

## 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:	Federal Energy Regulatory Commission (FERC) Order No. 901 – Milestone 3, Part 1: Modeling and Data Sharing Requirements		
Date Submitted:	4/29/24 <a href="#">(Revised on October 15, 2024)</a>		
SAR Requester			
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SAR Type (Check as many as apply)			
<input checked="" type="checkbox"/> New Standard	<input type="checkbox"/> Imminent Action/ Confidential Issue (SPM Section 10)	<input type="checkbox"/> Variance development or revision	<input type="checkbox"/> Other (Please specify)
<input checked="" type="checkbox"/> Revision to Existing Standard			
<input checked="" type="checkbox"/> Add, Modify or Retire a Glossary Term			
<input checked="" 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"/> Enhanced Periodic Review Initiated	<input type="checkbox"/> Industry Stakeholder Identified
<input checked="" type="checkbox"/> Emerging Risk (Reliability Issues Steering Committee) Identified			
<input checked="" type="checkbox"/> Reliability Standard Development Plan			
What is the risk to the Bulk Electric System (What Bulk Electric System (BES) reliability benefit does the proposed project provide?):			
<p>This Standards Authorization Request (SAR) is initiated by <a href="#">the North American Electric Reliability Corporation (NERC)</a>, with consultation of the Reliability Security Technical Committee, to address directives issued by <a href="#">the Federal Energy Regulatory Commission (FERC)</a> in Order No. 901. FERC issued Order No. 901 on October 19, 2023, which includes directives on new or modified NERC Reliability Standard projects. FERC Order No. 901 addresses a wide spectrum of reliability risks to the grid from the application of inverter-based resources (IBRs), including both utility scale and behind-the-meter or distributed energy resources (DERs).</p> <p>Within the Order are four milestones that include sets of directives to NERC. In the Order, FERC has directed NERC to propose new or modified standards to mitigate reliability gaps in the current NERC</p>			

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Reliability Standards related to IBRs. Specifically, FERC directed NERC to develop new or modified Reliability Standards to address the following four broad topic areas related to IBRs: (1) data sharing; (2) data and model validation; (3) planning and operational studies; and (4) performance.

In January 2024, NERC filed the initial **Standards Development Work Plan in Response to FERC Order No. 901** (hereafter referred to as the “Work Plan”). A current version of the Work Plan will be maintained [here](#). The Work Plan discusses how NERC will develop Reliability Standards within (Milestones 2-4) to meet FERC’s filing deadlines. This ~~Standard Authorization Request~~ [SAR](#) addresses Milestone 3 of the Work Plan, related to Reliability Standards for modeling and data sharing requirements to establish sufficient IBR model data and parameters to assure accurate representation of IBR performance within the models. Further, collaborative sharing of this information, and the utilization of this information throughout the lifecycle of IBRs will also be established.

Milestone 3 of the Work Plan covers the development of data provisioning, parameters, and estimation requirements for IBRs. FERC Order No. 901 directives address three categories of IBR: (1) registered IBR, including sub-Bulk Electric System IBRs to be registered under NERC’s revised Compliance Registry criteria; (2) unregistered IBR; and (3) IBR-DER, to distinguish registered bulk connected IBRs from unregistered bulk connected IBRs as well as the transmission connected IBRs from distribution-connected IBRs. To be clear, assets to be included as part of revisions to the Compliance Registry criteria (“category 2 type assets”) are considered herein as “registered IBR.” NERC must file the Reliability Standards or definitions developed under Milestone 3 by November 4, 2025.

As often discussed within NERC recommendations and publications, the current paradigm of modeling and data sharing leaves the bulk power system (BPS) at a higher than necessary risk for unexpected and undesired ~~inverter based resource (IBR)~~ performance. Since 2016, approximately 15,000 MW of IBR have unexpectedly reduced output during NERC categorized disturbance events. None of the IBR facilities involved in these disturbances utilized models that could accurately represent the facility’s performance during the disturbance event. These discrepancies between modeled and studied performance when compared to real-world performance are driven by current industry modeling practices and a dependence on generic IBR modeling throughout the lifecycle of the IBR facility.

NERC Modeling Guidance <sup>1</sup> states that additional model types, namely manufacturer-specific user-written models, ~~must~~ should be used for local reliability studies, during the interconnection process and following commissioning to validate as-built performance – as well as through ongoing validation of performance. The deficiencies within the current state of model quality are well documented. As required by FERC Order No. 901, the development of positive sequence models based on an approved (standard) library of model types must be built into Interconnection-wide cases.

Revisions to data sharing expectations and the creation of a “NERC Approved Model Library” that allows the use of manufacturer-specific models ~~in addition to standard library (generic) models~~ in instances

<sup>1</sup> <https://www.nerc.com/pa/RAPA/ModelAssessment/Documents/Dynamic%20Modeling%20Recommendations.pdf>

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where generic modeling cannot represent the performance of the IBR are necessary to ensure BPS reliability through improvements to the inputs of current study practices.

Purpose or Goal (What are the reliability gap(s) or risk(s) to the Bulk Electric System (BES) being addressed, and how does this proposed project provide the reliability-related benefit described above?):

This SAR addresses specific pieces of the NERC filed Work Plan related to Milestone 3 and addresses the various industry comments to meet the regulatory directives of FERC Order No. 901. This project shall coordinate ~~with other relevant projects in developing standard language and meeting the FERC Order No. 901 directives among other projects (i.e., act as a clearing house to tie directive language to standard revisions), develop standard language (i.e., perform the normal duties of a standard development Project), and build upon other Milestones from FERC Order No. 901 Standards Projects to meet regulatory deadlines (i.e., maintain agility based on how FERC Order No. 901 related Projects proceed to meet the directive deadlines).~~ This Project will ~~also~~ address FERC Order No. 901 directives related to aggregation of data, parameters, and estimation methods to provide the Transmission Planner (TP) and Transmission Operator (TOP) with the estimate values, explanation for limitations on data availability, and the method used for all estimations.

This project is intended to serve as a data sharing center point for many of the revisions being established within all of the 901-related projects. Performance of IBR during an event (grid disturbance) are identified and corrected within the Standards Development projects pertaining to Milestone 2 of the Work Plan. However, any requisite changes to model data as a result of correcting IBR performance, must be communicated through a uniform model framework to assure all impacted entities and users of the approved models are adequately informed and provided updated models (as developed within this project). Similarly, revisions to model validation being drafted by the drafting team assigned the Milestone 3 Part 2 SAR, must also assure entities follow the uniform model framework established here.

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

The FERC Order No. 901 directives assigned to this SAR are outlined in the Detailed Description section below. The project scope shall address all those directives, and should consider the following objectives during the standards development process:

~~Modify MOD-032 to require the usage of a “NERC Approved Model Library” (Hereafter: “The Model Library”) that shall identify contains acceptable (and unacceptable) models, recommendations on which models should be used for each study, and include recommendations to facilitate the exchange of neighboring entities’ respective planning and operation models and to be used in Interconnection wide case creation and in other NERC Reliability Standards for IBR.~~

~~This Model Library will be developed and maintained by NERC and include recommendations regarding model usage depending on study type. Updates on the Model Library development will be coordinated with the Drafting Team. The Drafting Team may solicit feedback comments of the NERC process from industry as needed.~~

~~The Model Library will be accessible to the general public. NERC will develop an open and transparent process for maintaining the library.~~

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~~The Model Library will be consistent with NERC’s published Dynamic Modeling Recommendations. The Model Library will not prohibit the use of equipment-specific models in Interconnection-wide base cases.~~

~~, primarily: Placeholder for DT guidance.~~

- ~~i. Industry-approved library models are sufficient for use in Interconnection-wide base case creation and interconnection-wide studies;~~
- ~~ii. For local reliability studies (e.g. performance during the interconnection process, model quality validation), equipment-specific models should be used if standard library models (i.e. WECC Generic) cannot accurately represent the performance of the IBR. If generic models from the Model Library cannot accurately represent the IBR.~~

~~2.1. Modify applicable Reliability Standards (e.g. MOD-032, TOP-003, and IRO-010) to require Planning Coordinators (PC), Transmission Planners (TPs), Reliability Coordinators (RC), Transmission Operators (TOPs), and Balancing Authorities (BA) to ensure the usage of a uniform framework for each Interconnection that includes the usage of a “NERC-Approved Model Library” (hereafter: the Model Library). which The uniform framework will that includes a minimum modeling criteria consistent with NERC’s Dynamic Modeling Recommendations, a registered modeling designee, and necessary data exchange requirements. The framework must require:~~

~~a. The usage of a “NERC-Approved Model Library-” (hereafter: “Model Library”).~~

- ~~i. This Model Library will be developed and maintained by NERC and will be consistent with NERC’s published Dynamic Modeling Recommendations. The Model Library will not prohibit the use of equipment-specific models in Interconnection-wide base cases.~~
- ~~ii. The Model Library will be accessible to the general public. NERC will develop an open and transparent process for maintaining the library.~~
- ~~iii. The Model Library will include recommendations to facilitate the exchange of neighboring entities’ respective planning and operation models to be used in Interconnection-wide case creation and in other NERC Reliability Standards for IBR.~~
- ~~iv. This Model Library will include recommendations regarding model usage depending on study type.~~
- ~~v. The DT may consider documenting additional guidance for NERC related to maintaining a model library Placeholder for DT guidance.~~

~~a.b. Data specification and notifications for the data necessary to develop Interconnection-wide models and models for other reliability studies. Specifications must include;~~

- ~~i. Specifications must include provisions and a periodicity for new, modified, or changed equipment for any changes that alter the performance of the IBR, and~~



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~~should consider including these methods in the TOP, BA, and RC data specifications these entities maintain. These standards must address:~~

- ~~a. An estimate of the modeling data and parameters of IBR-DETs and unregistered IBRs,~~
- ~~b. An explanation of the limitations of the availability of accurate data, and~~
- ~~c. The method used for all estimations.~~

~~5.2.~~ The drafting team shall ensure that implementation plans for new or modified Reliability Standards related to Milestone 3 of the Work Plan are aligned and do not create a reliability gap during implementation.

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 justification<sup>2</sup> of developing a new or revised Reliability Standard or definition, which includes a discussion of the risk and impact to reliability-of the BES, and (2) a technical foundation document (e.g., research paper) to guide development of the Standard or definition):

The project scope above will need to account for the specific directive text in FERC Order No. 901 to be successful. The drafting team should consider the specific language in the FERC directives, as well as any comments in the underlying FERC Order No. 901 proceeding that FERC directed NERC to consider as part of the standard development process.

#### FERC Order 901 Directives Assigned to this SAR:

NERC will maintain a current version of NERC Standards Development’s Work Plan to Address FERC Order No. 901 on the NERC website under [Reliability Standards Under Development](#). Included in this Work Plan is a list of the directives in FERC Order No. 901 and their associated mapping of each SAR submitted by NERC. The Work Plan will be updated should any mapping of FERC directives be reassigned due to ongoing work in the various Standards Development Projects. As of April 1, 2024, this SAR will address the following FERC Order No. 901 directives, with the scope ~~for of this SAR emphasized in bold where the Paragraph language is separated<sup>3</sup> across multiple projects:~~ **this SAR emphasized in bold as appropriate:**

1. **“Second, by November 4, 2025, NERC must submit new or modified Reliability Standards addressing the interrelated directives concerning: (1) data sharing for registered IBRs, unregistered IBRs, and IBR-DETs in the aggregate; and (2) data and model validation for registered IBRs, unregistered IBRs, and IBR-DETs in the aggregate.” (P 7)**
2. **“Pursuant to section 215(d)(5) of the FPA, we adopt the NOPR proposal and direct NERC to develop new or modified Reliability Standards that require registered IBR generator owners and operators to provide IBR-specific modeling data and parameters (e.g., steady-state,**

<sup>2</sup> 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.

<sup>3</sup> Other Projects will cover the non-bolded sections of the same Order Paragraph containing the directive.



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**dynamic, and short circuit modeling information ,and control settings for momentary cessation and ramp rates) that accurately represent the registered IBRs to their planning coordinators, transmission planners, reliability coordinators, transmission operators, and balancing authorities that are responsible for planning and operating the Bulk-Power System.”** (P 76)

3. “Nevertheless, to support accurate modeling and performance, we direct NERC to consider during its standards development process AEU and ACP/SEIA’s suggested data sharing requirements when developing the framework, criteria, and necessary data exchange requirements to meet the registered IBR data sharing directive.” (P 77)
4. **“As discussed in more detail in section IV.C of this final rule, we are also directing NERC to develop new or modified Reliability Standards that require the use of approved industry IBR models** that accurately reflect the behavior of all IBRs during steady state, short-circuit, and dynamic conditions.” (P78)
5. “Likewise, regarding CAISO’s request that the Commission direct NERC to consider requiring registered IBRs to provide additional data, we agree that such data collections may be warranted, and direct NERC to consider through its standards development process whether additional IBR data points (e.g., telemetry collections or other automated platform integrations) are needed to further enhance real-time visibility of Bulk-Power System operations.” (P 86)
6. “Specifically, as proposed in the NOPR, we direct NERC to submit to the Commission for approval one or more new or modified Reliability Standards that require: (1) transmission owners to provide to Bulk-Power System planners and operators modeling data and parameters for unregistered IBRs in their transmission owner areas that, individually or in the aggregate, materially affect the reliable operation of the Bulk-Power System and (2) distribution providers to provide to Bulk-Power System planners and operators modeling data and parameters for IBR-DERs in the aggregate in their distribution provider areas where the IBR-DERs in the aggregate materially affect the reliable operation of the Bulk-Power System.” (P 102)
7. “Recognizing that there may be instances in which transmission owners are unable to gather adequate unregistered IBR modeling data and parameters to create and maintain unregistered IBR models in their transmission owner areas, we modify the NOPR proposal and direct NERC to develop new or modified Reliability Standards that require each transmission owner, if unable to gather accurate unregistered IBR data or unable to gather unregistered IBR data at all, to provide instead to the Bulk-Power System planners and operators in their areas: (1) an estimate of the unregistered IBR modeling data and parameters, (2) an explanation of the limitations of the availability of data, (3) an explanation of the limitations of any data provided by unregistered IBRs, and (4) the method used for estimation.” (P 104)
8. “To support this data collection, we further direct NERC to consider commenters suggestions to implement a process or mechanism by which transmission owners would receive modeling data and parameters.” (P 104)

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9. “Accordingly, to account for instances in which distribution providers are unable to gather adequate modeling data and parameters of IBR-DERs to create and maintain IBR-DER models, we modify the NOPR proposal and direct NERC to develop new or modified Reliability Standards that require that each distribution provider, if unable to gather accurate IBR-DERs data in the aggregate or unable to gather IBR-DERs data in the aggregate at all, provide instead to the Bulk-Power System planners and operators in their areas: (1) an estimate of the modeling data and parameters of IBR-DERs in the aggregate, (2) an explanation of the limitations of the availability of data, (3) an explanation of the limitations of the data provided by IBR-DERs, and (4) the method used for estimation.” (P 105)
10. “In support of above, we further direct NERC to consider commenters’ suggestions to implement a process or mechanism by which distribution providers would receive modeling data and parameters.” (P 105)
11. “For those areas with IBR-DERs that in the aggregate materially affect the reliable operation of the Bulk-Power System but do not have an associated registered distribution provider, we direct NERC to determine the appropriate registered entity responsible for providing data of IBR-DERs that in the aggregate have a material impact on the Bulk-Power System, or, when unable to gather such accurate IBR-DERs data, to provide instead to the Bulk-Power System planners and operators in their areas: (1) an estimate of the modeling data and parameters of IBR-DERs that in the aggregate have a material impact on the Bulk-Power System, (2) an explanation of the limitations of the availability of data, (3) an explanation of the limitations of any data provided by the IBR-DERs that in the aggregate have a material impact on the Bulk-Power System, and (4) the method used for estimation.” (P 106)
12. “Regarding CAISO’s concern regarding the potential “compliance trap” where planners and operators rely on third-party data and IRC’s request that the final rule specify the data to be submitted by all IBRs (i.e., registered IBRs, unregistered IBRs, and IBR-DERs in the aggregate) and transmission devices using similar technologies, we direct NERC to determine through its standards development process the minimum categories or types of data that must be provided to transmission planners, transmission operators, transmission owners, and distribution providers necessary to predict the behavior of all IBRs and to ensure that compliance obligations are clear.” (P 108)
13. **“As discussed in more detail in section IV.C of this final rule, we are also directing NERC to develop new or modified Reliability Standards that require the use of approved industry IBR models that accurately reflect the behavior of all IBRs during steady state, short-circuit, and dynamic conditions.”** (P 108)
14. **“Pursuant to section 215(d)(5) of the FPA, we adopt the NOPR proposal and direct NERC to develop new or modified Reliability Standards that require the use of approved industry generic library IBR models that accurately reflect the behavior of IBRs during steady state, short-circuit, and dynamic conditions when developing planning, operations, and interconnection-wide models.”** (P 122)



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15. “We direct NERC to determine through its standards development process which nation-wide approved component models are needed to build IBR plant models for steady state, short-circuit, and dynamics studies.” (P 124)
16. “Accordingly, we direct NERC to develop new or modified Reliability Standards that require the sole use of nation-wide approved component generic library models for system models to facilitate the exchange of neighboring entities’ respective planning and operation models and to build interconnection-wide models.” (P 125)
17. **“We also direct NERC to require the generator owners of registered IBRs and the transmission owners that have unregistered IBRs on their system to provide to the Bulk-Power System planners and operators (e.g., planning coordinators, transmission planners, reliability coordinators, transmission operators, and balancing authorities) dynamic models that accurately represent the dynamic performance of registered and unregistered IBRs, including momentary cessation and/or tripping, and all ride through behavior.”** (P 141)
18. “Recognizing that there may be instances in which transmission owners are unable to gather accurate unregistered IBR modeling data and parameters to create and maintain accurate unregistered IBR dynamic models in their transmission owner areas, we modify the NOPR proposal and direct NERC to develop new or modified Reliability Standards that require each transmission owner, if unable to gather accurate unregistered IBR data or unable to gather unregistered IBR data at all, to provide instead to the Bulk-Power System planners and operators in their areas, dynamic models of unregistered IBRs using estimated data in accordance with this final rule’s section IV.B.3 data sharing directives.” (P 141)
19. “Further, we direct NERC to require distribution providers to provide to the planning coordinators, transmission planners, reliability coordinators, transmission operators, and balancing authorities aggregated dynamic models that adequately represent the dynamic performance of IBR-DERs on their systems that in the aggregate have a material impact on the Bulk-Power System, including momentary cessation and/or tripping, and all ride through behavior (e.g., IBR-DERs in the aggregate modeled by interconnection requirements performance to represent different steady-state and dynamic behavior).” (P141)
20. “Recognizing that there may be instances in which distribution providers are unable to gather data that accurately represents IBR-DERs in the aggregate, we modify the NOPR proposal and direct NERC to include in the proposed new or modified Reliability Standards a requirement that the distribution provider, if unable to gather data of IBR-DERs that in the aggregate have a material impact on the Bulk-Power System, provide to the Bulk-Power System planners and operators (i.e., the data recipients) a dynamic model using estimated data for IBR-DERs that in the aggregate have a material impact on the Bulk-Power System, in accordance with this final rule’s section IV.B.3 data sharing directives.” (P 141)
21. “Furthermore, we acknowledge that there may be areas with IBR-DERs in the aggregate that materially impact the reliable operation of the Bulk-Power System but do not have an associated registered distribution provider. Therefore, we modify the NOPR proposal and direct NERC to

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determine the appropriate registered entity responsible for providing adequate data and parameters of IBR-DERs that in the aggregate have a material impact on the Bulk-Power System, and to identify the registered entities for coordinating, verifying, and keeping up to date the respective dynamic models.” (P 141)

22. “Finally, NERC must ensure that the proposed new or modified Reliability Standards account for the dynamic performance of IBR-DERs that in the aggregate have a material impact on the Bulk-Power System.” (P 141)

23. “Accordingly, we direct NERC to develop new or modified Reliability Standards that require the use of the DER\_A model or successor models to represent the behaviors of IBR-DERs that in the aggregate have a material impact on the Bulk-Power System at a sufficient level of fidelity for Bulk-Power System planners and operators to create valid planning and operations and interconnection-wide models and to be able to perform respective system studies.” (P 146)

24. **“Furthermore, for those areas with IBR-DERs in the aggregate that materially impact the reliable operation of the Bulk-Power System but do not have an associated registered distribution provider, we modify the NOPR proposal to direct NERC to determine the appropriate registered entity responsible for the data and parameters of IBR-DERs in the aggregate** and to establish a process that requires identified registered entities to coordinate, validate, and keep up to date the system models.” (P 157)

25. **“Specifically, we direct NERC to develop new or modified Reliability Standards that require planning coordinators, transmission planners, reliability coordinators, transmission operators, and balancing authorities to establish for each interconnection a uniform framework with modeling criteria, a registered modeling designee, and necessary data exchange requirements both between themselves and with the generator owners, transmission owners, and distribution providers to coordinate the creation of transmission planning, operations, and interconnection-wide models (i.e., system models) and the validation of each respective system model.”** (P 161)

26. “Further, we believe that there is a need to have all of the directed Reliability Standards effective and enforceable well in advance of 2030 and direct NERC to ensure that the associated implementation plans sequentially stagger the effective and enforceable dates to ensure an orderly industry transition for complying with the IBR directives in this final rule prior to that date.” (P 226)

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

The associated cost with implementation of a new standard is currently unknown, and the modifications necessary for each specific directive are also unknown though they are expected to vary based on DT outcome.

Please describe any unique characteristics of the BES facilities that may be impacted by this proposed standard development project (e.g., Dispersed Generation Resources):

IBRs connected to the transmission system.

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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 NERC Rules of Procedure Appendix 5A:

This Project should contain appropriate members representing the following Functional Entities:

Balancing Authority  
Distribution Provider  
Generator Owner  
Generator Operator  
Planning Coordinator  
Reliability Coordinator  
Transmission Owner  
Transmission Operator  
Transmission Planner  
~~Reliability Coordinator~~

Do you know of any consensus building activities<sup>4</sup> in connection with this SAR? If so, please provide any recommendations or findings resulting from the consensus building activity.

[FERC Order No. 901](#)  
[NERC Standards Development Work Plan in Response to FERC Order No. 901](#)  
[Inverter-Based Resource Activities, Quick Reference Guide](#)  
[Distributed Energy Resource Activities, Quick Reference Guide](#)  
[IBR Registration Initiative, Quick Reference Guide](#)

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)?

1. SARs:
  - a. SAR titled: Federal Energy Regulatory Commission (FERC) Order No. 901 – Milestone 3, Part 2: IBR Model Validation
  - b. SAR titled: Federal Energy Regulatory Commission (FERC) Order No. 901 – Milestone 3, Part 3: IBR Modeling Revision
2. Active Reliability Standards Projects:
  - a. 2020-06 Verifications of Models and Data for Generators
  - b. 2021-01 Modifications to MOD-025 and PRC-019
  - c. 2022-02 Modifications to TPL-001-5.1 and MOD-032-1 (NERC Standards Development recommends assigning the SAR to this active project)
  - d. 2022-04 EMT Modeling
  - e. 2023-05 Modifications to FAC-001 and FAC-002
  - f. 2023-08 Modifications of MOD-031 Demand and Energy Data

<sup>4</sup> 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.

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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 with the benefits of using them.

Since the directives of FERC Order 901 instruct NERC to develop new or modified standards, there were no other alternatives considered.

### 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 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 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

### For Use by NERC Only

SAR Status Tracking (Check off as appropriate).	
<input checked="" type="checkbox"/> Draft SAR reviewed by NERC Staff <input type="checkbox"/> Draft SAR presented to SC for acceptance <input type="checkbox"/> DRAFT SAR approved for posting by the SC	<input type="checkbox"/> Final SAR endorsed by the SC <input type="checkbox"/> SAR assigned a Standards Project by NERC <input type="checkbox"/> SAR denied or proposed as Guidance document
Risk Tracking.	
<input type="checkbox"/> Grid Transformation <input type="checkbox"/> Resilience/Extreme Events <input type="checkbox"/> Security Risks	<input type="checkbox"/> Energy Policy <input type="checkbox"/> Critical Infrastructure Interdependencies

### 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
5	August 14, 2023	Standards Development Staff	Updated template as part of Standards Process Stakeholder Engagement Group