/15

James B. Robb
Chief Executive Officer
Western Electricity Coordinating Council
Date: 6 May 2015

Gary Stephenson
President and Chief Executive Officer
Peak Reliability
Date: May 12, 2015