

January 5, 2022

Mr. Paul Choudhury, Chair
NERC Member Representatives Committee

Dear Paul:

I invite the Member Representatives Committee (MRC) to provide policy input on one matter of particular interest to the NERC Board of Trustees (Board) as it prepares for its February 9-10, 2022, meetings. In addition, policy input is requested on any items on the preliminary agendas for the quarterly Board, Board Committees, and MRC meetings. The preliminary agendas are included in the [MRC Informational Session agenda package](#) (see Item 1) and are attached hereto (**Attachment A**). The MRC's February agenda includes an opportunity for MRC members to provide additional input to the Board on the final agenda and materials. **As a reminder, please include a summary of your comments in your response (i.e., a bulleted list of key points) for NERC to compile into a single summary document to be provided to the Board for reference, together with the full set of comments.**

Fuel Assurance with Energy-Constrained Resources

As the industry transitions from coal and nuclear resources to wind, solar, natural gas, and hybrid resources, fuel assurance and forward energy supply planning are increasingly important. In November 2020, NERC staff presented the [Ensuring Energy Adequacy with Energy-Constrained Resources](#) whitepaper to the Board, which identifies energy sufficiency concerns related to the operations, operations planning, and mid- to long-term planning time frames. Subsequently, the Reliability and Security Technical Committee (RSTC) formed the [Energy Reliability Assessment Task Force \(ERATF\)](#) to assess risks associated with energy-constrained resources and provide a formal process to analyze and collaborate with stakeholders to address the issues identified in the whitepaper.

The ERATF conducted an industry survey to understand how stakeholders are evaluating their energy constraint and fuel availability issues and reviewed the existing NERC Reliability Standards to determine if there is a requirement to complete energy reliability assessments. Based on the results of the survey and review of existing NERC Reliability Standards, the ERATF developed a draft Standard Authorization Request (SAR) (**Attachment B**) that recommends either enhancing an existing or developing a new NERC Reliability Standard to address energy deficiencies. Specifically, the SAR proposes the following:

- Energy reliability assessments should define terms (e.g., energy reliability assessment, fuel, and fuel assurance).

3353 Peachtree Road NE
Suite 600, North Tower
Atlanta, GA 30326
404-446-2560 | www.nerc.com

- For energy reliability assessments, metrics and observations should be compared to targets or predefined criteria. Results should be in terms of the impact to the bulk power system.
- Energy reliability assessments should be required to include the appropriate assumptions and scenarios that account for, but not limited to the following:
 - Time-coupled restrictions on the availability of fuel
 - Impact of energy storage and other flexible resources
 - Logistical constraints of the associated fuel delivery supply chains
 - Common mode outages not connected to fuel supply
 - Coincident outages of multiple independent resources
 - Outage duration based on failure modes
 - Variable resources need to be included to account for their unique characteristics
- Energy reliability assessments must be coordinated between areas to harmonize interchange assumptions.
- Wide-spread, long-term, extreme event analysis needs to be defined and included in the assessments.
- Requirements for energy reliability assessment should include a clearly defined periodic basis and performed in each of the NERC defined planning time horizons as well as the operations time horizon. Periodicity should include clauses for their re-performance and/or update of existing energy reliability assessments when changes to assumptions and input data invalidates an existing assessment.

The Board requests MRC policy input on the following:

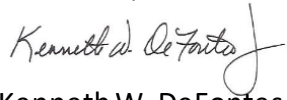
- 1. Will the proposed approach summarized above and outlined in the SAR enable stakeholders to identify energy deficit risks and develop mitigations from energy constrained resources¹?**
- 2. Is there a preferred alternative approach to that outlined in the SAR, or enhancements to the proposed approach in the SAR, that would enable stakeholders to identify energy deficit risks and develop mitigations from energy-constrained resources?**

Written comments in response to the input requested above, the preliminary agenda topics, and on other matters that you wish to bring to the Board's attention are due by **January 26, 2022**, to Kristin Iwanechko, MRC Secretary (Kristin.Iwanechko@nerc.net). The formal agenda packages for the Board, Board Committees, and MRC meetings will be available on January 27, 2022, and the presentations will be

¹ For the operations (0–1 day), operational planning (1 day to 1 year) and mid/long term planning (1–5 years) time frames.

available on February 3, 2022. The Board looks forward to your input and discussion of these matters during the February 2022 meetings.

Thank You,



Kenneth W. DeFontes, Jr., Chair
NERC Board of Trustees

cc: NERC Board of Trustees
Member Representatives Committee

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Member Representatives Committee (MRC)

Pre-Meeting and Informational Webinar
January 12, 2022

RELIABILITY | RESILIENCE | SECURITY



- Review schedule and preliminary agenda topics for the February 2022 Board, Board Committees, and MRC meetings
- Review policy input letter topic
 - Fuel Assurance with Energy-Constrained Resources

- **January 5:** Policy input letter issued
- **January 26:** Written comments due on policy input topics and preliminary agenda topics
- **January 27:** Board and MRC agenda packages and policy input letter comments posted
- **February 3:** Board and MRC presentations posted
- **February 9-10:** Board Committee, Board, and MRC open meetings

Schedule of February 9-10 Board and MRC Open Meetings

Wednesday, February 9, 2022	
11:00 a.m.-12:00 p.m.	Finance and Audit Committee Meeting— <u>Open</u>
12:30 p.m.-1:30 p.m.	Compliance Committee Meeting— <u>Open</u>
2:00 p.m.-3:00 p.m.	Technology and Security Committee Meeting— <u>Open</u>
3:30 p.m.-4:30 p.m.	Corporate Governance and Human Resources Committee Meeting — <u>Open</u>
Thursday, February 10, 2022	
11:00 a.m.-1:00 p.m.	Member Representatives Committee Meeting— <u>Open</u>
2:00 p.m.-5:00 p.m.	Board of Trustees Meeting— <u>Open</u>

- Review 2021 Year-End Unaudited Summary of Results
 - NERC 2021 Year-End Report
 - ERO Enterprise Combined 2021 Year-End Report
 - Regional Entity 2021 Year-End Reports
- Approve Renewal of Bank Capital Line of Credit
- Approve Proposed Amendments to Committee Mandate

- Facility Ratings Activities Update
- Compliance Guidance Update
- Compliance Monitoring and Enforcement Program Annual Report Update
- Annual Review of Compliance Committee Mandate

- E-ISAC Operations Update
- ERO Enterprise Align Project Update
- ERO Enterprise Business Technology Update
- Annual Review of Technology and Security Committee Mandate

- Approve Proposed Amendments to Corporate Governance and Human Resources Committee, Enterprise-Wide Risk Committee, and Finance and Audit Committee Mandates
- Approve Board Committees' Self-Assessment Surveys
- Review Board Self-Assessment and MRC Assessment of Board of Trustees Effectiveness Results
- Approve Proposed Amendments to the NERC Governance Guidelines
- Review Annual Conflict of Interest and Independence Report
- Human Resources and Staffing Update

- Election of NERC Trustees
- Future Meetings
- General Updates and Reports
 - Business Plan and Budget Input Group Update
 - Regulatory Update
- Policy and Discussion Items
 - Responses to the Board's Request for Policy Input
 - Fuel Assurance with Energy-Constrained Resources
 - Additional Policy Discussion of Key Items from Board Committee Meetings
 - MRC Input and Advice on Board Agenda Items and Accompanying Materials
 - Opportunities for Improving ERO Enterprise Agility

- **Technical Updates**
 - FERC Reliability Matters
 - Bulk Power System Situation Awareness

- Committee Membership and Charter Amendments
- Governance Documents Amendments
- Report on the January 20 and February 8, 2021 Closed Meetings
- Approve Election and Appointment of Board Chair and Vice Chair, Board of Trustees Committee Assignments and NERC Officers
- Review Board Self-Assessment and MRC Assessment of Board of Trustees Effectiveness Survey
- Board Committee Reports
 - Approve Proposed Amendments to Corporate Governance and Human Resources Committee, Enterprise-Wide Risk Committee, and Finance and Audit Committee Mandates
 - Approve Proposed Amendments to the NERC Governance Guidelines
 - Accept 2021 Year-End Unaudited Summary of Results
 - Approve Renewal of Bank Capital Line of Credit

- **Standards Quarterly Report and Actions**
 - Approve Standards Committee Charter Amendments
 - Critical Infrastructure Protection Board Resolution Updates
 - Cold Weather Standard Development Update
- **Other Matters and Reports**
 - Discuss Policy Input and MRC Meeting
 - Approve CIP-014 Compliance Evidence
 - Report by the North American Transmission Forum on Supply Chain Activities
 - Year-End Review of the Achievements of the 2021 ERO Enterprise Work Plan Priorities
 - 2021 Year-End Review and 2022 ERO Enterprise Reliability Indicators Update
- **Committee, Forum, and Group Reports**
 - Approve 2022 Standards Committee Work Plan
 - Approve 2022 Compliance and Certification Committee Work Plan



Questions and Answers

Standard Authorization Request (SAR)

Complete and submit this form, with attachment(s) to the [NERC Help Desk](#). Upon entering the Captcha, please type in your contact information, and attach the SAR to your ticket. Once submitted, you will receive a confirmation number which you can use to track your request.

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

Requested information			
SAR Title:	Fuel Assurance with Energy-Constrained Resources		
Date Submitted:	4/1/2022		
SAR Requester			
Name:	Chair Peter Brandien on behalf of the		
Organization:	Energy Reliability Assessment Task Force (ERATF) of the Reliability and Security Technical Committee (RSTC)		
Telephone:	(413) 535-4022	Email:	pbrandien@iso-ne.com
SAR Type (Check as many as apply)			
<input checked="" type="checkbox"/> New Standard	<input type="checkbox"/> Imminent Action/Confidential Issue (SPM Section 10)		
<input checked="" type="checkbox"/> Revision to Existing Standard	<input type="checkbox"/> Variance development or revision		
<input checked="" type="checkbox"/> Add, Modify or Retire a Glossary Term	<input type="checkbox"/> Other (Please specify)		
<input type="checkbox"/> Withdraw/retire an Existing Standard			
Justification for this proposed standard development project (Check all that apply to help NERC prioritize development)			
<input checked="" type="checkbox"/> Regulatory Initiation	<input checked="" type="checkbox"/> NERC Standing Committee Identified		
<input type="checkbox"/> Emerging Risk (Reliability Issues Steering Committee) Identified	<input type="checkbox"/> Enhanced Periodic Review Initiated		
<input type="checkbox"/> Reliability Standard Development Plan	<input checked="" type="checkbox"/> Industry Stakeholder Identified		
Industry Need (What Bulk Electric System (BES) reliability benefit does the proposed project provide?):			
<p>Unassured deliverability of fuel supplies, coincident with the timing and inconsistent output from variable renewable energy resources and volatility in forecasted load, can result in insufficient amounts of capacity and/or energy on the bulk electric system (BES) needed to serve electrical demand and ensure the Reliable Operation of the BES throughout each hour of the time period being evaluated¹.</p> <p>Historically, analysis of the energy assessments of the bulk power system focused on capacity over peak time periods. Assessments focused on capacity reserve levels compared to peak demand because resources were generally dispatchable and, except for unit outages and de-rates, were available when needed. Reserve margins were planned so that deficiency in capacity to meet daily peak demand (Loss of Load Expectation (LOLE) or Loss-of-Load Probability (LOLP)) occurred no more than one day-in-ten-</p>			

¹ The industry need is described in the *Ensuring Energy Adequacy with Energy-Constrained Resources* white paper, presented to the RSTC, December 2020.

Requested information

years. Reserve margins are calculated from probabilistic analysis using generating unit forced outage rates based on random equipment failures derived from their historic performance. The targeted level has typically been one event every ten years, based on daily peaks most often driven by summer and/or winter peaks (rather than hourly energy obligations). Additional insights were traditionally gained by also calculating Loss-of-Load-Hours (LOLH) and expected unserved energy (EUE) based on the mean-time-to-repair (MTTR) during unit averages.

A key assumption in this analysis has been that fuel is available when capacity is required to provide the requisite energy (along with essential reliability services). This is not surprising since fuel availability was assured with either long-term fuel contracts (commodity plus transportation capacity), on-site storage (e.g. oil, coal, and reservoir-based hydro), or with required periodic and predictable fuel replacement (e.g. nuclear). With diverse, dispatchable resource technologies, capacity from other technologies could mitigate impacts when fuel for one resource type became unavailable.

Today, this framework is changing. Transitioning from coal and nuclear resources to wind, solar, gas that is dual fueled, and hybrid (with bulk energy storage systems) resources creates a more complex scenario, hence fuel assurance and forward energy supply planning becomes increasingly important. Importantly, generating capacity alone is not sufficient to ensure the Reliable Operation of the bulk power system. Policy efforts to increase the contribution of renewable energy has resulted in a higher emphasis on the 'on call' availability of capacity to supply energy to serve net demand. Production flexibility from these balancing resources has already become important and will become critical in the future. Operational uncertainty is increasing due to the types of, and conditions under which, energy, and by implication, fuel, is available or acquired. Examples of these uncertainties are resources solely dependent on the availability of wind and solar, which are similar to run-of-river hydro plants in that they have no energy storage capabilities and are completely dependent on real-time weather or environmental conditions. These also include distribution connected resources and flexible load programs which may introduce additional volatility into energy forecasts.

Layered into this uncertainty, natural gas fueled resources may, depending on the type of contract for fuel acquisition, be subject to fuel curtailment or interruption during peak fuel demands. Additionally, gas pipeline design and how gas generators interconnect with the pipeline can vary, which can result in significantly different impacts to the generator and the Bulk Electric System (BES) under gas pipeline disruption scenarios. This same gas system is, in itself, dependent on the Reliable Operation of the bulk electric system as well as weather conditions. This interdependency creates even more uncertainty in the availability of fuel when it is required the most, creating energy limited scenarios.

In some areas, variable energy resources require that there are sufficient flexible energy resources available to quickly respond to off-set ramping requirements. The impacts can be mitigated with the supply and geographical diversity from renewable and smaller distributed resources, though widespread common weather and environmental conditions may result in scarcity from neighboring energy supplies. These uncertainties are already causing many system operators to consider scheduling, optimization, and commitment of resources over a multi-day timeframe. Replacing the existing

Requested information

generation fleet with energy limited resources requires industry to consider both capacity requirements and energy, and by extension fuel, availability. Even if sufficient capacity is available, a level of certainty in the delivery of fuel is required to ensure that energy is available to support demand.

Standard Requirement: One common underlying risk is the increased use of just-in-time delivery of fuel. More specifically, challenges are mounting from the single points of failure caused by the penetration of wind, solar, and natural gas with increased uncertainties due to unexpected interruptions of fuel delivery. This could be a result of the sun not shining or the sun being blocked by smoke, snow, and ice, the wind not blowing, or blowing too much, extreme cold or heat, and natural gas becoming unavailable (due to the contract type, or equipment failure, or pipeline maintenance, or pipeline failure).

Energy security, and by extension fuel security, risks are increasingly becoming more apparent as extreme weather has resulted in deficits in energy (rather than capacity). During the past 10 years, there were four events that jeopardized the Reliable Operation of the BES. In February 2011², there was an arctic cold front in the southwest and resulted in generation outages and natural gas facility outages. In January 2014³, there was a Polar Vortex that affected central and eastern U.S. and Texas. Again, the 2014 event triggered generation outages and natural gas availability issues. In January 2018⁴, the south-central U.S. experienced many generation outages resulting in emergency measures. The February 2021⁵ event is the fourth event, and an arctic cold air mass impacted Mississippi, Louisiana, Arkansas, Oklahoma and Texas. In fact, these events are coming with more regularity, and may not be “extreme” anymore, but rather expected.

High impact points of failure require study by the industry towards understanding effects and putting in place plans to address them. Either enhancements to existing NERC Reliability Standards or creating new Standards is needed to mitigate issues that were documented during the January 2019 and February 2021 events. For example, study of the loss of a large natural gas pipeline is already called for as an extreme event(s) in the transmission planning Reliability Standard TPL-001-4, but more scenarios for planning and extreme events are needed to represent common modes of failure, such as the loss of solar, water, and natural gas, or loss or too much of wind. This would be demonstrated by entities performing energy assessments ensuring that they understand the risks. Furthermore, corrective action plans should be in place to mitigate impacts from agreed upon planned event design basis and an evaluation of possible actions designed to reduce the likelihood or mitigate the consequences and adverse impacts from agreed upon extreme event(s).

The scenarios belonging in planned events versus extreme events require the development of an agreed upon design basis identifying what risks/impacts are acceptable and which are not, and require mitigation. The resulting Reliability Standard should provide certainty of risk mitigation and expected

² [Outages and Curtailments During the Southwest Cold Weather Event of February 1-5, 2011 - FERC and NERC](#)

³ [Polar Vortex Review](#)

⁴ [2019 FERC and NERC Staff Report: The South Central United States Cold Weather Bulk Electric System Event of January 17, 2018](#)

⁵ [February 2021 Cold Weather Grid Operations: Preliminary Findings and Recommendations - FERC, NERC and Regional Entity Joint Staff Inquiry](#)

Requested information

reliability performance across the industry when the system is planned. Rather than a burden, these enhancements would provide certainty of risk mitigation between organizations and throughout the interconnections, thereby, ensuring that an Adequate Level of Reliability for the BES is maintained.

Purpose or Goal (How does this proposed project provide the reliability-related benefit described above?):

This project will enhance reliability by requiring industry to analyze their energy-related issues and the impact of currently unstudied constraints on the reliability of the BES. The focus of an energy reliability assessment is to analyze two parameters: fuel assurance and flexibility based on the evolving resource mix, and gas delivery security. These two parameters need to be analyzed in three time horizons: Operations, Near-Term Transmission Planning and Long-Term Transmission Planning.

Regarding fuel assurance and flexibility, as the mix of resources trends toward more renewable energy, primarily with variable and intermittent supplies of fuel (e.g. sunshine, wind, and water), maintaining a balanced power system will require a more flexible approach to energy and capacity adequacy in order to maintain operational awareness. Traditionally, peak-hour capacity can be solved in an isolated case that ignores all other hours, but in a limited energy situation, the use of system resources affects the availability during peak hours. In addition, generator flexibility is gaining importance as load ramps begin to stress the existing infrastructure.

Regarding gas delivery security, maintaining system balance in cooperation with a limited energy set of resources will require some level of controllability with the remaining fleet, which will most likely be gas fired generation. In addition, the variability of the renewable resources will likely change how gas is used, requiring a higher precision of understanding to determine if the existing system is capable of serving the changing needs (e.g. larger swings of gas demand due to higher overall gas generation ramp rates and shorter periods of online time). This issue is further complicated since stakeholders external to power system operators may influence gas delivery security, such as policies and procedure developments from FERC, NAESB, natural gas pipeline companies, or other entities.

Project Scope (Define the parameters of the proposed project):

The project scope is to create new or modify the existing NERC Reliability Standards to address the following:

- Define terms e.g. energy reliability assessment, fuel, fuel assurance, etc.
- For energy reliability assessments, metrics and observations should be compared to targets or predefined criteria. Results should be in terms of the impact to the Bulk Power System.
- Energy reliability assessments should be required to include the appropriate assumptions and scenarios that account for, but not limited to: time-coupled restrictions on the availability of fuel, the impact of energy storage and other flexible resources, the logistical constraints of the associated fuel delivery supply chains, common mode outages not connected to fuel supply, coincident outages of multiple independent resources, outage duration based on failure modes, and variable resources need to account to be included to account for their unique characteristics.

Requested information

- Energy reliability assessments must be coordinated between areas to harmonize interchange assumptions.
- Wide-spread, long term, extreme event analysis needs to be defined and included in the assessments.
- Requirements for energy reliability assessment should include a clearly defined periodic basis and performed in each of the NERC defined planning time horizons, as well as the operations time horizon. Periodicity should include clauses for their re-performance and/or update of existing assessment when changes to assumptions and input data invalidates an existing assessment.

Detailed Description (Describe the proposed deliverable(s) with sufficient detail for a drafting team to execute the project. If you propose a new or substantially revised Reliability Standard or definition, provide: (1) a technical justification⁶ which includes a discussion of the reliability-related benefits of developing a new or revised Reliability Standard or definition, and (2) a technical foundation document (e.g., research paper) to guide development of the Standard or definition):

The Energy Reliability Assessment Task Force (ERATF) was formed to assess risks associated with unassured energy supplies. The task force was created to provide a formal process to analyze and collaborate with stakeholders addressing the issues identified in the Ensuring Energy Adequacy with Energy-Constrained Resources whitepaper. This whitepaper identified energy sufficiency concerns related to operations, operations planning, and mid to long-term planning time frames. Based on the eleven questions formulated in the whitepaper, the task force created a survey questionnaire. The survey was distributed to sub-groups of the Reliability and Security Technical Committee (RSTC) and ISO/RTOs to gather feedback on energy assurance for three focus areas: Energy Adequacy and Flexibility for Evolving Resource Mix, Natural Gas Delivery Assurance, and Metrics, Procedures & Analysis. The goal of the survey was to understand how stakeholders are evaluating their energy constraint issues and, by extension, fuel availability issues. The original 11 questions from the whitepaper were modified slightly for the purpose of survey in order to seek out answers to more specific, tactical questions which would inform the ERATF's recommendations. For example, sub-questions were added to understand how specific assessment input assumptions were developed and how the impact of varying those assumptions was assessed.

The survey questionnaire had 18 core questions and 12 responses were received from NERC stakeholder groups, Independent System Operators, and individual utilities. These responses provided a tremendous volume of information (over 500 answers) to help evaluate the energy constraint issues.

NERC ERATF Energy Assessment Survey

The NERC ERATF formed a sub-group of volunteers to review all the survey responses and identify recommendations. The rigor and thoroughness of the responses was excellent and it is clear entities

⁶ The NERC Rules of Procedure require a technical justification for new or substantially revised Reliability Standards. Please attach pertinent information to this form before submittal to NERC.

Requested information

“put a lot of work” into their responses. On October 18, this sub-group presented high-level summaries of the responses to the eighteen questions and higher-level, generalized responses as described below:

- Across many of the responses, it was not always clear if entities were addressing current practices for “capacity” assessments or “energy” assessments. Many entities responded that they modify capacity assessments with higher forced outage rates and extreme scenarios to develop to assess evaluate a range of operating conditions. But based on the responses energy assessments are not well defined and not being perform consistently across industry.
- The survey demonstrated differences in how energy assessments are performed in the three time frames (operations, operational planning, mid/long term planning).
- Unclear what operating entities do with low likelihood, high impact energy assessment results. Some provide the results publically to stakeholders for awareness, yet most do not. For predicted energy deficiencies in the operational planning timeframe of 1-3 days, almost all entities do schedule additional capacity. Most do not provide energy assessments reflective of low likelihood, high impact events in seasonal assessments. Some respondents mentioned review of extreme contingencies in the longer-term planning timeframe yet it is unclear if any planning actions are taken:
 - Most of the responses were focused on extreme weather scenarios. Very few comments on the evaluation criteria included other potential failure modes, including cyber-attacks or other disruptions that could impact energy assurance, specifically cyber-attacks impacting the fuel supply chain.
 - Many entities use history looking back 30 years to develop planning forecasts. Yet others responded that “...the world climate and social policies (heating & transportation electrification) are changing fast...” and entities should focus and forecast the future based predicted future events more so than history, including worse case extreme weather.
- Many responded that developing forecasts and assumptions for the mid- and long-term assessments is very difficult and it is challenging to assign levels of confidence in those forecasted assumptions. As an example, it is hard to forecast fuel replenishment or renewable production in the 6-12 month timeframe and more challenging in the long-term planning timeframe.
- Some entities responded that, in the future, the worst conditions could be in the fall or spring seasons with low renewable generation rather than heat wave peak conditions, if those peak conditions also included high renewable generation.
- Some entities responded that there are regional differences that may result or define different energy assessment reliability issues. More specifically, some operating entities have wider ranges in peak loads for extreme temperatures, some have significant fuel risks, some have extreme storm risks, some have significant forest fire risks, and some have drought risks. The reliability implications can vary regionally and therefore risks can vary regionally. Yet most responded it is commonly important across all of NERC industry to “...develop common and consistent energy assessment methods...”

Requested information

- A few responded on the need to assess sufficient energy flexibility including dispatch energy, reserves, and regulation.
- Some offered transitioning from capacity adequacy to energy assurance can initially be performed by considering more conservative assumptions with fuel, wind, and solar, modeling higher probabilities of derates and extreme weather but more sophisticated techniques need to be developed.
- Some entities offered that based on the February 2021 extreme cold weather events it is clear that extreme peaks can be coincident with loss of fuel.
- Many respondents indicated that energy reliability assessments should be performed throughout the year, not just during peak conditions, to capture the risk for fuel unavailability.
- Classic forced outage rate measurements such as Effective Force Outage Rates – Demand (EFORD) metrics and Unforced Capacity (UCAP) constructs are not great for assessing renewable energy assurance, as they assume a randomness to failures, rather than a coincidence. Many existing capacity valuation constructs, especially for longer term resource adequacy does not value capacity that might support energy deficits resulting from multi-day loss of resources such as loss of fuel for over a week; especially for common mode loss of regional fuel.
- Some entities offered a significant issue in the planning horizon is assumptions regarding retirements of legacy fossil flexible resources with flexibility.
- Developing mid- to long-term assumptions is very important. For example, “what to assume for non-ICAP imports” or “what to assume for fuel replenishment” in seasonal timeframes.
- Some use 90-10 for extreme scenario assessments, others do something different.

NERC Reliability Standards Review

A set of sub teams of the ERATF were formed to review of the existing NERC Reliability Standards from the viewpoint of energy (required to make electricity) assurance and identify any gaps. The perspective of this review was addressing the assumption Reliability Standards may have that energy is always available. This assumption is now under review with the new resource mix, and may not be always true without having performed an energy reliability assessment and without monitoring the resources ability to deliver. One team reviewed the operations planning time frame, and a second team assessed at the mid- and long-term planning time frame.

The comments from the operations planning sub team were the following observations:

1. The existing Reliability Standards do not explicitly define or require energy reliability assessments.
2. A number of the Standards depend on resources to deliver energy to adhere to the requirements, such as operating within system operating limits (SOL) and interconnection reliability operating limits (IROLs), contingency reserves to regulate the system, and energy characteristics such as large ramps that may constrict or be limited by available energy. The timing of deploying energy resources to meet the demand is crucial.

Requested information

3. There is little understanding of critical infrastructure interdependencies and the potential impacts on power generation.
4. Currently, there are insufficient tools to model and forecast wind, solar, etc. for energy reliability assessments. Also mentioned was to consider power system modeling to create more accurate predictive tools, and include dynamic modeling of the gas system.
5. As the majority of fuel infrastructure exists beyond a single area, there is a need to understand and model the fuel infrastructure on a larger basis (e.g. affects from events outside of a specific area that can have impact on that area), so the impacts can be understood.
6. Considering that NERC Standards that require the use of generation assume that fuel is available, situational awareness was mentioned. The Emergency Operations (EOP) and Transmission Operations (TOP) Reliability Standards, and transmission operational requirements should require energy reliability assessments. With the current Reliability Standards, an adequate analysis of the transmission system has been conducted and while still not meeting the energy requirements needed for the Reliable Operation of the bulk power system. Are the standards assuming that there is adequate situational awareness, and can maintain the energy supply? There is an 'energy' aspect of situational awareness that is missing from the current set of Reliability Standards.
7. Consider moving some elements of the NERC Reliability and Security guidelines into NERC's Reliability Standards.

The comments and recommendations from the mid/long term planning sub team include the following observations:

1. The existing Reliability Standards do not explicitly require energy reliability assessments. In a new or revised standard consider the following attributes:
 - a. Add requirement(s) for extreme weather or environmental events, including those that are widespread and long duration.
 - b. Determine how much time is required to recover and prepare for the next stress event.
 - c. Create an approach to support assessments of the impact of decarbonization goals.
 - d. Consider the risk to gas supply disruption, such as natural gas being unavailable due to high demand.
 - e. Ensure that there is adequate coordination between the operations and planning teams.
 - f. When writing transmission planning studies, consider including other transmission equipment along with transformers.
 - g. Studies need to account for additional characteristics, e.g. ramp rate, start/stop of units.
 - h. Consideration is needed for 'dynamic load model' studies.
2. It was noted that the TPL standards are potentially the most appropriate location to add an energy assurance requirement, or create new class of Reliability Standards.

Cost Impact Assessment, if known (Provide a paragraph describing the potential cost impacts associated with the proposed project):

Requested information
It is not the intention of the ERATF to require solutions to the energy related issues being addressed. This SAR is intended to require study of energy related issues to clearly convey the risks related to operating the BES under conditions of the concurrent limited fuel supply and variable output resources.
Please describe any unique characteristics of the BES facilities that may be impacted by this proposed standard development project (e.g., Dispersed Generation Resources):
The BES facilities impacted by this proposed project will all have unique characteristics including fuel type, delivery, location (ability to access additional fuel, i.e. are road networks sufficient, rail line contingencies, barges for waterway-based plants, etc.), design, construction, time of year (season) and operational characteristics, etc. These unique characteristics need to be addressed during drafting to achieve the intended enhancements to reliability.
To assist the NERC Standards Committee in appointing a drafting team with the appropriate members, please indicate to which Functional Entities the proposed standard(s) should apply (e.g., Transmission Operator, Reliability Coordinator, etc. See the most recent version of the NERC Functional Model for definitions):
Planning Coordinator, Reliability Coordinator, Balancing Authority, Transmission Operator, and Generation Operator.
Do you know of any consensus building activities ⁷ in connection with this SAR? If so, please provide any recommendations or findings resulting from the consensus building activity.
On February X, 2022 , the ERATF is sponsoring a workshop that outlines the challenges and works towards solutions in the Operational Planning and Operational time horizons.
Are there any related standards or SARs that should be assessed for impact as a result of this proposed project? If so, which standard(s) or project number(s)?
SAR 2021 10 06 Extreme Cold Weather Grid Operations, Preparedness, and Coordination; consider the impact to the TPL, EOP and TOP standards.
Are there alternatives (e.g., guidelines, white paper, alerts, etc.) that have been considered or could meet the objectives? If so, please list the alternatives.
There have been three Reliability Guidelines, however, in the past 10 years, there have been four cold weather events during the months of February 2011, January 2014, January 2018, and February 2021. The numerous events illustrate that the guidelines are not as widely adopted as necessary to prevent reoccurrence.
<p>Reliability and Security Guidelines (nerc.com)</p> <ul style="list-style-type: none"> ▪ Reliability Guideline: Fuel Assurance and Fuel-Related Reliability Risk Analysis ▪ Reliability Guideline: Generating Unit Winter Weather Readiness ▪ Reliability Guideline: Gas and Electrical Operational Coordination Considerations

⁷ Consensus building activities are occasionally conducted by NERC and/or project review teams. They typically are conducted to obtain industry inputs prior to proposing any standard development project to revise, or develop a standard or definition.

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

Market Interface Principles	
Does the proposed standard development project comply with all of the following Market Interface Principles ?	Enter (yes/no)
1. A reliability standard shall not give any market participant an unfair competitive advantage.	yes
2. A reliability standard shall neither mandate nor prohibit any specific market structure.	yes
3. A reliability standard shall not preclude market solutions to achieving compliance with that standard.	yes
4. A reliability standard shall not require the public disclosure of commercially sensitive information. All market participants shall have equal opportunity to access commercially non-sensitive information that is required for compliance with reliability standards.	yes

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

For Use by NERC Only

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

Version History

Version	Date	Owner	Change Tracking
1	June 3, 2013		Revised
1	August 29, 2014	Standards Information Staff	Updated template
2	January 18, 2017	Standards Information Staff	Revised
2	June 28, 2017	Standards Information Staff	Updated template
3	February 22, 2019	Standards Information Staff	Added instructions to submit via Help Desk
4	February 25, 2020	Standards Information Staff	Updated template footer

MEMORANDUM

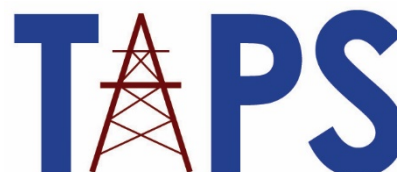
TO: Ken DeFontes, Chair
NERC Board of Trustees

FROM: Jack Cashin, Director, Policy Analysis and Reliability Standards, American Public Power Association
John Di Stasio, President, Large Public Power Council
Terry Huval, Executive Director, Transmission Access Policy Study Group

DATE: January 26, 2022

SUBJECT: Response to Request for Policy Input to NERC Board of Trustees

The American Public Power Association, Large Public Power Council, and Transmission Access Policy Study Group concur with the Policy Input submitted today by the State/Municipal and Transmission Dependent Utility Sectors of the Member Representatives Committee, in response to NERC Board Chair Ken DeFontes January 4, 2022 letter requesting policy input in advance of the February 4, 2022 NERC Board of Trustees meetings.



NERC Board of Trustees Policy Input – Canadian Electricity Association

The Canadian Electricity Association (“CEA”) appreciates this opportunity to provide policy input to the NERC Member Representatives Committee (“MRC”) and Board of Trustees (“Board”).

Summary of Key Points:

- An energy reliability requirement may be one tool to address fuel assurance and forward energy supply planning issues.
- Different levels or types of risk faced regionally should be considered, and NERC should work with the Regional Entities as they perform long term adequacy studies on these issues.
- Any new requirements should not add unnecessary administrative burdens; should complement or bolster existing efforts; and should not be overly prescriptive. Any alternative approaches proposed by stakeholders should be considered as well.
- Before any drafting, further clarity should be provided on how new or revised standards will ensure mitigation of existing energy deficit risks once identified. Consideration of establishing performance metrics to identify when risk mitigation is required, in addition to establishing appropriate types of mitigations, may also be of value.
- Some issues in the proposed SAR may be outside of the purview of NERC or the capacity of individual utilities. Accounting for all risks may not be feasible, even while it is worthwhile to work to address them.

Fuel Assurance with Energy-Constrained Resources

CEA appreciates the efforts of the Energy Reliability Assessment Task Force (“ERATF”) to assess risks associated with energy-constrained resources, and to better understand how stakeholders are evaluating energy constraint and fuel availability issues.

CEA supports efforts to enable stakeholders to continue to have the right tools and information to ensure Bulk Power System (“BPS”) reliability given the evolution of resource mixes in different regions, coupled with more extreme weather events, new policy demands and a variety of security risks. These factors add complexity and new challenges to reliable BPS operation.

Given that in many regions there is or will be an increased penetration of variable resources such as wind and solar, or an increased dependence on hybrid resources or natural gas, CEA understands that fuel assurance and forward energy supply planning are becoming increasingly important.

As such, a requirement for an energy reliability assessment to assess fuel assurance and flexibility based on the evolving resource mix and gas delivery security could be one tool that may be helpful in addressing these issues.

That said, different regions across North America face different realities in regard to fuel assurance with energy-constrained resources that must be accounted for, including different levels or types of risk associated with this issue. For example, some regions are not moving away from nuclear resources or are better able to balance variable renewables due to their unique resource mix. CEA encourages NERC to work with the Regional Entities as they perform long term adequacy studies to incorporate fuel assurance and energy supply planning, where warranted.

Further, different entities and stakeholders currently deploy a variety of assessments and tools to address a wide range of different issues associated with planning and addressing risk. NERC is also currently focusing on issues related to this topic, including winter readiness.

Any new requirements should not add unnecessary administrative burdens, should complement or bolster existing efforts, and should not be overly prescriptive. Further, CEA supports efforts to ensure that NERC activities, in regard to fuel assurance with energy constrained resources, complement other efforts in regard to changing resource mixes and more extreme weather events. NERC should also carefully consider alternative approaches that may be proposed by stakeholders.

Before any drafting of a standard, CEA requests that NERC provide more clarity on how new or revised standards will ensure mitigation of existing energy deficit risks, once they are identified. Further, CEA encourages NERC to consider how to establish performance metrics to identify when risk mitigation is required, and what types of mitigations are appropriate. This would offer some clarity in an environment where entities who need to perform an assessment may also face advocacy from other reliability or policy stakeholders to implement corrective action plans.

Finally, some of the issues addressed in the proposed SAR may be outside of the purview of NERC or what utilities can do individually. This is not to say that entities should not account for these issues and do what is possible to address them, but only to note that a new standard may not be able to account for or mitigate all risks.

CEA appreciates the ongoing stakeholder engagement in regard to this evolving issue.

Dated: January 26, 2022

Contact:

Francis Bradley
President & CEO
Canadian Electricity Association
Bradley@electricity.ca



Policy Input for the NERC Board of Trustees Provided by the Edison Electric Institute January 26, 2022

On behalf of our member companies, the Edison Electric Institute (“EEI”) appreciates the opportunity to provide the following policy input for the NERC Board of Trustees to review in advance of the February 9 & 10, 2022, meetings. EEI perspectives on bulk-power system (“BPS”) reliability are formed by our CEO Policy Committee on Reliability, Security, and Business Continuity and the Reliability Executive Advisory Committee with the support of the Reliability Technical Committee.

In the January 5, 2022, policy input letter, NERC Board of Trustees Chair, Kenneth W. DeFontes, Jr., seeks stakeholder input on fuel assurance with energy-constrained resources. EEI supports a focus on and efforts to address issues with energy-constrained resources and fuel availability especially considering the changing resource mix. EEI recognizes the importance of and agrees with the need to mitigate these issues. Because of both the FERC and state related impacts, coordination among stakeholders across the ERO, organized markets, and Federal and state governments is necessary to address these issues. EEI offers the following input.

I. SUMMARY OF COMMENTS

- EEI supports a focus on and efforts to address issues with energy-constrained resources and fuel availability.
- EEI recommends increased collaboration and coordination among affected stakeholders to address the market and state jurisdictional issues.
- EEI recommends clarifying the Standards Authorization Request (“SAR”) to address industry comments from the workshop in February 2022 (“Workshop”) and MRC input, including ensuring the reliability goal is well understood and that any new standard(s) is clear and unambiguous regarding what is required and who is required to comply.
- EEI recommends defining the term “energy assessment” because the entire scope of the SAR is based on that definition.

II. COMMENTS

The Board of Trustees seeks policy input on fuel assurance with energy-constrained resources.

Understanding and mitigating energy constraints and fuel availability issues is important. A systematic approach to addressing these issues is imperative. Defining the problem, its scope in North America, and potential solutions are necessary elements to make any proposed solution effective. The Energy Reliability Assessment Task Force (“ERATF”) developed a SAR and an accompanying Technical Justification Whitepaper (“Whitepaper”) with a goal to address energy deficiencies through assessments, analysis, and mitigation as indicated in the policy input letter. EEI recommends obtaining broader industry input and clarity surrounding the SAR and the issues contained therein.

The current draft of the SAR contains several items that need clarification, including a more fulsome description of the reliability gap to be addressed. Broader input should include entities that would be directly affected by a new standard, including all RTOs/ISOs as resource adequacy and fuel availability intermingle market and reliability issues. At minimum, the SAR should be revised to ensure that a sound technical basis is defined for any new standard in order to achieve a specified reliability goal. Additionally, the SAR should ensure that a drafting team can draft a clear and unambiguous standard regarding what is required and who is required to comply. A clear standard will ensure users, owners, and operators know what they are required to do to maintain reliability. Regarding assessments and corresponding analysis, there appears to be an underlying implication in the SAR that current studies are insufficient, since most of the information outlined in the SAR are related to new “energy assessments.” The SAR should be clarified to discuss the specific gaps in the current studies that need to be addressed.

The draft SAR and Whitepaper should be reviewed to ensure that the issues to be addressed are reliability related rather than related to markets or state jurisdiction. For example, the Industry Need section of the SAR discusses unassured deliverability of fuel, specifically gas, as a risk to energy and capacity. In FERC’s approval of Regional Standard BAL-502-RFC-02 (134 FERC ¶ 61,212), FERC stated that, “resource adequacy raises ‘complex jurisdictional concerns’ which at times are at the ‘confluence of state-federal jurisdiction.’” While that Commission Order reinforces that NERC has the jurisdiction to implement Reliability Standards which require an analysis of resource adequacy, NERC may want to consider the appropriate entity to address resource adequacy as the Commission also stated that NERC should not “intrude on the state’s decisional authority with respect to building or acquisition of assets or capacity to meet resource adequacy needs.” Given the concerns mentioned above, EEI recommends that the language of the SAR be clarified.

EEI also recommends that the ERATF review, revise and resubmit the SAR for Reliability and Security Technical Committee comment after incorporating industry comments from the ERATF sponsored Workshop and MRC input. Specifically, the ERATF should consider refining the language to address the jurisdictional, market, and assessment issues described in herein. Given the Reliability Assessment process embedded in the NERC Rules of Procedure, further expansion of that process, through the Reliability Assessment Subcommittee and Probabilistic Assessment Working Group, with input from the rest of industry as needed, should be an alternative analyzed and discussed at the Workshop as a potentially more effective way of appropriately addressing the Mid-/Long-Term Planning timeframe.

EEI recommends the following areas for clarification on the SAR(s):

- The Industry Need and the Purpose or Goal sections should be clarified to address the specified reliability goal to be achieved and the specific reliability risk that the SAR is attempting to mitigate.
- “Energy Assessment” should be defined. Since the entire scope of the SAR is based on the definition of energy assessment, guidance should be provided on what an energy assessment should be and why the current set of studies and analysis are insufficient to address the potential reliability gap. This should include how users, owners and operators would be expected to use the results of the new assessments to address reliability gaps.
- Define the timeframes most appropriate for these assessments, as opposed to anchoring to Transmission Planning definitions.
- Clarify which entities would be responsible for performing energy assessments and/or impacted by the Standard (i.e., by needing to provide data to support the assessment). The current draft SAR lists “Planning Coordinator, Reliability Coordinator, Balancing Authority, Transmission Operator, and Generation Operator” as the Functional Entities which the Standard would apply to.
- The Resource Planner (“RP”) and its role should also be considered when identifying applicable entities because the RP is defined as responsible for *“developing long-term plan (generally one year and beyond) plan for the resource adequacy of specific loads (customer demand and energy requirements) within a Planning Authority area.”*

EEI also provides the following additional input:

- NERC should consider separating the current SAR into multiple SARs, focused on specific operational and planning time horizons. The types of energy assessments that can and should be performed in the proposed time horizons would likely require different mitigation and addressing them in one SAR (and potentially one Standard) may be overly complex.

EEI applauds all of the hard work that has gone into developing these two documents. Efforts to address issues with energy constrained resources and fuel availability with the changing resource mix is important and requires collaboration and coordination among affected stakeholders. Due to the concerns outlined above, EEI respectfully requests the Board delay consideration of a resolution to allow time for the industry and the RSTC to further clarify and refine the SAR(s).

Thank you for the opportunity to provide policy input.



Sector 8 Policy Input for the NERC Board of Trustees & Member Representatives Committee

February 9-10, 2022 Meetings

ELCON, on behalf of Large End-Use Consumers, submits the following policy input for the consideration of NERC's Board of Trustees (BOT) and the Member Representatives Committee (MRC). It responds to BOT Chair Ken Defontes, Jr.'s January 5, 2022 letter to Paul Choudhury, Chair of the MRC.

SUMMARY

Large Consumers (Sector 8) agree that it is appropriate to go through the Standard Authorization Request (SAR) process to further identify and mitigate energy deficit risks. The BOT requested MRC input on the following questions:

- 1. Will the proposed approach ... in the SAR enable stakeholders to identify energy deficit risks and develop mitigations from energy constrained resources?** Yes, Large Consumers support the approach laid out by the Energy Reliability Assessment Task Force (ERATF) white paper and believe the SAR¹ put forth by the ERATF will facilitate the required increase in the depth of analysis regarding energy reliability and fuel assurance.
- 2. Is there a preferred alternative approach to that outlined in the SAR, or enhancements to the proposed approach in the SAR, that would enable stakeholders to identify energy deficit risks and develop mitigations from energy-constrained resources?** Recognizing that the SAR works within the Reliability Standards framework, Large Consumers comment only that there also exist many market-based approaches for mitigating risks associated with energy-constrained resources, and we urge the BOT to give full consideration to the Market Interface Principles, which the draft SAR states it satisfies.

Large Consumers believe the SAR will promote the necessary shift in thinking regarding resource adequacy – from a dispatchable capacity-based, peak-load-hour

¹ The SAR title is "Fuel Assurance with Energy-Constrained Resources."

analysis to a more detailed analysis that takes into account energy reliability, system ramping needs, and other complex interactions between the Bulk Power System (BPS) and interconnected networks, such as the natural gas delivery system.

Below we respond to each listed item in the policy input letter:

- **Energy reliability assessments should define terms (e.g., energy reliability assessment, fuel, and fuel assurance).**

Yes. Establishing a common language is a necessary first step.

- **For energy reliability assessments, metrics and observations should be compared to targets or predefined criteria. Results should be in terms of the impact to the bulk power system.**

Yes, but we need not establish new criteria even as assessments become far more detailed. For example, planning reserve margins can maintain the standard of allowing no more than one BPS reliability event in ten years while assessments widen in scope to review all at-risk hours, not simply system peak load hours.²

- **Energy reliability assessments should be required to include the appropriate assumptions and scenarios that account for, but not limited to the following:**
 - **Time-coupled restrictions on the availability of fuel**
 - **Impact of energy storage and other flexible resources**
 - **Logistical constraints of the associated fuel delivery supply chains**
 - **Common mode outages not connected to fuel supply**
 - **Coincident outages of multiple independent resources**
 - **Outage duration based on failure modes**
 - **Variable resources need to be included to account for their unique characteristics**

Yes to all.

- **Energy reliability assessments must be coordinated between areas to harmonize interchange assumptions.**

Yes. This is a key oversight and coordination function of the federally designated Electric Reliability Organization.

- **Wide-spread, long-term, extreme event analysis needs to be defined and included in the assessments.**

Yes. However, the design basis event should derive from reasonable assumptions and be tailored to each assessment region. To the extent that such assessments indicate that

² As the ERATF white paper states at note 2, “The method determining Planning Reserve Margins was historically based on only one data point (or hour), which is the peak load of the day. The inability to meet this single hour peak was considered an event for one day.” Even if we leave the “one in ten” standard unchanged, we can analyze a much larger set of energy-constrained hours (to include certain extreme events that may last several hours or days).

new investments in the BPS or adjacent systems are needed to resolve the identified energy reliability constraint, consumer interests should be protected by relying on market forces or otherwise seeking out the most cost-effective solution.

- **Requirements for energy reliability assessment should include a clearly defined periodic basis and performed in each of the NERC defined planning time horizons as well as the operations time horizon. Periodicity should include clauses for their re-performance and/or update of existing energy reliability assessments when changes to assumptions and input data invalidates an existing assessment.**

Given the present pace of change in the resource mix, regular reassessment seems prudent. It may be worth noting, however, that although “changes to assumptions and input data” are now invalidating existing assessments (and are the basis for today’s policy input), we must always weigh today’s cause for reassessment against future priorities. Hence any requirement to study energy assurance in future periods should also have an exit clause. To borrow from Greek historian Polybius, “In all human affairs, ... leave always some room to fortune, and to accidents which cannot be foreseen.” In other words, we should be open to the idea that other, higher priority assessments may arise.

Large Consumers would like to offer two brief responses to questions posed in the ERATF white paper:

- **Does there need to be common practices on how effective load carrying capability [ELCC] or other useful metrics are determined?**

One common practice that could be useful is the frequent reassessment of ELCC values based on a resource’s marginal contribution to system reliability. Given the fact that ELCC values for intermittent resources decline as more of those resources are integrated, average ELCC values will overstate marginal contributions and hence undermine reliability assessments. So, while specific ELCC estimates will depend on a variety of inputs, it may be an industry-wide best practice to use marginal rather than average ELCC values.

- **Could strategically overbuilding a similar technology (i.e. solar) augmented by either storage or some portion of the firm capacity fleet (albeit operating at low capacity factors only when needed) provide for a resilient and reliable transition?**

Leaving the dispatchable/firm capacity fleet to operate at low capacity factors may or may not be a resilient and reliable way to operate the BPS. However, unless such a shift happens voluntarily under market forces, it would almost certainly sacrifice affordability, which is a top priority for Large Consumers. In general, overbuilding is not in the consumer’s best interest.

Finally, regarding the policy input letter's question about preferred alternative approaches, there are many market-based ways to mitigate risks associated with energy-constrained resources, such as scarcity pricing to encourage production and discourage consumption under tight conditions. We urge the BOT to give full consideration to the Market Interface Principles, which the draft SAR states it satisfies. Specifically, Large Consumers take a resource neutral approach, and we ask that any Reliability Standard regarding energy-constrained resources focus on BPS reliability and remain agnostic to given electricity production technologies or fuels.

Thank you for your consideration.

TO: Kenneth W. DeFontes, Jr., Chair
NERC Board of Trustees

FROM: Edison G. Elizeh
Federal Utility/Federal PMA Portion Sector 4

DATE: Jan. 18, 2021

SUBJECT: Response to Request for Policy Input to NERC Board of Trustees

The Portion of Sector 4 representing the Federal Utilities and Federal Power Marketing Administrations (Federal PMAs), appreciate the opportunity to respond to your January 5, 2022 letter to Mr. Paul Choudhury, Chair NERC Member Representative Committee, requesting input on certain policy issues. The Federal PMAs appreciate the opportunity to provide comments on the policy input of particular interest to the NERC Board of Trustees (Board) for their February 2022 meeting.

- The Federal PMAs have no further input on Board and MRC's agenda. The items listed in the draft agenda adequately represents the issues for the Board and MRC discussions and approvals.
- The Federal PMAs agree in having appropriate standards that address the energy adequacy of service to load during operations, operations planning, and the mid- to long-term planning time frames. Such standards need to factor in both the generation capacity contribution of all resources (nuclear, hydro, coal, gas, wind, solar, and other types) by factoring in their fuel assurance and their fuel delivery, and it should also factor in the infrastructure needed (existing or new facilities) to address the deliverability of the energy from those resources to the load centers. The area on infrastructure improvement, dynamic performance of the system improvements (voltage support, inertia, frequency response, remedial action schemes, and protection schemes) is needed as the industry goes through these change in resource mix. The Reliability Issues Steering Committee 2021 report clearly outlined these risks and needed mitigations. The Federal PMAs recommend the Board take action in development of a standard on energy adequacy that requires demonstrations of resources capacity contribution, fuel assurance and fuel delivery, and identification of transmission capacity for maintaining a reliable and secure bulk power system for service to load for all conditions.

The following are more specific responses to questions asked by the Board in the Policy Input Letter;

1. Will the proposed approach summarized above and outlined in the SAR enable stakeholders to identify energy deficit risks and develop mitigations from energy constrained resources?

The Federal PMAs agree that the proposed SAR provides a meaningful way to identify required fuel supply and delivery assurance for energy-constrained resources. However this approach will not fully mitigate the risk the load faces if energy is available from resources but there are not sufficient transmission capacity or the system is constrained due to dynamic performance issues to deliver that energy from designated resources to the load. The time needed to install new generation capacity like wind or solar is much shorter than building new transmission infrastructure or upgrading the existing transmission capacity to meet the load requirements. Currently there are no standards addressing the need for load responsible entities to acquire transmission capacity to meet their future needs. Focusing just on generation adequacy alone will not mitigate the risk the load might face during abnormal weather or system conditions with changes in the resource mix.

The 2021 Reliability Issues Steering Committee Report (2021 RISC Report), adopted by the Board in Aug. 2021, stated a few of the common themes and emerging trends that are relevant for development of energy adequacy standards. Those common themes include:

- “The increase in natural gas and renewable variable energy generation coupled with the decline in nuclear and coal-fired generation and implications resulting on dynamic performance of the BPS.”
- The importance of emerging technologies and how to best plan and incorporate those into a reliable and secure BPS.
- Significant changes to the grid require new models, more advanced tools, and grid infrastructure improvements for reliable integration.”

In the same report under Descriptors of the Risk states;

“Changing Resource Mix, Bulk Power System Planning, and Resource Adequacy and Performance

- Resource Adequacy Assessment Scopes—Network Realities vs. Political Boundaries: Current resource planning and resource adequacy assessments are often performed with a limited scope (political or utility boundary) that does not take into account potentially significant electrical impacts and interactions due to the interconnected nature of the bulk grid outside of that limited scope. The result may be resource, energy, and/or transmission capacity insufficiencies in an operational timeframe.
- Consideration of Weather, Forecasting and Combined Effects: With the changing resource mix, traditional analytical methods do not fully account for system characteristics associated with the uncertainty of variable resources, interactions of inverters and dynamic power system devices, declining performance of fossil-

fueled resources that are nearing retirement, uncertainties associated with emerging technologies, and increased sensitivity to widespread common weather (such as extreme temperatures). The result may be resource, energy, and/or transmission capacity insufficiencies in the operational horizon...”

As the industry transitions from coal and nuclear resources to wind, solar, natural gas, and hybrid resources the need for fuel assurance, forward energy supply planning, and identification of transmission capacity rights from resources to the load are increasingly important in meeting the reliability and security of load service for the operational time horizon, operations planning (1 day to 1 year), and mid-term planning.

2. Is there a preferred alternative approach to that outlined in the SAR, or enhancements to the proposed approach in the SAR, that would enable stakeholders to identify energy deficit risks and develop mitigations from energy-constrained resources?

The Federal PMAs recommend inclusion of transmission adequacy as part of the proposed standard. As stated above, changes in resource mix and grid transformation will require new methods and strategies for planning, modeling, and operating the bulk power system. We need to ensure the existing infrastructure has sufficient flexible ramping/balancing capacity to provide the needed operating flexibility to meet the changing patterns of variability and new characteristics of system performance. Traditional concepts of energy adequacy that just look at generation fuel and production need to evolve to consider transmission adequacy and operating flexibility during all hours, including consideration of correlated outages, transmission availability, and common-mode failure dependencies. The industry needs a standard that covers both the element of energy-constrained resources as outlined by Energy Reliability Assessment task Force (ERATF), and transmission availability and performance. The load responsible entities need to follow the standard to insure adequate energy production and that this energy is deliverable to their load across all hours.



ISO/RTO Council's (IRC) Policy Input to Board of Trustees

January 26, 2022

The ISO/RTO Council¹ (IRC) appreciates the opportunity to respond to the Board's request for policy input. The IRC offers the following input to the Member Representatives Committee (MRC) in response to Mr. Kenneth W. DeFontes, Jr.'s, letter dated January 5, 2022, regarding Fuel Assurance with Energy-Constrained Resources. As ISOs/RTOs with grid reliability responsibilities and functions associated with multiple NERC registrations we are the entities with the greatest ability to identify what is needed to address this risk. The February 2021 winter weather event highlighted the importance of managing the grid with energy constrained resources and many ISO/RTOs have or are currently addressing the fuel availability risk in their internal reliability processes and assessments.² However, there is clearly a need for a minimum set of requirements to adequately assess energy risk given the repeated events with increasing severity. The IRC firmly supports the concerns and concepts outlined by the Energy Reliability Assessment Task Force (ERATF) and asks the North American Electric Reliability Corporation (NERC) to pursue those with a sense of urgency to mitigate further risk to the Bulk Electric System (BES).

Summary Comments

The IRC supports the concepts outlined in the draft Standard Authorization Request (SAR), and suggests the following clarifications to enable a more focused and effective SAR for standards development:

- Strengthen the approach for risk mitigation so that there is a clear standard that requires each region to develop and implement specific plans for risk mitigation in light of the ERATF findings.
- Allow flexibility in the standards to account for regional risks
- Develop performance metrics to drive and justify investment when needed
- Assign risk management appropriately. The SAR requirements should not fall exclusively on planning and operating entities but also on asset owners and other identified entities as necessary to achieve the objectives of the SAR
- Engage the Reliability Assessment Subcommittee (RAS) to develop the technical parameters needed to perform energy assessments
- Engage other organizations/agencies as needed to address fuel assurance and energy adequacy

1. Will the proposed approach summarized above and outlined in the SAR enable stakeholders to identify energy deficit risks and develop mitigations from energy constrained resources³?

¹ The IRC is comprised of the Alberta Electric System Operator (AESO), the California Independent System Operator Corporation (California ISO), Electric Reliability Council of Texas, Inc. (ERCOT), the Independent Electricity System Operator of Ontario, Inc., (IESO), ISO New England, Inc. (ISO-NE), Midcontinent Independent System Operator, Inc., (MISO), New York Independent System Operator, Inc. (NYISO), PJM Interconnection, L.L.C. (PJM), and Southwest Power Pool, Inc. (SPP).

² For example, SPP assesses energy risk via several studies: multi-day ahead reliability assessments, the generation assessment process and the resource adequacy process.

³ For the operations (0-1 day), operational planning (1 day to 1 year) and mid/long term planning (1-5 year) time frames.



The IRC believes the proposed approach outlined in the Draft SAR goes a long way to enabling identification of energy deficit risks and development of mitigations from energy constrained resources. We offer below suggestions for enhancement to the SAR.

Strengthen the approach for risk mitigation

The IRC agrees that the proposed approach outlined in the SAR would allow stakeholders to identify energy deficit risks. However, the SAR does not provide enough clarity or emphasis on how new or revised standards will ensure mitigation of existing energy deficit risks once they are identified. To ensure reliability benefit of new or revised standards, they must provide a significant reduction in risks to energy security, and by extension, fuel security that have become more apparent in recent extreme weather events. With that objective in mind, the IRC provides these subsequent comments to address specific concerns.

Allow flexibility in the standards to account for regional risks

We think the proposed approach outlined in the SAR will enable stakeholders to identify energy risks and develop mitigations. However, new/modified standard requirements will need flexibility to account for specific regional needs. Identifying energy deficit risks is very complex and developing a risk calculation that factors in all risk types will be challenging. Each region or ISO/RTO has their own characteristics that must be included in a risk calculation model. Due to this complexity, establishing a single continent-wide requirement to meet a target level of adequacy would be challenging as would the accuracy needed from such a model to base mitigation solutions upon. Therefore, any standards must provide enough flexibility to allow regions to develop risk models and perform assessments that recognize the nature of their system and the reliability of the data and models they can achieve.

Develop performance metrics to drive and justify investment when needed

As written, the SAR does not propose development of performance metrics to establish a mitigating action threshold. Instead, it would mandate a study, including extreme events, upon which mitigating actions would be required. The results of these studies will be questioned, particularly those in the long-term planning horizon, and demonstrating the need and cost-effectiveness of mitigating actions would be challenging. Therefore, the IRC recommends the development of performance metrics to drive and justify investment when needed. As noted previously, recognition of regional variations is critical in energy assessments. This is especially important in the development of metrics. Metrics must consider and accommodate regional needs to be effective. We believe striving for a single continent-wide metric for performance will not provide a level of energy adequacy appropriate on a regional basis.

Assign risk management appropriately. The SAR requirements should not fall exclusively on planning and operating entities but also on asset owners and other identified entities as necessary to achieve the objectives of the SAR.

In order for NERC requirements to benefit reliability, energy assessment studies need to accurately portray and assess system conditions and risks. Generator data, load data, and distributed generation and storage data (including that for behind the meter generation, Distributed Energy Resources (DER) and other DER technologies) will be needed that may not be readily available to ISOs/RTOs today. As DER levels continue to increase, visibility is required into the potential challenges that they pose to the Bulk Power System (BPS) from a planning and forecasting perspective. In addition, risk mitigation plans may include obligations on asset owners to take actions. The IRC recognizes there may be jurisdictional issues that must be addressed



to resolve these problems. We ask that NERC work with regulators to provide a mechanism for ISO/RTOs to obtain the data and mitigate risks that the SAR and end standard(s) would require.

2. Is there a preferred alternative approach to that outlined in the SAR, or enhancements to the proposed approach in the SAR, that would enable stakeholders to identify energy deficit risks and develop mitigations from energy-constrained resources?

The IRC believes that some additions to the preferred approach should be considered as discussed below.

Engage the Reliability Assessment Subcommittee (RAS) to develop the technical parameters needed to perform energy assessments

The IRC suggests that the RAS be tasked with developing the metrics, measurements, and other technical aspects required in an energy assessment. This group, under the Reliability and Security Technical Committee (RSTC), is currently tasked with developing the long-term and seasonal reliability assessments. Their technical expertise includes members from the IRC and would be best suited for developing the parameters needed to consistently determine energy deficit risks across the interconnections. Work by the RAS could commence ahead of the work outlined in the SAR or concurrently with the Standards Development process. A member of the RAS should participate in the Standard Drafting Team, and perhaps, ultimately serve as Chair.

Engage other organizations/agencies as needed to address fuel assurance and energy adequacy

Fuel assurance plays a key role in identifying and assessing energy risk and it is not clear how NERC reliability standards will effectively capture data needs from the gas industry. The ability to model the natural gas network and its impact on the electric market is complex and while software exists for such modeling, there is nothing in place for gas suppliers to provide this data. There may be opportunities for NERC to work with NAESB or other agencies to facilitate gas electric coordination and modeling.

Conclusion

The IRC appreciates the opportunity to provide policy input to the MRC for NERC's upcoming Board meeting. The IRC members look to continue to support NERC in the Standards Development Process to address concerns regarding Fuel Assurance with Energy-Constrained Resources.

**Policy Input to the NERC Board of Trustees
February 10, 2022 Meeting
Provided by the North American Generator Forum**

The North American Generator Forum (NAGF) appreciates the opportunity to provide policy input for the NERC Member Representatives Committee (“MRC”) and Board of Trustees (“BOT”) in response to BOT Chair Kenneth W. DeFontes, Jr.’s letter dated January 5, 2022. The NAGF provides the following policy input in advance of the NERC BOT meeting.

Summary

Item 1: Will the proposed approach summarized above and outlined in the SAR enable stakeholders to identify energy deficit risks and develop mitigations from energy constrained resources?

The NAGF believes that the proposed approach described in the draft SAR needs additional work before stakeholders will be able to identify energy deficient risks and develop mitigations from energy constrained resources.

Item 2: Is there a preferred alternative approach to that outlined in the SAR, or enhancements to the proposed approach in the SAR, that would enable stakeholders to identify energy deficit risks and develop mitigations from energy-constrained resources?

The NAGF has identified several enhancements to the proposed approach in the SAR for consideration.

Discussion

The BOT requests MRC policy input on the following:

- 1. Will the proposed approach summarized above and outlined in the SAR enable stakeholders to identify energy deficit risks and develop mitigations from energy constrained resources?**

The NAGF believes that the proposed approach described in the draft SAR needs additional work before stakeholders will be able to identify energy

deficient risks and develop mitigations from energy constrained resources. The NAGF recommends the following issues be addressed prior to moving this effort forward:

- a) Broader stakeholder input is need to ensure the proposed approach defined in the draft SAR represents input from all affected registered entity segments (BA, GOP, PC, RC, and TOP) across the ERO.
- b) The draft SAR is broadly written and does not adequately define the specific reliability risks to be mitigated.
- c) The proposed approach needs to be coordinated with other existing efforts to eliminate overlaps and possible contradictory outcomes.
- d) Entities with the wide-area overview of generation, load, and transmission are best suited for performing energy risk assessments and developing mitigations for energy-constrained resources.

2. Is there a preferred alternative approach to that outlined in the SAR, or enhancements to the proposed approach in the SAR, that would enable stakeholders to identify energy deficit risks and develop mitigations from energy-constrained resources?

The NAGF provides the following enhancements to the proposed approach for consideration:

- a) Leverage the NERC Energy Reliability Assessment Workshop scheduled for February 16, 2022 to gather additional input from industry to further develop the proposed approach in the draft SAR.
- b) Consider expanding the existing NERC Reliability Standards TPL-001 to include energy assessments for energy-constrained resources.



New York Reliability Council
c/o Paul Gioia, Esq.
Whiteman Osterman & Hanna LLP
One Commerce Plaza
99 Washington Av.
Albany, NY 12260

MEMORANDUM

To: NERC Board of Trustees
From: New York State Reliability Council (NYSRC)
Date: January 25, 2022
Re: Policy Input on Proposed SAR, "Fuel Assurance with Energy-Constrained Resources"

The New York State Reliability Council (NYSRC <https://www.nysrc.org/>) is pleased to respond to the request from NERC's Board of Trustees to provide policy input to the proposed SAR "Fuel Assurance with Energy-Constrained Resources".

The NYSRC was approved by the Federal Energy Regulatory Commission (FERC) at the same time as the formation of the New York State Independent System Operator (NYISO) to ensure that the reliability of New York State's bulk power system would be maintained in the transition to a fully competitive wholesale electricity market. The NYSRC has fulfilled this responsibility for more than 20 years. The NYSRC accomplishes this through the adoption of Reliability Rules that establish necessary requirements to protect the reliability of the state's bulk power system. These rules are more specific or more stringent than and are inclusive of, NERC and NPCC Standards. They are binding on the NYISO and its market participants.

NYSRC is actively involved in the subject matter, especially in the areas of assessing the impact on system reliability of increased penetration of renewable, intermittent resources and extreme weather. The NYSRC 2022 Goals document includes actions covering resource adequacy and transmission security, plus transmission operations and planning objectives covering these areas.

<https://nysrc.org/PDF/Documents/NYSRC%202022%20Goals%20%202022%20-%20EC%20Approved%2011-10-2021%20-%20Revised%201-18-2022.pdf>

NYSRC has expanded its oversight of resource adequacy of the New York Control Area to include forward looking LOLH & EUE metrics to complement the existing LOLE criterion. An example of the criticality of this issue can be found in New York State's Climate Leadership and Community Protection Act (CLCPA) which has New York power supply targets of 70% emission free energy by 2030 and 100% emission free energy by 2040.

Resource adequacy studies made by NYSRC and CLCPA indicate that the Installed Reserve Margin (IRM) must increase from the current levels of approximately 20% to over 160% to

achieve a 100% emission free target by 2040. Lesser but still major increases in the IRM in the years leading up to 2040 are required. In addition to large-scale deployment of wind and solar inverter-based resources, the supplemental resource capacity in the CLCPA study deploys significant amounts of long-term battery storage and variable resources such as from green H₂, resources that rely on technologies that do not currently exist for utility scale application. Clearly, system adequacy and transmission security will be challenged under these conditions.

The proposed SAR addresses the following assessment items:

- Definition of terms
- Performance metrics for comparison to targets or pre-defined criteria
- Assessment assumptions
- Inter-area coordination
- Wide-spread, long-term, extreme event analyses
- Procedural issues

The Board requests MRC policy input on the following questions:

Q1. Will the proposed approach summarized above and outlined in the SAR enable stakeholders to identify energy deficit risks and develop mitigations from energy constrained resources?

A1. NYSRC Answer:

- Yes, the NYSRC supports the SAR's objective of requiring assessments of the reliability impact of a grid having energy-constrained resources to supplement the historical focus on capacity-constrained resources with an assessment of energy assurance.
- To this end, the section of the SAR under the heading of NERC Reliability Standards Review reviews much of the critical criteria work that will be needed in the development of new or modified NERC Standards.
- The ability to identify risk and develop mitigation is dependent upon targets or pre-defined criteria in the new or modified NERC Standards.
- Given that the deployment of mitigation actions such as transmission reinforcement or interconnection of large-scale, long-term storage or dispatchable emissions free resources may take many years, it is necessary to know the specific metrics and minimum risk criteria for those metrics as early as possible.

Q2. Is there a preferred alternative approach to that outlined in the SAR, or enhancements to the proposed approach in the SAR, that would enable stakeholders to identify energy deficit risks and develop mitigations from energy-constrained resources?

A2. NYSRC Answer:

- A suggested enhancement to the proposed SAR would emphasize the need for analytical procedures for the assessment of risk with energy-constrained resources.
- It is recognized that limited analytical procedures currently exist in this area and it is suggested that their timely development is essential to the objective of the proposed SAR.

In its responses, the NYSRC conveys the time criticality of the work that is needed in the next few years for a successful transition to a decarbonized electric grid and agrees with NERC in calling this transition the greatest risk to reliability in the next 10 years.

Respectfully submitted,
New York State Reliability Council

January 25, 2022

Cooperative Sector Policy Input to the NERC Board of Trustees

The Cooperative Sector appreciates the opportunity to provide policy input to the NERC Board of Trustees (BOT) on conducting additional or enhanced assessments and possible standards development opportunities for managing fuel assurance with energy-constrained resources.

Summary of Policy Input

The Cooperative Sector continues to support efforts to address the challenges of the changing resource mix and the associated need to manage limited and constrained fuel resources to ensure sufficient energy is always available to serve load. In addressing this important reliability challenge, NERC should consider the existing federal, state, and local jurisdictional responsibilities for capacity planning and proposed improvements, and the constructs of existing market operator agreements, both of which are outside the ambit of NERC.

The Board requests MRC policy input on the following:

Question 1

Will the proposed approach summarized above and outlined in the Standard Authorization Request (SAR) enable stakeholders to identify energy deficit risks and develop mitigations from energy constrained resources?

- The Cooperative Sector agrees that NERC needs to take action to ensure energy resources are assessed over the appropriate periods and energy deficits are identified. Responsible entities should, in a timely manner, take actions to address shortfalls. There is a diverse set of industry stakeholders including federal and state regulators that should provide input into this to ensure that we are not duplicating responsibilities in capacity planning that already exist. Utilizing the Standards Development Process is the appropriate tool to recommend, highlight and address these reliability concerns and to avoid overlapping responsibilities.
- The following are suggested improvements to the SAR:
 - The Industry Need section of the SAR should be reviewed and revised to ensure that the problem statement included in this section is closely tied to the technical solutions that are presented in the remaining sections of the SAR.
 - The Detailed Description section of the SAR includes significant supplemental information that obscures the overall recommended project scope. It should be revised to more clearly state the recommended scope of activity to be considered by the Standards Drafting Team, e.g., proposed additions or revisions to the reliability standards, and to identify how these proposed additions or revisions meet the Industry Need identified in the SAR. It should also describe how the drafting team will ensure they will consider the capacity planning obligations that already exist with integrated resource planning to avoid duplicating regulation.

- Many of the “unique characteristics” described in the SAR are outside the oversight or legal responsibilities of entities that are required to comply with FERC approved Reliability Standards.
- The SAR does not identify the Resource Planner function as a Functional Entity to which the SAR would apply. As “[t]he entity that develops a long-term (generally one year and beyond) plan for the resource adequacy of specific Loads (customer demand and energy requirements) within a Planning Authority area,” the SAR should identify a clear role for this function within the energy reliability assessments and other obligations proposed while ensuring existing regulations around integrated resource planning are not duplicated.

Question 2

Is there a preferred alternative approach to that outlined in the SAR, or enhancements to the proposed approach in the SAR, that would enable stakeholders to identify energy deficit risks and develop mitigations from energy-constrained resources?

- Capacity planning and energy adequacy are distinct, but closely related topics, but they are under separate jurisdiction. While NERC can and should develop standards to ensure energy adequacy it must be careful to respect state jurisdiction over capacity planning and ensure utilities are not caught between conflicting requirements. Cooperatives engage in long-term resource planning to provide the power supply, reliability, resilience, risk-management, and environmental attributes their member-consumers need. Their resource portfolios thus support grid reliability and resilience by having, among other attributes, fuel diversity and on-site fuel assurance. The Cooperative Sector supports the concept that energy reliability assessments should be performed to assure the reliability of the Bulk Power System (BPS) in all hours rather than just the peak hour. However, Integrated Resource Planning (IRP), including resource diversity, remains a jurisdictional obligation that is managed at the state and local level. NERC should avoid creating duplicate responsibilities in any new reliability standards.
- Further, within the jurisdiction of the Federal Energy Regulatory Commission, there exists more than one area of regulation that should be evaluated and resolved to ensure that obligations are consistent and complementary. For example, load service and resource adequacy obligations, while not directly stated, can be inferred from the Open Access Transmission Tariff. To ensure that any reliability standard is appropriately scoped and complementary to the existing regulatory framework and obligations, the ERATF or appropriate committee should evaluate the intersection of state and federal regulatory authority and obligations and ensure that the obligations and defined terms proposed in the SAR complement and supplement these existing obligations and do not conflict with or duplicate them.
- The Cooperative Sector appreciates that the ERATF conducted a survey to begin identifying areas to improve existing standards and the possible need for new reliability standards. However, it is not clear if that review only included a review of responsibilities in the NERC standards or included a review of regulations from other parts of the industry which should include a review of existing market rules in areas served by organized markets.. Absent a thorough review, analysis, and cross-reference of these existing assessments and associated assumptions (whether required by another reliability standard or stemming from an OATT or state jurisdictional obligation), the results and/or assumptions of these existing assessments

could, conflict with the results and/or assumptions of the assessments contemplated within the SAR, creating a dynamic where the overall goal of reliability is not achieved as effectively as possible due to overlapping regulations that are potentially in conflict. If this holistic review of industry regulations has not occurred, we recommend this review occur early in the standards development process.

- Based on the discussion above, the Cooperative Sector is concerned that the SAR is being used to address a market operator (ISO/RTO) information sharing and data requirements that can be more easily managed in the constructs of market participants agreements. These agreements should be structured to provide the necessary information to allow the market operator to assess the reliability health of its Balancing Area during the planning and real-time operating horizons.

When discussing the energy constrained resources, we must remember there is a long-term value in maintaining a balanced portfolio of generation resources. As noted above, cooperatives, through their IRPs, provide for fuel diversity and on-site fuel assurance. As the generation mix changes, grid operators must continue to have available to them resources with the operating characteristics necessary for reliable management of the grid, including flexible, dispatchable conventional generation resources. Reliability characteristics that were inherent in thermal generation technologies such as stability of output, natural response to frequency variation, and dispatchability are not inherent in most new variable energy resources. Because those characteristics were previously inherent in synchronous resources there was no need for market forces to drive their production. These characteristics are not inherent in the new technologies and will only be present if they are incentivized or required, and, in some instances, only upon the build-out of substantial quantities of energy storage. Economic incentives that do not require these reliability characteristics encourage choices that adversely impact reliability. Although NERC is not a market operator, the reliability solutions being considered are being managed for many grid participants in a market structure. For not-for-profit cooperatives¹, the entire costs of this transition will be borne by consumers.

Submitted on behalf of the Cooperative Sector by:

Patti Metro

Senior Grid Operations & Reliability Director

Business & Technology Strategies | National Rural Electric Cooperative Association

m: 571.334.8890

email: patti.metro@nreca.coop

¹ See Mr. Greg Ford's comments at the FERC 2021 Reliability Technical Conference <https://www.ferc.gov/media/gregford-gsoc-nreca-panel1>

**NERC Board of Trustees
Teleconference
February 10, 2022
Policy Input of the Merchant Electricity Generator Sector**

Sector 6, Merchant Electricity Generator Sector, takes this opportunity to provide policy input in advance of the upcoming North American Electric Reliability Corporation (NERC) Member Representatives Committee (MRC) and Board of Trustees (Board) meetings.

In a letter to MRC Chair Paul Choudhury dated January 5, 2022, Board Chair Kenneth DeFontes requested MRC input on two questions regarding the draft SAR from the Energy Reliability Assessment Task Force. Sector 6 makes the following comment in response.

Key Point

- The Merchant Electricity Generators support the input provided by the North American Generator Forum.

Sincerely,
/s/

Sector 6 Merchant Electricity Generator Representatives:

Martin Sidor
NRG Energy, Inc.

Sean Cavote
PSEG

MEMORANDUM

TO: Kenneth W. DeFontes, Chair NERC Board of Trustees

FROM: Mike Moody and Darryl Lawrence – MRC Sector 9 Small End-Use Electricity Customer Representatives

DATE: January 26, 2022

SUBJECT: Small End-Use Sector (9) Response to Request for Policy Input to the NERC Board of Trustees

The representatives to the NERC Member Representatives Committee for the Small End-Use Customer Sector (9) appreciate the opportunity to provide these comments in response to the request in your letter to Mr. Paul Choudhury dated January 5, 2022.

The NERC Board of Trustees requested MRC sector policy input regarding risks associated with energy-constrained resources

The Small End-Use Sector (9) responds to the BoT's specific questions as follows:

1. Will the proposed approach summarized above and outlined in the SAR enable stakeholders to identify energy deficit risks and develop mitigations from energy constrained resources?

Sector (9) response: The members of Sector (9) agree that the SAR as proposed will identify energy deficit risks to reliability. But as outlined in the response to question 2 below NERC will only develop potential mitigation for energy constrained resources. The approach is consistent with the limitations of NERC's Reliability Assessment program function and NERC's current regulatory authority. Making a problem visible is only the first step.

2. Is there a preferred alternative approach to that outlined in the SAR, or enhancements to the proposed approach in the SAR, that would enable stakeholders to identify energy deficit risks and develop mitigations from energy-constrained resources?

Sector (9) response: The members of Sector (9) offer no alternative unless NERC's authorities are expanded.

We note that in 2012 when NERC challenged the ERCOT resource adequacy situation (in a pure capacity planning paradigm at that time), there was push back

by the state entities defending the suitability of their resource adequacy situation. Time has proved NERC correct in its assessments then and again most recently.

Sector (9) recommends that the NERC BoT be proactive with the findings of NERC's Resource Adequacy program (adjusted to assess energy limitation risks as outlined by the ERATF recommendations). The NERC BoT must work more convincingly with the states to send the clear message that States will "own" any resource adequacy induced losses of load when they occur. Without State acceptance of NERC findings produced by the ERATF solution, there will likely be no mitigation of energy-constrained resource induced loss of load risk.

MEMORANDUM

TO: Ken DeFontes, Chair
NERC Board of Trustees

FROM: John Haarlow
Terry Huval
John Twitty
Brian Evans-Mongeon

DATE: January 26, 2022

SUBJECT: Response to Request for Policy Input to NERC Board of Trustees

The Sector 2 and 5 members of the NERC Member Representatives Committee (MRC), representing State/Municipal and Transmission Dependent Utilities (SM-TDUs), appreciate the opportunity to respond to your January 4, 2022 letter to MRC Chair Paul Choudhury in which the Board of Trustees (Board) requested MRC input on the Standard Authorization Request (SAR) developed by the Energy Reliability Assessment Task Force (ERATF). Specifically, the Board seeks MRC views on two questions about the SAR approach:

1. Will the proposed approach summarized above and outlined in the SAR enable stakeholders to identify energy deficit risks and develop mitigations from energy constrained resources?
2. Is there a preferred alternative approach to that outlined in the SAR, or enhancements to the proposed approach in the SAR, that would enable stakeholders to identify energy deficit risks and develop mitigations from energy-constrained resources?

The SM-TDUs respond to these questions below. We look forward to discussing these issues and other agenda items during the virtual meetings of the Board, Board committees, and the MRC on February 9-10, 2022.

Summary of Comments

- **The SM-TDUs support the ERATF's work on energy adequacy risk and its development of the SAR on fuel assurance assessment.**
 - **We support the SAR process and believe that full assessment of the technical details underlying the SAR's proposed approach through the SAR process will best inform conclusions about the ultimate scope and likely effectiveness of the SAR's proposal.**
- **Two scope issues that warrant further examination are (1) the SAR's three proposed time frames for energy assessments; and (2) potential jurisdictional obstacles to successful implementation of the SAR's proposed approach. Each of these issues has the potential to undermine the agility, and, in turn, the success, of the SAR and any resulting standard.**

SM-TDU Comments

The ERATF's efforts highlight how energy adequacy is increasingly challenged by the changing resource mix, presenting reliability risks to the grid. The group's White Paper and SAR demonstrate the complexity of fuel assessment issues in ensuring adequate energy for bulk-power system reliability. The ERATF accurately identifies energy adequacy as a significant reliability risk, but the task force's work also shows that risk to be complex and wide ranging, suggesting the need for further technical assessment.

The SM-TDUs appreciate the opportunity for the MRC to provide feedback on this important SAR. We note that, while the Board does not typically request policy input on pending SARs, the opportunity to comment at this juncture may provide early policy insight on the SAR and NERC agility. Importantly, however, SM-TDUs believe that the process pursued for the SAR should include each of the ordinary SAR development steps to ensure completeness and sufficient technical review so that the eventual standard process is successful. The SM-TDUs support Board and MRC input contributing to the SAR process and upcoming February workshop. While including MRC input in this approach may provide policy direction considerations for the SAR, the SM-TDUs believe that technical details should not be predetermined or directed during this policy stage. The technical aspects of standard development will inform the SAR process which is supported by the industry and results in workable standards that enhance reliability. We note that NERC's other technical teams are additionally working on parameters that will supplement and help to refine the goals and objectives contained within the draft SAR. This includes work outlined by the Cold Weather project, regional resource adequacy work, NAESB and the Electric-Gas Working Group. Specific to work around electric and gas coordination, we would encourage NERC and NAESB work on parallel tracks. The approach the SM-TDUs are suggesting should not diminish the agility of the overall development of standard(s) but rather enhance it. A well scoped SAR with sufficient technical support will ensure an expedient standard development process.

Responses to Specific Questions

1. Will the proposed approach summarized above and outlined in the SAR enable stakeholders to identify energy deficit risks and develop mitigations from energy constrained resources?

The proposed SAR and White Paper provide a good outline of the issues currently associated with fuel assurance assessment and energy adequacy. As the ERATF notes, the issue of fuel assurance assessment for energy adequacy is far reaching and complex. The SAR work to date is laudable, and the full SAR process will provide a useful forum to identify and gain sufficient technical detail for the process to be ultimately successful. Working through the technical details should provide additional framing and opportunities to further define the SAR scope.

The SM-TDUs believe there are at least two policy issues reflected in the SAR that could benefit from further technical development and that may suggest either the need for additional related standard efforts or obstacles to addressing certain issue areas in a standard. Specifically, the SAR's three proposed time frames for energy assessments, and certain jurisdictional issues may need further background on technical detail for a standard drafting team to proceed successfully.

Generally, the SAR lays the initial groundwork for successful standard development by recommending some of the checklist items that need to be included in a fuel assurance assessment going forward. As the ERATF has identified, the checklist will involve three different forward-

looking time frames from which to gauge fuel adequacy: operations, near-term transmission planning, and long-term transmission planning.

Many public power Balancing Authority (BA) entities operate outside of organized markets and therefore would not have all the market information described in the ERATF Whitepaper.¹ Therefore, an assessment in the operational time frame could implicate different data requirements from one BA to another and more generally on a regional basis. The SM-TDUs are not suggesting that the operations time frame be dismissed; rather that, due to regional differences, including the operations time frame in this SAR, and, in turn, the standards development effort, could present an issue that might interfere with the agility of the SAR to meet its goal of addressing the fuel assessment issue. Consequently, the operations time frame may require a SAR of its own rather than being part of this effort.

The SAR addresses fuel assessment processes that would involve electric utility personnel obtaining information from natural gas providers or distributed energy resources. These proposals, too, may benefit from further development given the fact that information would need to be obtained from entities that are not subject to the ERO's mandatory standards regime. Such information requests might raise issues somewhat analogous to those that have arisen in connection with the supply chain standard and the need to obtain information from potentially non-jurisdictional sources such as equipment vendors. Unlike supply chain vendor assessment requests, fuel assessment information requests could put electric utilities in the position of asking for information from entities that are already subject to reporting requirements imposed by state, local, or federal authorities. Moreover, the information may be market sensitive. Consequently, the SAR process will need to ensure that the drafting team structures any proposed standard in a manner that addresses the potential obstacles to obtaining fuel assessment information.

Importantly, the SAR scope should not be so general as to make the drafting team responsible for determining electric utility's jurisdictional boundaries. For example, some technical guidance should be provided prior to any standard drafting team being formed that would help ensure that the eventual standard does not call for the collection of information that would compromise competitive market information either from jurisdictional or non-jurisdictional entities. The subject matter experts that will eventually be part of this effort are not experts on markets and legal jurisdiction. Without such guidance the SM-TDUs are concerned that they will not be set up for success.

2. Is there a preferred alternative approach to that outlined in the SAR, or enhancements to the proposed approach in the SAR, that would enable stakeholders to identify energy deficit risks and develop mitigations from energy-constrained resources?

As discussed above, the SAR identifies far-reaching and complex issues associated with ensuring energy adequacy. The SM-TDUs believe that additional technical detail can further inform the standards development effort aimed at addressing these issues. Specifically, as noted the issues of time frames and jurisdiction may suggest tightening the scope of the SAR to better ensure the success of the standard's development and the agility of completing the initial fuel assurance standard in a timely manner. We look forward in this regard to the upcoming workshop and SAR

¹ ERATF White Paper, P. 6.

process. The SM-TDUs also believe the MRC meeting discussion on Board questions will assist the SAR's development.