Bulk Electric System
Public Case Notes

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Preface

The North American Electric Reliability Corporation (NERC) is a not-for-profit international regulatory authority whose mission is to assure the reliability of the bulk power system (BPS) in North America. NERC develops and enforces Reliability Standards; annually assesses seasonal and long-term reliability; monitors the BPS through system awareness; and educates, trains, and certifies industry personnel. NERC’s area of responsibility spans the continental United States, Canada, and the northern portion of Baja California, Mexico. NERC is the electric reliability organization (ERO) for North America, subject to oversight by the Federal Energy Regulatory Commission (FERC) and governmental authorities in Canada. NERC’s jurisdiction includes users, owners, and operators of the BPS, which serves more than 334 million people.

The North American BPS is divided into eight Regional Entity (RE) boundaries as shown in the map and corresponding table below.

The North American BPS is divided into eight Regional Entity (RE) boundaries. The highlighted areas denote overlap as some load-serving entities participate in one Region while associated transmission owners/operators participate in another.

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Decision

An entity submitted an Exclusion Exception Request, on behalf of itself and other entities, (Submitting Entity) for a 138 kV network including tie lines, substations and series and shunt Elements. At the point of demarcation between the proposed excluded network and the tap point of a ring bus which remains in the Bulk Electric System (BES), the Submitting Entity identified that certain ring bus Elements would remain in the BES. As a result of this and of the Protection System design at the point of demarcation, the Submitting Entity expressly noted that certain Protection Systems would remain subject to the North American Electric Reliability Corporation (NERC) Reliability Standards. Compliance responsibility is based on the applicability of the NERC Reliability Standards and the NERC Glossary of Terms Used in Reliability Standards.

As part of its risk assessment, NERC reviewed and evaluated the submittals from the Submitting Entity and the Regional Entity that issued a Recommendation for Approval, as well as the proposed decision of the NERC Review Panel (NRP) to approve the Exception Request. NERC also requested and obtained input from the Reliability Coordinator regarding potential risks, if any, to reliability if the Exception Request was granted. The Reliability Coordinator advised that there was no risk to reliability if it was granted. After reviewing all of the bases, information and supporting documentation presented for consideration, NERC granted Approval of the Exclusion Exception Request. An important factor in NERC’s decision was that the referenced Protection Systems are subject to the NERC Reliability Standards and serve to preserve the reliability of the BES.

Background

As summarized above, the BES Definition has a core definition as well as enumerated Inclusions and Exclusions. The Elements in the Submitting Entity’s Exclusion Exception Request do not qualify for exclusion by application of the BES Definition. As a result, these Elements were part of the BES.

Pursuant to Appendix 5C to the NERC Rules of Procedure, Submitting Entity submitted an Exclusion Exception Request for the referenced Elements. Pursuant to Appendix 5C, Submitting Entity has the burden to establish that its Elements are not necessary for the Reliable Operation of the interconnected bulk-power transmission system. For the purposes of this document, the terms interconnected bulk-power transmission system and BES are used interchangeably.

Analysis

Protection Systems

NERC’s decision was based on the record before it, including the findings of the NRP. The NRP evaluated slow-clearing or uncleared faults to evaluate potential voltage deviations and the stability effect on nearby generation, the loss of which could have a major impact on the BES. The NRP concluded that the worst case clearing times of the Protection Systems was below the critical clearing time of their location in the system. Not only do the Protection Systems protect a small section of the ring bus leading to the point of the line connection, they also protect BES reliability by preventing nearby generation from tripping due to delayed clearing of faults on certain transmission lines. The ring bus is and remains a BES Element.

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1 This analysis is described below for illustrative purposes and identifying information has been redacted. NERC’s decision and this Case Note should not be construed as setting precedent for any similar future Exception Requests. A decision disapproving an Exception Request results in a given Element remaining or being designated as a BES Element. A Submitting Entity also may pursue potential alternative options, as applicable, including through the registration program.
NRP also concluded that dependability and security of the Protection Systems on the lines, including primary, backup, devices related to transfer trip protection and breaker-failure systems, was of particular importance. Consequently the NRP re-confirmed with the Submitting Entity that the Protection Systems would remain subject to the NERC Reliability Standards, which the Submitting Entity recognized in its Exclusion Exception Request.

The NRP’s risk assessment also took into account lessons learned from a recent event involving a different entity, in which an uncleared fault caused low voltage that tripped nearby generation.

**Generation within the Network**

In addition, the NRP noted that BES Definition Exclusion E3 is not applicable to the submitted Elements due to the requirement that generation be limited to aggregate capacity of non-retail generation greater than 75 MVA (gross nameplate rating) in the network. None of that generation is currently considered to be BES because the generation does not qualify under the core definition or Inclusion requirements. Specifically, none of the generation is connected at 100 kV and above.

The NRP analysis did not contemplate any change to the designation of the generation. Rather, the NRP focused on the nature and use of the generation within the localized area. All of the generating units within the network were modeled as off-line in the base case of the study provided by the Submitting Entity. This is because those generators are not expected to be dispatched for voltage support or capacity to alleviate overloads under normal operating conditions. The Submitting Entity’s study showed neither benefit nor adverse impact to system stability or voltage stability whether the generation was dispatched or not.

The NRP considered whether the aggregate generation, given the current facts and circumstances, posed a concern that would lead to a conclusion that the network should remain in the BES. The NRP concluded that the operation of the generation in the network, which is not currently part of the BES, is not required for Reliable Operation of the BES because:

- The generation within the network is only dispatched on a limited basis with several restrictions on its dispatch, except for emergency operations.
- The generation within the network has demonstrated very low capacity factors over the last year.
- The generation is not expected to be dispatched for voltage support or capacity to alleviate overloads under normal operating conditions.
- The generation within the network is not part of the BES by definition, because it is connected at less than 100 kV even though those resources are counted toward the reserve margin.
- The Reliability Coordinator advised that there was no risk to reliability of the Exception Request was granted.

**Shunt Capacitors**

The NRP team created a stressed powerflow base case by shutting down nearby generation and replacing it with imports from a neighboring entity. The purpose was to determine voltage influence of the proposed excluded shunt capacitors on BES bus voltages close to the proposed excluded network. Based on study results with and without the capacitor banks, the change in bus voltages were minimal. Therefore, NERC NRP concluded that the capacitor banks are not necessary for Reliable Operation of BES.

Also related to the NRP shunt capacitor evaluation was a comparison to the BES Exception Evaluation Guideline example for substation shunt devices which states: “A static or dynamic device that meets the criteria in Inclusion I5 that is installed by a Transmission Owner or Distribution Provider for the general purpose of supporting load, but not for the benefit of or under contract with a specific retail customer.” Examination of the shunt capacitors in
question show that although they were not installed for the benefit of a specific customer, such as an industrial load, they do serve to support voltages and act as power factor correction for deliveries. The shunt capacitors can be excluded from the BES because they are used for voltage regulation for the excluded network, acting as power factor correction for deliveries to the system, and not for voltage support of the BES.

**Special Protection Scheme (SPS) Analysis**

The proposed excluded network has an SPS applied on it which mitigates local voltage collapse under certain conditions. The NRP performed a detailed review of several Submitting Entity studies which were performed to design the SPS and evaluate system performance for contingencies for thermal overloads and voltage collapse issues (for compliance with NERC Standards TPL-001 through TPL-004). Those studies indicate that the potential for voltage collapse and thermal overloads of the localized area during N-1 conditions can be mitigated by the SPS system, backed up by under-voltage load shedding (UVLS). Those studies concluded the: “...there are neither system performance violations nor voltage/thermal violations that are not rectified by the planned projects and remediation actions that have been identified.” The studies also concluded that Special Protection System is the “...best course of action... studies have shown that the Special Protection System will serve its intended purpose, acting to maintain voltage stability.”

The Submitting Entity also provided, in its study prepared for the BES Exception Request, study results showing the impact of a failure of the SPS to operate on the transmission system that would remain BES (outside the proposed excluded network). These results showed that the SPS was not needed for the reliable operation of the BES, and was solely for the security of the local proposed excluded network.

The NRP agreed with the analysis in the Submitting Entity studies concerning the effectiveness of the SPS and UVLS to mitigate potential voltage collapse of the network for loss of certain transmission lines. The SPS and UVLS will remain in service and subject to applicable NERC Reliability Standards and the categorization will be consistent with the NERC Glossary of Terms.

**Series Capacitors**

The series capacitor is an integral component of a transmission line, which was proposed to be excluded from the BES. Since the NERC is approving an Exclusion Exception of the transmission line from the BES, the series capacitor is excluded as well.
Decision
An entity submitted an Exclusion Exception Request, on behalf of itself and other entities, (Submitting Entity) for a 100 to 300 kV network including tie lines, substations and shunt Elements. The North American Electric Reliability Corporation (NERC) determined that the points of demarcation for Elements included in the network are identified for the proposed network from the tap point of a 100 to 300 kV ring bus at Substation A which remains in the Bulk Electric System (BES) to the tap point of a 100 to 300 kV ring bus at Substation B which also remains in the BES. The Elements of this network are BES Elements by the core definition.

Using a risk-based approach, NERC reviewed all the information and data provided in the record, the Regional Entity Recommendation for Approval, and the additional analyses performed by the NERC Review Panel (NRP). NERC concluded that the BES Elements of this Exception Request are not necessary for the Reliable Operation of the BES and has therefore recommended Approval of this BES Exception Request.

Background
The BES Definition has a core definition as well as enumerated Inclusions and Exclusions. The Elements in the Submitting Entity’s Exclusion Exception Request are part of the BES based on the core definition.

Pursuant to Appendix 5C to the NERC Rules of Procedure, the Submitting Entity submitted an Exclusion Exception Request for the referenced Elements. Pursuant to Appendix 5C, the Submitting Entity has the burden to establish that its Elements are not necessary for the Reliable Operation of the interconnected bulk-power transmission system.

Analysis
NERC agreed with the NRP and the Regional Entity as to each issue below:

- Power flow over the facilities occurs at a very low level relative to the rating of the line even under the worst contingency conditions. The NRP determined that the observed levels of power flow over BES Elements for N-2 contingencies does not cause loading near the capacity of any BES Elements.

- The NRP agrees with the Regional Entity and the Submitting Entity that thermal loading levels do not pose a risk to the Reliable Operation of the BES if the facility Elements are excluded from the BES; and therefore, the Elements included in the Exception Request are not necessary for the Reliable Operation of the BES.

- However, due to the close proximity of 100 to 300 kV connections to large BES generators and major transmission Elements, NRP fault studies indicate that an un-cleared three phase fault applied within the facilities has the potential to have an increased adverse impact on the operation of adjacent interconnected BES elements needed for the reliable operation of the interconnected bulk system. As a result, NERC concluded that the dependability and security of the Protection Systems on the facilities, including primary, backup, and breaker-failure systems, was of significant concern, warranting clarification that was an important factor in the approval of the Exclusion Exception Request that those Protection Systems remain subject to the NERC Reliability Standards.

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2 This analysis is described below for illustrative purposes, and identifying information has been redacted. NERC’s decision and this Case Note should not be construed as setting precedent for any similar future Exception Requests. A decision disapproving an Exception Request results in a given Element remaining or being designated as a BES Element. A Submitting Entity may also pursue potential alternative options, as applicable, including through the registration program.
Conclusion
NERC found that the Submitting Entity met its burden to obtain an Exclusion Exception and established that the Elements of the facilities are not necessary for the Reliable Operation of the interconnected bulk-power transmission system. Therefore, NERC approved the Submitting Entity’s Exclusion Exception Request.
Risk Assessment Evaluation of Power Generating Resources – E1

Decision
An entity submitted an Exclusion Exception Request for its three gas-fired generation with each unit has a gross individual nameplate greater than 20MVA, two 138 kV transmission lines and a 345/138 kV transformer. The aggregate generation shares a single point of interconnection with the Bulk Electric System (BES).

As part of its risk assessment, the North American Electric Reliability Corporation (NERC) reviewed and evaluated the information from the Submitting Entity, the Regional Entity and the Regional Technical Review Panel (TRP), as well as the proposed decision of the NERC Review Panel (NRP). After review of the bases, information and supporting documentation presented for consideration, NERC concluded that the generation plant facility, the two 138 kV transmission lines and the 345/138 kV transformer are BES Elements, are necessary for Reliable Operation of the BES, and should not receive an Exception Exclusion.

Background
The BES Definition has a core definition as well as enumerated Inclusions and Exclusions. Pursuant to Inclusion I2 of the BES Definition, the Elements in the Submitting Entity’s Exclusion Exception Request are currently part of the BES.

Pursuant to Appendix 5C to the NERC Rules of Procedure, Submitting Entity provided an Exclusion Exception Request for the referenced Elements. The Submitting Entity has the burden to establish that its Elements are not necessary for the Reliable Operation of the interconnected bulk-power transmission system. For the purposes of this document, the terms interconnected bulk-power transmission system and BES are used interchangeably.

Analysis
In support of its Exclusion Exception Request, the Submitting Entity asserted several reasons as to why it believed its Elements at the generating facility do not have an appreciable or measureable impact on the BES and should be excluded from the BES. The Submitting Entity stated production statistics demonstrated that its gas turbines (GTs) operate infrequently, with annual capacity factors less than 1%. The Submitting Entity stated that flow data demonstrated that the power produced by the GTs does not flow up onto the BES, but is used to serve local area station load.

As part of its risk assessment and assessment whether the Elements are necessary for Reliable Operation, NERC reviewed the information supplied by Submitting Entity and Regional Entity, taking into account technical application of the BES Definition and evaluation of the information presented. The BES Definition establishes bright-line criteria for BES generation and Inclusion I2 of the BES definition sets specific threshold criteria that generation is included as BES generation where the generation resource(s) as gross individual nameplate rating greater than 20 MVA connected at a voltage of 100 kV or above. Based on NERC’s review, NERC did not agree with Submitting Entity’s assertion that the Elements should be excluded from the BES and determined that Submitting Entity’s assertions did not demonstrate that the generating facility, the two 138 kV transmission lines and the 345/138 kV transformer at issue are not necessary for the Reliable Operation of the interconnected bulk-power transmission system.

3 This analysis is described below for illustrative purposes and identifying information has been redacted. NERC's decision and this Case Note should not be construed as setting precedent for any similar future Exception Requests. A decision disapproving an Exception Request results in a given Element remaining or being designated as a BES Element. A Submitting Entity also may pursue potential alternative options, as applicable, including through the registration program.
NERC agreed with the NRP, Regional Entity and the TRP as to each issue below:

- These facilities are generally considered “critical” due to the fact that these facilities reside in a restricted city zone. The generating resources have an impact on the local network and are necessary for Reliable Operation of the interconnected bulk-power transmission system, specifically due to the fact that the gas turbines are counted as Capacity and Reserve resources in both the Balancing Authority (BA) Area as well as the more local, stringent requirements of the city.

- The generating resources are used as “peaker” units and predominantly operate during peak loading conditions for short periods of time. Therefore, they are essential for maintaining adequate and Reliable Operation of the BES during peak system conditions.

- The generating resources can be dispatched as capacity and/or energy or operating reserve resources during peak times and during emergency conditions and are counted towards meeting Installed Capacity Requirement (ICR) and fulfilling Installed Reserve Margin (IRM); they are also credited for GT Capacity against in Capacity Obligation towards satisfying Locational Capacity Requirements.

- There was no indication provided that there are any immediate plans to retire these units.

- The Regional Entity and the NRP also considered the potential aggregate impact “within a portion of the BES” as well as “across the BES.” The Regional Entity estimated that there are approximately 950 MVA of aggregate generation capacity within the Balancing Authority Area (BAA) that have similar characteristics, creating a potential for a significant amount of aggregate generation to be excluded from the BES.

Accordingly, NERC found that Submitting Entity had not met its burden to obtain an Exclusion Exception and had not shown that the Elements are not necessary for the Reliable Operation of the interconnected bulk-power transmission system. Therefore, NERC Disapproved the Submitting Entity’s Exclusion Exception Request.
Risk Assessment Evaluation of Power Generating Resources - E2

Decision
An entity submitted an Exclusion Exception Request for its two gas-fired generation with each unit has a gross individual nameplate greater than 20MVA and a 138 kV transmission line. The aggregate generation shares a single point of interconnection with the Bulk Electric System (BES).

As part of its risk assessment, the North American Electric Reliability Corporation (NERC) reviewed and evaluated the information from the Submitting Entity, the Regional Entity and the Regional Technical Review Panel (TRP), as well as the proposed decision of the NERC Review Panel (NRP). After review of the bases, information and supporting documentation presented for consideration, NERC concluded that the generation plant facility and the 138 kV transmission line are BES Elements, are necessary for Reliable Operation of the BES, and should not receive an Exception Exclusion.

Background
The BES Definition has a core definition as well as enumerated Inclusions and Exclusions. Pursuant to Inclusion I2 of the BES Definition, the Elements in the Submitting Entity’s Exclusion Exception Request are currently part of the BES.

Pursuant to Appendix 5C to the NERC Rules of Procedure, Submitting Entity provided an Exclusion Exception Request for the referenced Elements. The Submitting Entity has the burden to establish that its Elements are not necessary for the Reliable Operation of the interconnected bulk-power transmission system. For the purposes of this document, the terms interconnected bulk-power transmission system and BES are used interchangeably.

Analysis
In support of its Exclusion Exception Request, the Submitting Entity asserted several reasons as to why it believed its Elements at the generating facility do not have an appreciable or measureable impact on the BES and should be excluded from the BES. The Submitting Entity stated production statistics demonstrated that its gas turbines (GTs) operate infrequently, with annual capacity factors less than 0.3%. The Submitting Entity stated that flow data demonstrated that the power produced by the GTs does not flow up onto the BES, but is used to serve local area station load.

As part of its risk assessment and assessment whether the Elements are necessary for Reliable Operation, NERC reviewed the information supplied by Submitting Entity and Regional Entity, taking into account technical application of the BES Definition and evaluation of the information presented. The BES Definition establishes bright-line criteria for BES generation and Inclusion I2 of the BES definition sets specific threshold criteria that generation is included as BES generation where the generation resource(s) has gross individual nameplate rating greater than 20 MVA connected at a voltage of 100 kV or above. Based on NERC’s review, NERC did not agree with Submitting Entity’s assertion that the Elements should be excluded from the BES and determined that Submitting Entity’s assertions did not demonstrate that the generating facility and the 138 kV transmission line at issue are not necessary for the Reliable Operation of the interconnected bulk-power transmission system.

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4 This analysis is described below for illustrative purposes and identifying information has been redacted. NERC’s decision and this Case Note should not be construed as setting precedent for any similar future Exception Requests. A decision disapproving an Exception Request results in a given Element remaining or being designated as a BES Element. A Submitting Entity also may pursue potential alternative options, as applicable, including through the registration program.
NERC agreed with the NRP and Regional Entity as to each issue below:

- These facilities are generally considered “critical” due to the fact that these facilities reside in a restricted city zone. The generating resources have an impact on the local network and are necessary for Reliable Operation of the interconnected bulk-power transmission system, specifically due to the fact that the gas turbines are counted as Capacity and Reserve resources in both the Balancing Authority (BA) Area as well as the more local, stringent requirements of the city.

- The generating resources are used as “peaker” units and predominantly operate during peak loading conditions for short periods of time. Therefore, they are essential for maintaining adequate and Reliable Operation of the BES during peak system conditions.

- The generating resources are counted towards meeting Installed Capacity Requirement (ICR) and fulfilling Installed Reserve Margin (IRM); they are also credited for GT Capacity against in Capacity Obligation towards satisfying Locational Capacity Requirements. Therefore, these units can be dispatched as capacity resources during peak times and emergency conditions.

- There was no indication provided that there are any immediate plans to retire these units.

- The Regional Entity and the NRP also considered the potential aggregate impact “within a portion of the BES” as well as “across the BES.” The Regional Entity estimated that there are approximately 950 MVA of aggregate generation capacity within the Balancing Authority Area (BAA) that have similar characteristics, creating a potential for a significant amount of aggregate generation to be excluded from the BES.

Accordingly, NERC found that Submitting Entity had not met its burden to obtain an Exclusion Exception and had not shown that the Elements are not necessary for the Reliable Operation of the interconnected bulk-power transmission system. Therefore, NERC Disapproved the Submitting Entity’s Exclusion Exception Request.
Risk Assessment Evaluation of Power Generating Resources – E3

**Decision**
An entity submitted an Exclusion Exception Request for its two coal-fired generating units with each individual nameplate capacity of greater than 20MVA. Under the Bulk Electric System (BES) definition, such facilities are included in BES.

As part of its risk assessment, the North American Electric Reliability Corporation (NERC) reviewed and evaluated the information from the Submitting Entity, the Regional Entity and the Regional Technical Review Panel (TRP), as well as the proposed decision of the NERC Review Panel (NRP). After review of the bases, information and supporting documentation presented for consideration, NERC approved the associated Exception Exclusion Request.

**Background**
The BES Definition has a core definition as well as enumerated Inclusions and Exclusions. Pursuant to Inclusion I2, the Elements in the Submitting Entity’s Exclusion Exception Request were part of the BES.

Pursuant to Appendix 5C to the NERC Rules of Procedure, Submitting Entity provided an Exclusion Exception Request for the two coal-fired generating units. The Submitting Entity has the burden to establish that its Elements are not necessary for the Reliable Operation of the interconnected bulk-power transmission system. For the purposes of this document, the terms interconnected bulk-power transmission system and BES are used interchangeably.

**Analysis**
In support of its Exclusion Exception Request, the Submitting Entity asserted several reasons as to why it believed the generating facility does not have an appreciable or measureable impact on the BES and should be excluded from the BES. The Submitting Entity stated that due to the age of the units and plant auxiliary loads (which are substantially larger than the typical plant loads) the actual net capacity of the units are less than 20MVA criteria per Inclusion I2 of the BES Definition. In addition the Submitting Entity and the Regional Entity provided information on limited demonstrating limited past performances capacity, power production of the generating units, and the intention of the Generator Owner (GO) to retire the units in the near future due to environmental regulations.

As part of its risk assessment and assessment whether the Elements are necessary for Reliable Operation, NERC reviewed the information supplied by Submitting Entity and Regional Entity, taking into account technical application of the BES Definition and evaluation of the information presented. Based on NERC’s review, NERC agreed with Submitting Entity that the Elements can be excluded from the BES and determined that Submitting Entity’s assertions sufficiently demonstrated that the generating facility is not necessary for the Reliable Operation of the interconnected bulk-power transmission system.

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5 This analysis is described below for illustrative purposes and identifying information has been redacted. NERC’s decision and this Case Note should not be construed as setting precedent for any similar future Exception Requests. A decision disapproving an Exception Request results in a given Element remaining or being designated as a BES Element. A Submitting Entity also may pursue potential alternative options, as applicable, including through the registration program.
NERC agreed with the NRP and Regional Entity on each of the items below:

- The generating resources’ historic performance (confirmed by the Regional Entity) showed that these units have not operated for over 2 years and are not anticipated to operate in the future.
- The generating resources were built more than 6 decades ago and due to environmental regulations are expected to retire in the near future.
- Simulation studies had shown that sufficient active and reactive support remains within the Submitting Entity’s control area with the exclusion of the two generating resources.
- A separate study showed that exclusion of these generating units from simulation planning cases does not exacerbate system overloads when known contingencies are applied.
- The NPR also took into consideration the (1) actual generating units’ active power capability, (2) non-Blackstart nature of the units, and (3) the exclusion of these units in planning models used by the Planning Coordinators and neighboring Transmission Operators.

Accordingly, NERC found that Submitting Entity had met its burden to obtain an Exclusion Exception and had shown that the Elements are not necessary for the Reliable Operation of the interconnected bulk-power transmission system. Therefore, NERC approved the Submitting Entity’s Exclusion Exception Request.
Risk Assessment Evaluation of Power Generating Resources - E4

Decision
An entity submitted an Exclusion Exception Request for two coal-fired generating units, with each individual unit having a nameplate capacity greater than 20 MVA. Under the Bulk Electric System (BES) definition, such facilities are included in BES.

As part of its risk assessment, the North American Electric Reliability Corporation (NERC) reviewed and evaluated the information from the Submitting Entity and the Regional Entity, as well as the proposed decision of the NERC Review Panel (NRP). After reviewing this information and the supporting documentation presented for consideration, NERC approved the Exclusion Exception Exclusion Request.

Background
The BES Definition has a core definition as well as enumerated Inclusions and Exclusions. Pursuant to Inclusion I2, the Elements in the Submitting Entity’s Exclusion Exception Request were part of the BES.

Pursuant to Appendix 5C to the NERC Rules of Procedure, the Submitting Entity has the burden to establish that its Elements are not necessary for the Reliable Operation of the interconnected bulk-power transmission system; therefore, the Submitting Entity provided an Exclusion Exception Request for the two coal-fired generating units.

Analysis
In support of its Exclusion Exception Request, the Submitting Entity made several assertions as to why the generating units do not have an appreciable or measureable impact on the BES and should be excluded from the BES. The Submitting Entity stated that due to the age of the units and plant auxiliary loads (which are substantially larger than the typical plant loads), the actual net capacity of the units are less than the 20 MVA criteria required by Inclusion I2 of the BES Definition. In addition, the Submitting Entity and the Regional Entity provided information demonstrating limited past performances and power production of the generating units, as well as stating the intention to retire these units in the near future due to environmental regulations.

To assess risk, as well as whether the Elements are necessary for Reliable Operation, NERC reviewed the information supplied by the Submitting Entity and the Regional Entity, taking into account technical application of the BES Definition and evaluation of the information presented. Based on NERC’s review, NERC agreed with the Submitting Entity that the Elements can be excluded from the BES, and determined that the Submitting Entity’s assertions sufficiently demonstrated that the generating units is not necessary for the Reliable Operation of the interconnected bulk-power transmission system.

NERC agreed with the NRP and the Regional Entity on each of the items below:

• The generating resources’ historic performance (confirmed by the Regional Entity) showed that these units have not operated for over two (2) years and are not anticipated to operate in the future.

• The generating resources were built more than six (6) decades ago, and due to environmental regulations are expected to retire in the near future.

This analysis is described for illustrative purposes and identifying information has been redacted. NERC’s decision and this Case Note should not be construed as setting precedent for any similar future Exception Requests. A decision disapproving an Exception Request results in a given Element remaining or being designated as a BES Element. A Submitting Entity may also pursue potential alternative options, as applicable, including through the registration program.

For the purposes of this document, the terms interconnected bulk-power transmission system and BES are used interchangeably.

6 This analysis is described for illustrative purposes and identifying information has been redacted. NERC’s decision and this Case Note should not be construed as setting precedent for any similar future Exception Requests. A decision disapproving an Exception Request results in a given Element remaining or being designated as a BES Element. A Submitting Entity may also pursue potential alternative options, as applicable, including through the registration program.

7 For the purposes of this document, the terms interconnected bulk-power transmission system and BES are used interchangeably.
• Simulation studies have shown that sufficient active and reactive support remains within the Submitting Entity's control area independent of the two generating resources.

• A separate study showed that exclusion of these generating units from simulation planning cases does not exacerbate system overloads when known contingencies are applied.

• Also taken into consideration were the: (1) actual generating units’ active power capability; (2) non-Blackstart nature of the units; and (3) the exclusion of these units in planning models used by the Planning Coordinators and neighboring Transmission Operators.

Accordingly, NERC found that the Submitting Entity had met its burden to obtain an Exclusion Exception and has established that the Elements are not necessary for the Reliable Operation of the interconnected bulk-power transmission system.
Decision
An entity submitted an Exclusion Exception Request for a hydro-electric generator with a nameplate rating greater than 20 MVA connected to the Bulk Electric System (BES) through a 25 MVA step-up transformer and a 100 to 300 kV transmission line.

As part of its risk assessment, the North American Electric Reliability Corporation (NERC) reviewed and evaluated the information from the Submitting Entity and the Regional Entity, as well as the proposed decision of the NERC Review Panel (NRP). After review of the bases, information and supporting documentation presented for consideration, NERC concluded that the generation plant facility and the 100 to 300 kV transmission line are BES Elements, are necessary for Reliable Operation of the BES, and should not receive an Exception Exclusion.

Background
The BES Definition has a core definition as well as enumerated Inclusions and Exclusions. Pursuant to Inclusion I2 of the BES Definition, the Elements in the Submitting Entity’s Exclusion Exception Request are currently part of the BES. The generator is a hydro-electric facility serving local load with an average annual production below 20 MVA. While the generator’s nameplate rating is greater than 20 MVA, limited storage restricts the generation output.

Pursuant to Appendix 5C to the NERC Rules of Procedure, the Submitting Entity has the burden to establish that its Elements are not necessary for the Reliable Operation of the interconnected bulk-power transmission system; therefore, the Submitting Entity provided an Exclusion Exception Request for the referenced Elements.

Analysis
In support of its Exclusion Exception Request, the Submitting Entity asserted several reasons as to why it believed the Elements at the generating facility are not necessary for Reliable Operation of the BES, and should receive an Exception Exclusion.

The Submitting Entity stated that the hydro-electric facility:

- Does not provide Ancillary Services.
- Does not provide black start service.
- Is not a designated must run unit.
- Does not have a commitment related to capacity requirements for BES voltage control.
- Does not have a commitment related to capacity requirements for inertia, or frequency response.

To assess risk, as well as whether the Elements are necessary for the Reliable Operation of the BES, NERC reviewed the information supplied by the Submitting Entity and the Regional Entity, taking into account technical application of the BES Definition and evaluation of the information presented. The BES Definition establishes a bright-line criteria for BES generation, and Inclusion I2 of the BES definition sets specific threshold criteria that

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8 This analysis is described below for illustrative purposes and identifying information has been redacted. NERC’s decision and this Case Note should not be construed as setting precedent for any similar future Exception Requests. A decision disapproving an Exception Request results in a given Element remaining or being designated as a BES Element. A Submitting Entity may also pursue potential alternative options, as applicable, including through the registration program.

9 For the purposes of this document, the terms interconnected bulk-power transmission system and BES are used interchangeably.
generation is included as BES generation where the generation resource(s) has a gross individual nameplate rating greater than 20 MVA connected at a voltage of 100 kV or above.

Based on NERC’s review, NERC did not agree with the Submitting Entity’s assertion that the Elements should be excluded from the BES and determined that the Submitting Entity’s assertions did not demonstrate that the generating facility is not necessary for the Reliable Operation of the interconnected bulk-power transmission system.

NERC agreed with the NRP and disagreed with the Regional Entity as to each issue below:

- The hydro-facility is “critical” due to the fact that it is capable of relieving “BES transmission overloads due to N-2 contingencies” and has the ability to limit load shedding.
- Despite the Submitting Entity’s statements regarding capacity, the plant produces in excess of the BES threshold for extended periods.
- Under several contingency scenarios, the generator was determined to have valuable reactive output capability. The full reactive capability of the generator is available to the system immediately following a contingency or disturbance regardless of the manual reactive-output generator operating procedure.
- NERC is concerned about the impacts to the BES if the hydro-electric generator is no longer subject to PRC standards, given the impact demonstrated in the study results accompanying the Exception Request.
- The Regional Entity and NERC also considered the potential aggregate impact “within a portion of the BES” as well as “across the BES.” In considering other potentially similarly situated generators, NERC believes the removal of all such generators from the BES would be detrimental to BES reliability. Accordingly, NERC found that the Submitting Entity had not met its burden to obtain an Exclusion Exception and had not shown that the Elements are not necessary for the Reliable Operation of the interconnected bulk-power transmission system. Therefore, NERC Disapproved the Submitting Entity’s Exclusion Exception Request.

Conclusion

NERC found that the Submitting Entity has not met its burden to obtain an Exclusion Exception and has not shown that the Elements are not necessary for the Reliable Operation of the interconnected bulk-power transmission system. Therefore, NERC Disapproved the Submitting Entity’s Exclusion Exception Request.
Background and Decision\textsuperscript{10}

An entity submitted an Exclusion Exception Request for its 138kV transmission line. The NERC review panel (NRP) carefully examined the Exception Request, the Submitting Entity’s associated documentation, Interconnection-wide powerflow models, and Regional Entity’s recommendation. After review of the supporting documents, the NRP proposed to disapprove the decision of the Regional Entity’s Recommendation to Approve the Exception Request. The NRP also recommended that the Submitting Entity submit a Self-Determined Notification (SDN) of exclusion for the 138 kV transmission line. This action was proposed to maintain consistency with the handling of other Self-Determined Notifications of exclusion where sufficient evidence is available to show the element qualifies for one of the exclusions within the core BES Definition. Subsequently, the Self-Determined Notification of exclusion was accepted under Exclusion E1 from the BES Definition as a radial line with the same supporting documentation.

\textsuperscript{10} This analysis is described below for illustrative purposes and identifying information has been redacted. NERC’s decision and this Case Note should not be construed as setting precedent for any similar future Exception Requests. A decision disapproving an Exception Request results in a given Element remaining or being designated as a BES Element. A Submitting Entity also may pursue potential alternative options, as applicable, including through the registration program.
Risk Assessment Evaluation of a Radial Transmission Line That Serves a Looped Network - E2

Decision
An entity submitted an Exclusion Exception Request for a 100 to 300 kV radial transmission line that serves a non-BES looped network. A co-owner submitted a letter supporting the Exception Request based on independent engineering studies demonstrating that the Elements of this Exclusion Exception Request are Bulk Electric System (BES) Elements by the core definition and are not necessary for Reliable Operation of the BES.

Using a risk-based approach, the North American Electric Reliability Corporation (NERC) reviewed all the information and data provided in the record, the Regional Entity Recommendation for Approval, and the additional analyses performed by the NERC Review Panel (NRP). NERC concluded that the BES Elements of this Exception Request, are not necessary for the Reliable Operation of the BES, and has therefore recommended Approval of this BES Exclusion Exception Request.

Background
The BES Definition has a core definition as well as enumerated Inclusions and Exclusions. The Elements in the Submitting Entity’s Exclusion Exception Request are part of the BES. The Exclusion Element for this Exception Request consists of a 230 kV radial line that connects a 230 kV ring bus to the high side bushings of the 230/69 kV transformer that connects to a looped 69 kV network.

Pursuant to Appendix 5C, the Submitting Entity has the burden to establish that its Elements are not necessary for the Reliable Operation of the interconnected bulk-transmission power system; as such, the Submitting Entity submitted an Exclusion Exception Request for the referenced Elements.

Analysis
NERC agreed with the NRP and the Regional Entity as to each issue below:

- The NRP noted that the Regional Entity indicated that energy flows from the 69 kV system back to the BES is less than 0.2% of the time, with an average value less than 7 MW. The NRP concluded that this flow demonstrates the Elements were not needed for the Reliable Operation of the BES.

- An important factor in NERC’s decision was that the Protection Systems that protects 230 kV ring bus of the radial line remain subject to the NERC Reliability Standards that serve to preserve the reliability of the BES. The NRP concluded that the dependability and security of the Protection Systems on the 230 kV radial transmission line, including primary, backup, and breaker-failure systems, is of significant concern, warranting particular clarification and required inclusion to the BES.

- The NRP agrees with Regional Entity that, for this BES Exclusion Exception Request, the 230 kV radial transmission line should be excluded from the BES.

Conclusion
NERC found that the Submitting Entity met its burden to obtain an Exclusion Exception and established that the Elements are not necessary for the Reliable Operation of the interconnected bulk-power transmission system. Therefore, NERC approved the Submitting Entity’s Exclusion Exception Request.

11 This analysis is described below for illustrative purposes, and identifying information has been redacted. NERC’s decision and this Case Note should not be construed as setting precedent for any similar future Exception Requests. A decision disapproving an Exception Request results in a given Element remaining or being designated as a BES Element. A Submitting Entity may also pursue potential alternative options, as applicable, including through the registration program.