

# NERC

NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

# Energy Assurance

## BAL-007-1 and BAL-008-1

NERC Project 2022-03 Drafting Team  
May 23, 2024

**RELIABILITY | RESILIENCE | SECURITY**



- Background of NERC Project 2022-03
  - Addressing the Reliability Gap
- Stakeholder Response to Draft 1
  - High Level Themes
- Path Forward for Draft 2
  - Energy Reliability Assessments Definition
  - BAL-007-1 and BAL-008-1
  - Implementation Plans
- Q&A's throughout the presentation

- *White Paper: Ensuring Energy Adequacy with Energy-Constrained Resources – December 2020*
  - Published in December 2020; Drafts circulated over a year prior
  - Introduced the problem statement concerning our **ability to serve demand** and **ensure the reliable operation** of the bulk power system with **inconsistent output of generation** relying on **unassured fuel supplies**
  - Posed the question of **whether traditional capacity assessments were appropriate** under the changing landscape from virtually unlimited fuel to one with more limitations on generator dispatchability
  - Brought forward the question of the **availability of fuel when needed**
  - Proposed additional study in three timeframes: Mid- to Long-term Planning, Operational Planning, and Operations
  - Reviewed by the Reliability and Security Technical Committee (RSTC) at the December 2020 meeting, where volunteers were solicited to form a task force to address the issues raised in the white paper

- *White Paper: Ensuring Energy Adequacy with Energy-Constrained Resources – December 2020*

## Ensuring Energy Adequacy with Energy-Constrained Resources

December 2020

White Paper

### **Problem Statement**

Unassured fuel supplies,<sup>1</sup> including the timing and inconsistent output from variable renewable energy resources, fuel location, and volatility in forecasted load, can result in insufficient amounts of energy on the system to serve electrical demand and ensure the reliable operation of the bulk power system (BPS) throughout the year.

<https://www.nerc.com/comm/RSTC/ERATF/ERATF%20Energy%20Adequacy%20White%20Paper.pdf>

- ERATF was formed in March 2021
  - Evaluated existing practices and NERC Standards
  - Convened Energy Analysis Workshop in February 2022
  - SARs for Energy Assessments with Energy-Constrained Resources submitted in June, 2022
- SARs were approved by Standards Committee in January 2023 with requirements for:
  - Performance of energy reliability assessments
  - Coordination between areas
  - Comparison of results to criteria and the implementation of actions
- Initial draft of TOP-0XX was posted for informal comments in September 2023
- Draft 1 of BAL-007-1 was posted for **formal** comment and vote in January 2024
- Draft 2 of BAL-007-1 and initial draft of BAL-008-1 posted for **formal** comment and vote in May 2024 (currently open, voting begins in June)

- High-level Themes
  - Overly Prescriptive Requirements
    - Need results-based standard requirements
    - Requirement language too prescriptive
    - Need to allow for flexibility and adaptability
    - Consider the allowance of reserve sharing groups to cover the requirements
  - Necessity and Scope
    - Concern about redundancy between proposed language and existing standards
    - Clarity and removal of unnecessary language from the proposed Energy Reliability Assessment (ERA) definition, including an update to Technical Rationale for ERA definition and Requirements
    - BA Authority and Implementation Concerns
    - Seek input from industry working groups
  - Applicability
    - Questions regarding Seasonal ERA within scope of SAR for Balancing Authorities
    - Consider adding other applicable entities (LSE, LRE, Resource Planner, etc.)

- High-level Themes
  - Overly Prescriptive Requirements
    - Requirement language modified for flexibility and adaptability
    - Language updated to allow for reserve sharing groups, etc.
    - Language has been drafted at a results-based level
  - Necessity and Scope
    - Additional clarity has been provided with respect to duplicative standards
    - Definition of Energy Reliability Assessment has been revised
    - Outreach with several industry working groups
    - Technical Rationale updated to better explain
  - Applicability
    - Seasonal ERA are within scope of the SAR and are applicable to BAs
    - Split into two standards
      - BAL-007-1 Near-term ERA
      - BAL-008-1 Seasonal ERA
    - Consideration given to applicable entities to be added

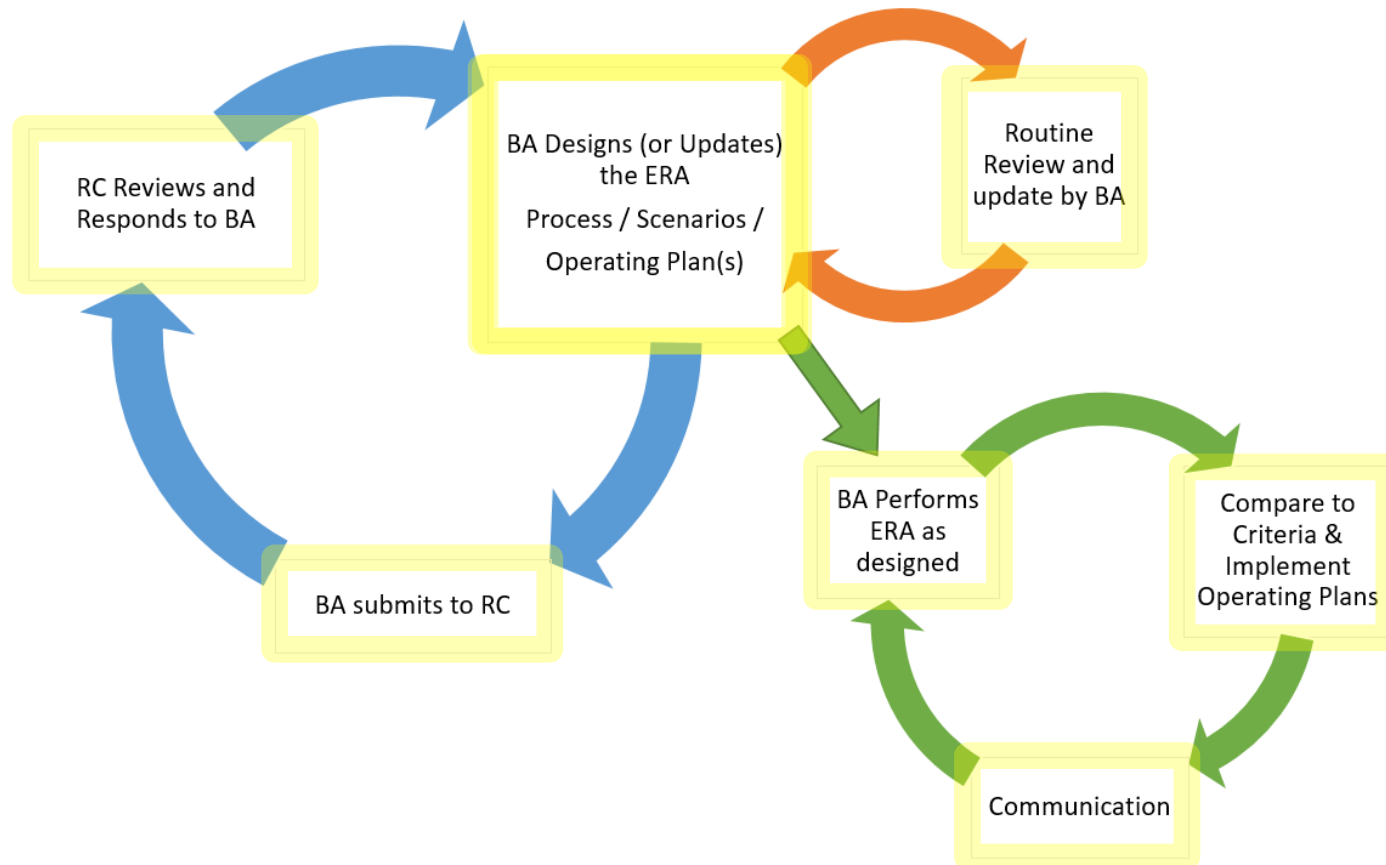
- Draft 1 proposed definition:
  - Evaluation of the resources that supply electrical energy and ancillary services for the Bulk Power System to reliably meet the expected demand during the associated time period. ERAs account for the impact of actions that occur sequentially throughout the assessment period, including the depletion and replenishment of finite upstream resources (e.g., fuel).
- Draft 2 proposed definition:
  - Evaluation of the resources to reliably supply the Electrical Energy required to serve Demand and to provide Operating Reserves for the Bulk Power System throughout the associated evaluation period.



- Draft 1 proposed definition:
  - Evaluation of the resources ~~that~~ supply electrical energy ~~and ancillary services~~ for the Bulk Power System to reliably meet the expected demand during the associated time period. ~~ERAs account for the impact of actions that occur sequentially throughout the assessment period, including the depletion and replenishment of finite upstream resources (e.g., fuel).~~
- Draft 2 proposed definition:
  - Evaluation of the resources to reliably supply the Electrical Energy required to serve Demand and to provide Operating Reserves for the Bulk Power System throughout the associated evaluation period.

Demand	<p>1. The rate at which electric energy is delivered to or by a system or part of a system, generally expressed in kilowatts or megawatts, at a given instant or averaged over any designated interval of time.</p> <p>2. The rate at which energy is being used by the customer.</p>
Electrical Energy	The generation or use of electric power by a device over a period of time, expressed in kilowatthours (kWh), megawatthours (MWh), or gigawatthours (GWh).
Operating Reserve	That capability above firm system demand required to provide for regulation, load forecasting error, equipment forced and scheduled outages and local area protection. It consists of <del>spinning and non-spinning reserve.</del>

- BAL-007-1 for Near-Term Energy Reliability Assessments
- BAL-008-1 for Seasonal Energy Reliability Assessments





# Questions and Answers

- Requirements for Near-Term Energy Reliability Assessments
  - Separated out from Seasonal ERA Requirements
  - More focused on near-term risks with near-term solutions
- In contrast to prior draft, this version places more responsibility on the Balancing Authorities to define how they will perform ERAs and document their rationale for the decisions made
  - BAs have more flexibility to determine their own risks, but show their work
- Criteria are now in alignment with existing criteria, but from a different perspective.
  - Existing knowledge and understanding is leveraged, as well as current interpretations of existing standards

- R1.** Each Balancing Authority shall document and maintain a process for conducting Energy Reliability Assessments (ERA) for the near-term time horizon. *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*
- 1.1.** The near-term ERA must have a duration **between five days and six weeks** and begin no later than two days after the present operating day.
  - 1.2.** The frequency of near-term ERA must be at intervals that **ensure all time periods are covered** by a near-term ERA.
  - 1.3.** The ERA process for near-term ERAs must account for the following:
    - 1.3.1.** Forecasted or assumed Demand profiles;
    - 1.3.2.** Resource capabilities and operations, including **depletion of fuel, variable energy resources** (e.g., wind, solar, and hydro), energy transfers between neighboring Balancing Authorities, and electric storage; and
    - 1.3.3.** Transmission constraints that limit the ability of generation to deliver their output to load.
  - 1.4.** The ERA process for near-term ERAs shall include the rationale for each of the elements in Parts 1.1 through 1.3.



**R2.** Each Balancing Authority shall document and maintain a set of Scenarios or a method of Scenario creation for use in performing near-term ERAs. Each Scenario or method shall vary one or more of the following conditions by a sufficient amount to stress the system within a range of credible situations. Include a rationale for the Scenarios or method identified. *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

**2.1.** Forecasted or assumed Demand profiles.

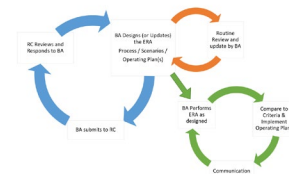
**2.2.** Resource capabilities and operations, including the following:

**2.2.1.** The effects of a credible energy supply contingency;

**2.2.2.** The effects of a credible fuel supply contingency; and

**2.2.3.** Unplanned generator outages.

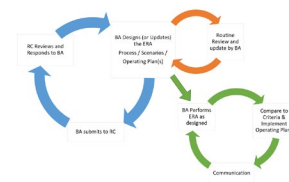
**2.3.** Other Scenarios with a credible or historical risk of occurring based on the best information available at the time of Scenario creation.



- R3.** Each Balancing Authority shall document and maintain one or more **Operating Plan(s)** to minimize forecasted Energy Emergencies as identified in the near-term ERA, including provisions for notifying the Reliability Coordinator of the forecasted Energy Emergency and the Operating Plan(s). *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*



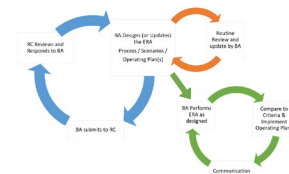
Operating Plan	A document that identifies a group of activities that may be used to achieve some goal. An Operating Plan may contain Operating Procedures and Operating Processes. A company-specific system restoration plan that includes an Operating Procedure for black-starting units, Operating Processes for communicating restoration progress with other entities, etc., is an example of an Operating Plan
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**R4.** The Balancing Authority shall **review and update**, if necessary, its near-term ERA process, Scenarios or methods, and Operating Plan(s) documented under Requirements R1 through R3 at least once **every 24 calendar months**. *[Violation Risk Factor: Low] [Time Horizon: Operations Planning]*



**R5.** Each Balancing Authority shall **provide its near-term ERA** process, Scenarios or methods, and Operating Plan(s) documented under Requirements R1 through R3 **to the Reliability Coordinator** at least once every 24 calendar months, on a mutually agreed schedule. *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*



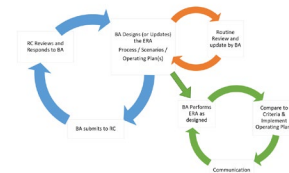


**R6.** Within 60 calendar days of receipt of the information identified in Requirement R5, the Reliability Coordinator shall: *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

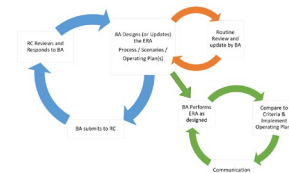
- 6.1.** Review each submittal for coordination with other Balancing Authorities' ERA information to avoid risks to Wide Area reliability; and
- 6.2.** Notify each Balancing Authority of the results of its review and if revisions are needed to address reliability risks.

**R7.** Within 60 calendar days of receipt of the Reliability Coordinator's notice under Requirement R6, each Balancing Authority shall address any reliability risks identified by its Reliability Coordinator and resubmit the updated information required in Requirement R4 to its Reliability Coordinator. *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

## Questions and Answers

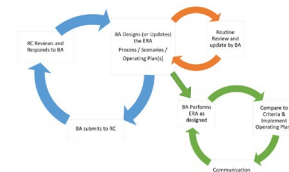


- R8.** Each Balancing Authority shall **perform** near-term ERAs according to the process documented in Requirement R1 using the Scenarios or methods documented in Requirement R2. *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*



**R9.** If a near-term ERA identifies any of the following **forecasted Energy Emergencies** listed below, the Balancing Authority shall **implement an Operating Plan(s)**, as documented in Requirement R3. *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

- Forecasted EEA1 circumstances as defined in EOP-011 Attachment 1 Section B
- Forecasted EEA2 circumstances as defined in EOP-011 Attachment 1 Section B
- Forecasted EEA3 circumstances as defined in EOP-011 Attachment 1 Section B



**1. EEA 1 — All available generation resources in use.**

**Circumstances:**

- The Balancing Authority is experiencing conditions where all available generation resources are committed to meet firm Load, firm transactions, and reserve commitments, and is concerned about sustaining its required Contingency Reserves.
- Non-firm wholesale energy sales (other than those that are recallable to meet reserve requirements) have been curtailed.

**2. EEA 2 — Load management procedures in effect.**

**Circumstances:**

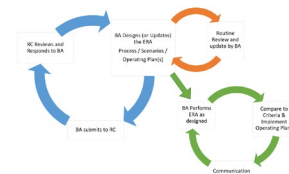
- The Balancing Authority is no longer able to provide its expected energy requirements and is an energy deficient Balancing Authority.
- An energy deficient Balancing Authority has implemented its Operating Plan(s) to mitigate Emergencies.
- An energy deficient Balancing Authority is still able to maintain minimum Contingency Reserve requirements.

**3. EEA 3 — Firm Load interruption is imminent or in progress.**

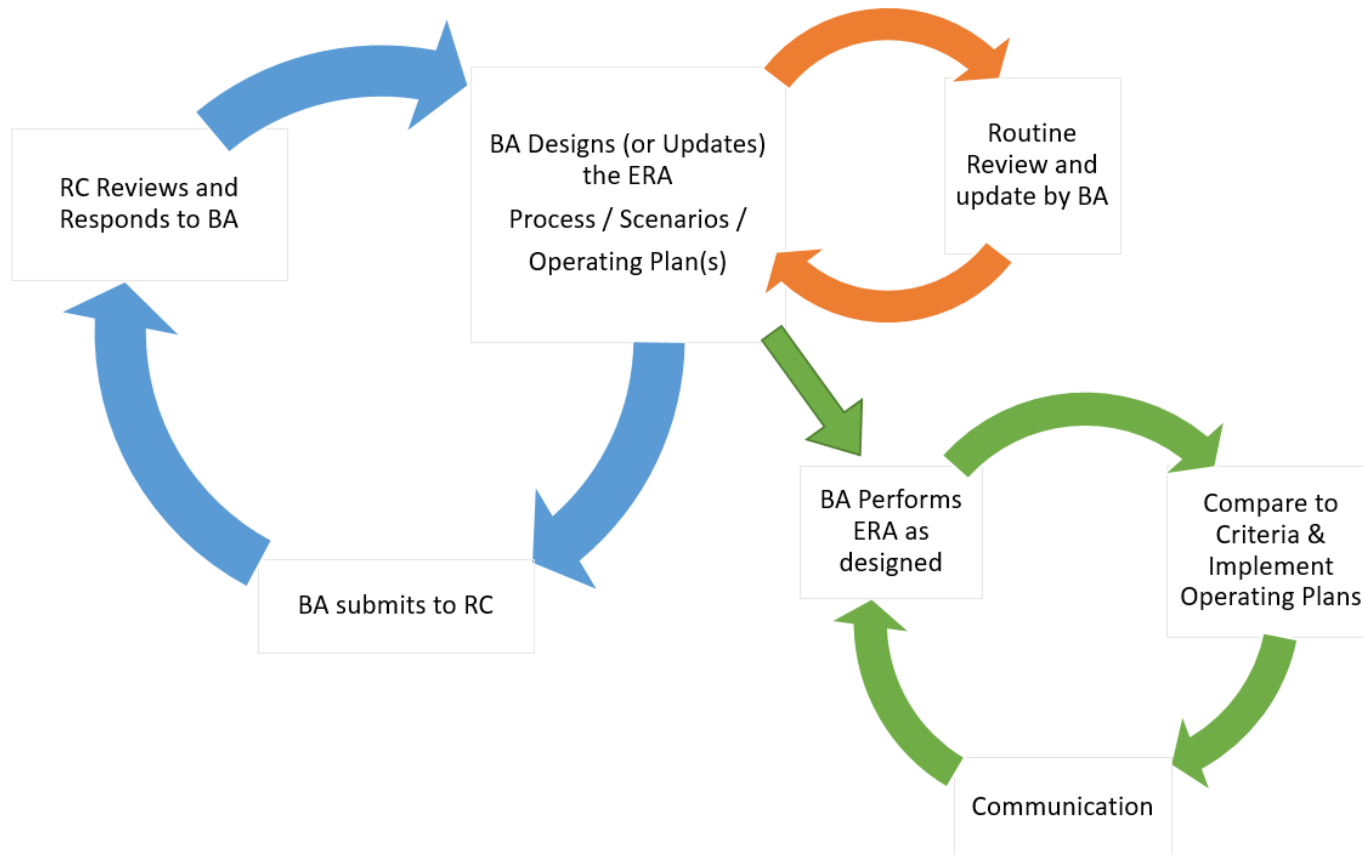
**Circumstances:**

- The energy deficient Balancing Authority is unable to meet minimum Contingency Reserve requirements.

- R10.** Each Reliability Coordinator, within 24 hours of receiving a notification that a Balancing Authority within its footprint has implemented an Operating Plan pursuant to Requirement R8, shall **notify other Balancing Authorities and Transmission Operators in its Reliability Coordinator Area and neighboring Reliability Coordinators** of the forecasted condition(s), and the Balancing Authority's Operating Plan(s).  
*[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*



- BAL-007-1 for Near-Term Energy Reliability Assessments
- BAL-008-1 for Seasonal Energy Reliability Assessments



- Notable Standard Interdependency

- BAL-007-1 relies on the Balancing Authorities receiving information required in TOP-003-5 to perform their analysis functions.
- TOP-003-5 requires Transmission Owners, Balancing Authorities, Generator Owners, Generator Operators, Transmission Owners, and Distribution Providers to provide the necessary information

- R2.** Each Balancing Authority shall maintain a documented specification for the data necessary for it to perform its analysis functions and Real-time monitoring. The data specification shall include, but not be limited to:
- R5.** Each Transmission Operator, Balancing Authority, Generator Owner, Generator Operator, Transmission Owner, and Distribution Provider receiving a data specification in Requirement R3 or R4 shall satisfy the obligations of the documented specifications using:

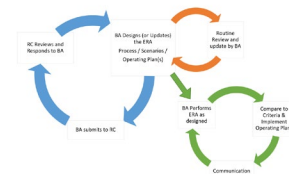


# Questions and Answers



- Requirements for seasonal Energy Reliability Assessments
  - Separated out from BAL-007 (near-term ERAs)
  - Focusing more on the longer lead time ERA, maintaining separation from the long-term ERAs that are a work in progress
- Significant flexibility provided for BA to define seasons
  - Seasonal definition inconsistencies between regions
  - Risks presented differently based on a variety of factors
- Representative periods for seasonal ERA
  - Entire season (e.g., 90 days) may not add benefit to a shorter (e.g., 28 days) duration that appropriately characterizes the actual risks

- R1.** Each Balancing Authority shall document and maintain a process for conducting Energy Reliability Assessments (ERA) for the seasonal time horizon. *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*
- 1.1.** The Balancing Authority shall define its seasons, which do not have to align with traditional seasonal definitions but must cover an entire calendar year.
  - 1.2.** The seasonal ERAs will be representative of the risks or conditions within each seasonal period. The Balancing Authority will determine the duration for each seasonal ERA to represent those risks or conditions and does not need to include all hours in the seasonal period.
  - 1.3.** The Balancing Authority shall define a periodicity for conducting the seasonal ERAs, that provides for completion at least 30 calendar days prior to but no greater than 12 months before the beginning of each season.
  - 1.4.** The ERA process for seasonal ERAs must account for the following:
    - 1.4.1.** Forecasted or assumed Demand profiles;
    - 1.4.2.** Resource capabilities and operations, including depletion of fuel, variable energy resources, (e.g., wind, solar, and hydro) energy transfers between neighboring Balancing Authorities, and electric storage; and
    - 1.4.3.** Transmission Constraints that limit the ability of generation Facilities to deliver their output to Load.
  - 1.5.** The ERA process for seasonal ERAs shall include the rationale for each of the elements in Parts 1.1 through 1.4.



**R2.** Each Balancing Authority shall document and maintain a set of Scenarios or method of Scenario creation for use in performing seasonal ERAs. Each Scenario or method shall vary one or more of the following conditions to stress its System within a range of credible situations. Include a rationale for the Scenarios or method identified.

*[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

**2.1.** Forecasted or assumed Demand profiles;

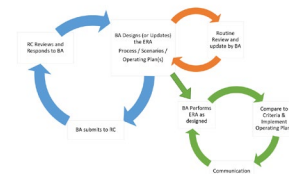
**2.2.** Resource capabilities and operations including the following:

**2.2.1.** The effects of a credible energy supply Contingency;

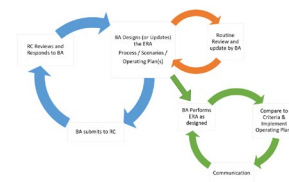
**2.2.2.** The effects of a credible fuel supply Contingency; and

**2.2.3.** Unplanned generator outages.

**2.3.** The effects of other contingencies with a credible or historical risk of occurring based on the best information available at the time of Scenario creation.



**R3.** Each Balancing Authority shall document and maintain one or more **Operating Plan(s)** to minimize forecasted Energy Emergencies, as identified in the seasonal ERA, including provisions for notifying the Reliability Coordinator of the forecasted Energy Emergency and the Operating Plan(s). *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

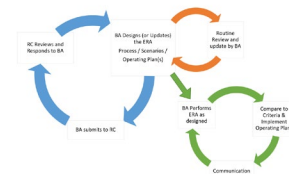


- R4.** Each Balancing Authority shall maintain a documented specification for the **data necessary from its Resource Planners** to perform seasonal ERAs. The data specification shall include the following: *[Violation Risk Factor: Low] [Time Horizon: Operations Planning]*
- 4.1.** A list of data and information needed by the Balancing Authority to support its seasonal ERAs;
  - 4.2.** A periodicity for providing data;
  - 4.3.** The deadline by which the respondent is to provide the indicated data.
- R5.** Each Balancing Authority shall **distribute its data specification** to its Resource Planner(s) that have data required by the Balancing Authority to perform its seasonal ERAs. *[Violation Risk Factor: Lower] [Time Horizon: Operations Planning]*
- R6.** Each **Resource Planner receiving a data specification in Requirement R5 shall satisfy the obligations of the documented specifications using:** *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning, Same-Day Operations, Real-time Operations]*
- 6.1.** A mutually agreeable format
  - 6.2.** A mutually agreeable process
  - 6.3.** A mutually agreeable data set

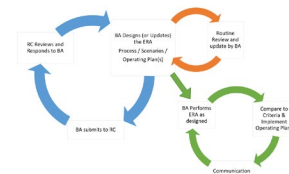
## Questions and Answers



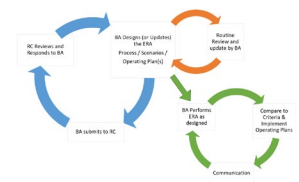
- R7.** The Balancing Authority shall **review and update**, if necessary, its seasonal ERA process, Scenarios or methods, and Operating Plan(s) documented under Requirements R1 through R3 at least once **every 24 calendar months**. *[Violation Risk Factor: Low] [Time Horizon: Operations Planning]*
- R8.** Each Balancing Authority shall **provide** its seasonal ERA process, Scenarios or methods, and Operating Plan(s) documented under Requirements R1 through R3 to the **Reliability Coordinator at least once every 24 calendar months**, on a mutually agreed schedule. *[Violation Risk Factor: Low] [Time Horizon: Operations Planning]*



- R9.** Within 60 calendar days of receipt of the information in Requirement R8, the **Reliability Coordinator shall:** *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*.
- 9.1.** **Review each submittal** for coordination with other Balancing Authorities' ERA information to avoid risks to Wide Area reliability; and
  - 9.2.** **Notify each Balancing Authority of the results** of its review and, if revisions are needed, to address reliability risks.
- R10.** Within 60 calendar days of receipt of the Reliability Coordinator's notice under Requirement R9, each **Balancing Authority shall address any reliability risks** identified by its Reliability Coordinator and resubmit the updated information required in Requirement R8 to its Reliability Coordinator. *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*



**R11.** Each Balancing Authority shall **perform** seasonal ERAs according to the process documented in Requirement R1 using the Scenarios or methods documented in Requirement R2. *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

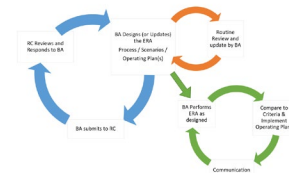




**R12.** If a seasonal ERA identifies one or more of the **forecasted Energy Emergencies** listed below, the Balancing Authority shall **implement an Operating Plan(s)**, as documented in Requirement R3. *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*

- Forecasted EEA1 circumstances as defined in EOP-011 Attachment 1 Section B
- Forecasted EEA2 circumstances as defined in EOP-011 Attachment 1 Section B
- Forecasted EEA3 circumstances as defined in EOP-011 Attachment 1 Section B

**R13.** Each **Reliability Coordinator, within seven calendar days** of receiving a notification that a Balancing Authority within its footprint has implemented an Operating Plan pursuant to Requirement R8, shall **notify other Balancing Authorities and Transmission Operators in its Reliability Coordinator Area, and neighboring Reliability Coordinators** of the forecasted condition(s) and the Balancing Authority's Operating Plan(s). *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning]*





# Questions and Answers

- **BAL-007-1**

- 18 months | R1 – R3 | Build the Process
- 24 months | R4 – R5 | Review and Provide to RC
- 24 months | R6 – R10 | RC Review, Performing ERAs

- **BAL-008-1**

- 18 months | R1 – R6 | Build the Process
- 24 months | R7 – R8 | Review and Provide to RC
- 24 months | R9 – R13 | RC Review, Performing ERAs

- Open invitation for more specialized informational sessions with the Standard Drafting Team
  - Stakeholder feedback can be more thoroughly conveyed than formal comments by allowing for conversation and better understanding
  - Allow for more detailed answers to more specific questions about the intent of the requirement language provided
  - Provide language interpretations where more clarity is requested by industry stakeholders
- Voting and formal comment submission
  - June 11 to June 20, 2024

S	M	T	W	T	F	S
<del>1</del>	<del>2</del>	<del>3</del>	<del>4</del>	23	24	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22



# Questions and Answers