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NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

# MOD-032 and MOD-033 Joint Industry Webinar

Milestone 3 Projects 2021-01 and 2022-02

FERC Order 901

Industry Webinar

July 22, 2025

RELIABILITY | RESILIENCE | SECURITY

It is NERC's policy and practice to obey the antitrust laws and to avoid all conduct that unreasonably restrains competition. This policy requires the avoidance of any conduct that violates, or that might appear to violate, the antitrust laws. Among other things, the antitrust laws forbid any agreement between or among competitors regarding prices, availability of service, product design, terms of sale, division of markets, allocation of customers or any other activity that unreasonably restrains competition. It is the responsibility of every NERC participant and employee who may in any way affect NERC's compliance with the antitrust laws to carry out this commitment.

Participants are reminded that this meeting is public. Notice of the meeting was widely distributed. Participants should keep in mind that the audience may include members of the press and representatives of various governmental authorities, in addition to the expected participation by industry stakeholders.

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NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

# Uniform Framework for IBR

## MOD-032-2

Project 2022-02

Project 2022-02 Drafting Team  
Industry Webinar  
July 22, 2025

RELIABILITY | RESILIENCE | SECURITY

	Ballot
<b>Standard</b>	Quorum / Approval
<b>MOD-032-2 (246 Votes)</b>	87.86% / 39.05%
<b>IRO-010-6 (246 Votes)</b>	87.54% / 41.62%
<b>TOP-003-8 (247 Votes)</b>	87.90% / 34.70%
<b>Implementation Plan (242 Votes)</b>	88.00% / 39.46%

- **Distributed Energy Resources (DER):** Generators and energy storage technologies connected to a distribution system that are capable of providing Real Power in non-isolated parallel operation with the Bulk-Power System, including those connected behind the meter of an end-use customer that is supplied from a distribution system.
  - Comments received:
    - Threshold
    - Remove “storage technologies”
    - Add as footnote instead of creating a definition

## Redline to last posted

- R1.** Each Planning Coordinator and each of its Transmission Planners shall jointly develop steady-state, dynamics, and short circuit modeling data requirements and reporting procedures for the Planning Coordinator's planning area that include: *[Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]*
- 1.1.** The data listed in Attachment 1, including the ~~responsible~~ entity responsible for each required item.
- ~~1.2. Requirements for model submissions in accordance with the Criteria for Acceptable Models maintained by the Electric Reliability Organization (ERO).~~
- ~~1.3.1.2.~~ Specifications of the following items consistent with procedures for building the Interconnection-wide case(s):
- ~~1.3.1.1.2.1.~~ Data format;
- ~~1.3.2.1.2.2.~~ Level of detail to which equipment shall be modeled;
- ~~1.3.3.1.2.3.~~ Case types or scenarios to be modeled; and
- ~~1.3.4.1.2.4.~~ A schedule for submission of data at least once every 13 calendar months.
- ~~1.4.1.3.~~ Specifications for distribution or posting of the data requirements and reporting procedures so that they are available to those entities responsible for providing the data.

## Redline to last approved

- R1.** Each Planning Coordinator and each of its Transmission Planners shall jointly develop steady-state, dynamics, and short circuit modeling data requirements and reporting procedures for the Planning Coordinator's planning area that include: *[Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]*
- 1.1.** The data listed in Attachment 1, including the entity responsible for each required item.
- 1.2.** Specifications of the following items consistent with procedures for building the Interconnection-wide case(s):
- 1.2.1.** Data format;
- 1.2.2.** Level of detail to which equipment shall be modeled;
- 1.2.3.** Case types or scenarios to be modeled; and
- 1.2.4.** A schedule for submission of data at least once every 13 calendar months.
- 1.3.** Specifications for distribution or posting of the data requirements and reporting procedures so that they are available to those entities responsible for providing the data.

- Redline to last posted/approved

1.4. Specifications of the following items for dynamic model submissions:

1.4.1. Required submission of:

- standard library models incorporated within the software(s) utilized to create the interconnection-wide case(s);
- user-written models; or
- both standard library models and user-written models.

1.4.2. Where user-written models are accepted, usability requirements for any submitted user-written models including, at a minimum, requirements to provide model documentation and instructions for model set up and use.

1.4.2.1. Each Planning Coordinator and Transmission Planner shall provide their user-written model criteria within 90 calendar days of receiving a written request for such data from other Planning Coordinators and Transmission Planners within the Interconnection

1.4.3. Provisions requiring any entity submitting a model included on the Unacceptable Models List maintained by the ERO in accordance with the process described in the MOD-032 Supporting Document, to include a technical rationale supporting its use.



## Redline to last posted

- R2.** Each Balancing Authority, Distribution Provider, Generator Owner, Resource Planner, Transmission Owner, and Transmission Service Provider shall provide steady-state, dynamics, and short circuit modeling data to its Transmission Planner(s) and Planning Coordinator(s) according to the data requirements and reporting procedures developed by its Planning Coordinator and Transmission Planner in Requirement R1. For data that has not changed since the last submission, a written confirmation that the data has not changed is sufficient. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*
- 2.1.** If ~~the responsible entity, as identified in Requirement R1 Part 1.1, is unable to gather~~ a functional entity required to provide unregistered Inverter-based Resource (IBR)<sup>1</sup> data or aggregate ~~Distributed data and parameters and include an explanation of the limitations of the availability of~~ DER data is unable to gather such data, the functional entity shall provide an estimate of the data, an explanation of the limitations of ~~any~~ the estimated data ~~provided~~, and the method used for estimation.

## Redline to last approved

- R2.** Each Balancing Authority, Distribution Provider, Generator Owner, ~~Load Serving Entity~~, Resource Planner, Transmission Owner, and Transmission Service Provider shall provide steady-state, dynamics, and short circuit modeling data to its Transmission Planner(s) and Planning Coordinator(s) according to the data requirements and reporting procedures developed by its Planning Coordinator and Transmission Planner in Requirement R1. For data that has not changed since the last submission, a written confirmation that the data has not changed is sufficient. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*
- 2.1.** If a functional entity required to provide unregistered Inverter-based Resource (IBR)<sup>1</sup> data or aggregate DER data is unable to gather such data, the functional entity shall provide an estimate of the data, an explanation of the limitations of the estimated data, and the method used for estimation.

## Redline to last posted

- R3.** Upon receipt of written notification from its Planning Coordinator or Transmission Planner regarding technical concerns with the data submitted under Requirement R2, including the technical basis or reason for the technical concerns, each notified Balancing Authority, Distribution Provider, Generator Owner, Resource Planner, Transmission Owner, or Transmission Service Provider shall respond to the notifying Planning Coordinator or Transmission Planner as follows: *[Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]*
- 3.1.** Provide either updated data or an explanation with a technical basis for maintaining the current data that is responsive to the technical concern;
  - 3.2.** Provide the response within 90 calendar days of receipt, unless a longer time period is agreed upon by the notifying Planning Coordinator or Transmission Planner.

## Redline to last approved

- R3.** Upon receipt of written notification from its Planning Coordinator or Transmission Planner regarding technical concerns with the data submitted under Requirement R2, including the technical basis or reason for the technical concerns, each notified Balancing Authority, Distribution Provider, Generator Owner, ~~Load-Serving Entity~~, Resource Planner, Transmission Owner, or Transmission Service Provider shall respond to the notifying Planning Coordinator or Transmission Planner as follows: *[Violation Risk Factor: Lower] [Time Horizon: Long-term Planning]*
- 3.1.** Provide either updated data or an explanation with a technical basis for maintaining the current data that is responsive to the technical concern;
  - 3.2.** Provide the response within 90 calendar days of receipt, unless a longer time period is agreed upon by the notifying Planning Coordinator or Transmission Planner.

## Redline to last posted

### MOD-032-2 – ATTACHMENT 1 Data Reporting Requirements

The table below indicates the information<sup>1</sup> that is required to effectively model the interconnected transmission system for the Near-Term Transmission Planning Horizon and Long-Term Transmission Planning Horizon. Data must be shareable on an interconnection-wide basis to support use in Interconnection-wide cases. A Planning Coordinator may specify additional information that includes specific information required for each item in the table below. ~~Each functional entity<sup>2</sup> typically responsible for reporting the respective data in the table is identified by brackets “[functional entity]” adjacent to and following each data item.~~ The joint Planning Coordinator /Transmission Planner modeling data requirements and reporting procedures developed under Requirement R1 will specify the functional entity responsibility and data flow processes. The typical functional entity<sup>2</sup> responsible for reporting the respective data in the table is identified by brackets “[functional entity]” adjacent to and following each data item. The data reported shall be identified by the bus number, name, and/or identifier that is assigned in conjunction with the Planning Coordinator, Transmission Owner, or Transmission Planner.

## Redline to last approved

### MOD-032-~~012~~ – ATTACHMENT 1+ Data Reporting Requirements

The table~~, below,~~ indicates the information<sup>1</sup> that is required to effectively model the interconnected transmission system for the Near-Term Transmission Planning Horizon and Long-Term Transmission Planning Horizon. ~~-~~ Data must be shareable on an interconnection-wide basis to support use in ~~the~~ Interconnection-wide cases. ~~-~~ A Planning Coordinator may specify additional information that includes specific information required for each item in the table below. ~~Each~~ The joint Planning Coordinator /Transmission Planner modeling data requirements and reporting procedures developed under Requirement R1 will specify the functional entity<sup>1</sup> responsibility and data flow processes. The typical functional entity<sup>2</sup> responsible for reporting the respective data in the table is identified by brackets “[functional entity]” adjacent to and following each data item. The data reported shall be ~~as~~ identified by the bus number, name, and/or identifier that is assigned in conjunction with the ~~PC, TO, or TP~~ Planning Coordinator, Transmission Owner, or Transmission Planner.

## Redline to last posted

<b>steady-state</b> <i>(Items marked with an asterisk indicate data that vary with system operating state or conditions. Those items may have different data provided for different modeling scenarios)</i>	<b>dynamics</b>	<b>short circuit</b>
<ol style="list-style-type: none"> <li>1. Each bus [TO]               <ol style="list-style-type: none"> <li>a. nominal voltage</li> <li>b. area, zone and owner</li> </ol> </li> <li>2. Aggregate Demand<sup>3</sup> [DP]               <ol style="list-style-type: none"> <li>a. real and reactive power*</li> <li>b. in-service status*</li> </ol> </li> <li>3. Generating and storage units<sup>4</sup> [GO, TO<sup>5</sup>, RP (for future planned resources only)]               <ol style="list-style-type: none"> <li>a. real power capabilities - gross maximum and minimum values</li> <li>b. reactive power capabilities - maximum and minimum values at real power <u>capabilities in 3a</u> above</li> <li>c. station service auxiliary load for normal plant configuration (provide data in the same manner as that required for aggregate Demand under item 2, above).</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1. Generator [GO, RP (for future planned resources only)]</li> <li>2. Excitation System [GO, RP (for future planned resources only)]</li> <li>3. Governor [GO, RP (for future planned resources only)]</li> <li>4. Power System Stabilizer [GO, RP (for future planned resources only)]</li> <li>5. Aggregate Demand<sup>3</sup> [DP]</li> <li>6. Wind plant model (for plants with type 1 and type 2 wind turbines) [GO]</li> <li>7. Inverter-Based Resource [GO, TO<sup>5</sup>]               <ol style="list-style-type: none"> <li>a. IBR capabilities related to momentary cessation, tripping, Ride-through, <u>voltage control</u>, and frequency control</li> </ol> </li> <li>8. Static Var Systems and FACTS [GO, TO, DP]</li> <li>9. DC system models [TO]</li> </ol>	<ol style="list-style-type: none"> <li>1. Provide for all applicable elements in column "steady-state" [GO, RP, TO, DP]               <ol style="list-style-type: none"> <li>a. Positive Sequence Data</li> <li>b. Negative Sequence Data</li> <li>c. Zero Sequence Data</li> </ol> </li> <li>2. Mutual Line Impedance Data [TO]</li> <li>3. Other information requested by the Planning Coordinator or Transmission Planner <u>necessary</u> for modeling purposes. [BA, GO, DP, TO, TSP]</li> </ol>

## Redline to last posted

<b>steady-state</b> <i>(Items marked with an asterisk indicate data that vary with system operating state or conditions. Those items may have different data provided for different modeling scenarios)</i>	<b>dynamics</b>
<ul style="list-style-type: none"> <li>d. regulated bus* and voltage set point* (as typically provided by the TOP)</li> <li>e. machine MVA base</li> <li>f. <u>generator</u> step up transformer data (provide same data as that required for transformer under item 6, below)</li> <li>g. generator type (hydro, wind, fossil, solar, nuclear, etc.)</li> <li>h. in-service status*</li> </ul> <ul style="list-style-type: none"> <li>4. AC Transmission Line or Circuit [TO]               <ul style="list-style-type: none"> <li>a. impedance parameters (positive sequence)</li> <li>b. susceptance (line charging)</li> <li>c. ratings (normal and <u>emergency</u>)*</li> <li>d. in-service status*</li> </ul> </li> <li>5. DC Transmission systems [TO]</li> <li>6. Transformer (voltage and phase-shifting) [TO]               <ul style="list-style-type: none"> <li>a. nominal voltages of windings</li> <li>b. impedance(s)</li> <li>c. tap ratios (voltage or phase <u>angle</u>)*</li> <li>d. minimum and maximum tap position limits</li> <li>e. number of tap positions (for both the ULTC and NLTC)</li> <li>f. regulated bus (for voltage regulating <u>transformers</u>)*</li> <li>g. ratings (normal and <u>emergency</u>)*</li> <li>h. in-service status*</li> </ul> </li> <li>7. Reactive compensation (shunt capacitors and reactors) [TO]               <ul style="list-style-type: none"> <li>a. admittances (MVars) of each capacitor and reactor</li> <li>b. regulated voltage band limits* (if mode of operation not fixed)</li> <li>c. mode of operation (fixed, discrete, continuous, etc.)</li> <li>d. regulated bus* (if mode of operation not fixed)</li> <li>e. in-service status*</li> </ul> </li> <li>8. Static Var Systems [TO]               <ul style="list-style-type: none"> <li>a. reactive limits</li> <li>b. voltage set point*</li> <li>c. fixed/switched shunt, if applicable</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>10. Aggregate Distributed Energy Resource (DER) data<sup>2</sup> [DP, TO]<sup>6</sup> <ul style="list-style-type: none"> <li>a. DER capabilities related to momentary cessation, tripping, Ride-through, voltage control, and frequency control or information that can be used to infer those capabilities for modeling purposes.</li> <li>b. indication whether DER is subject to tripping in conjunction with UFLS or UVLS.</li> </ul> </li> <li>11. Other information requested by the Planning Coordinator or Transmission Planner <u>necessary</u> for modeling purposes. [BA, GO, DP, TO, TSP]</li> </ul>

## Redline to last posted

<p><b>steady-state</b></p> <p><i>(Items marked with an asterisk indicate data that vary with system operating state or conditions. Those items may have different data provided for different modeling scenarios)</i></p>
<p>d. in-service status*</p> <p>9. Aggregate Distributed Energy Resource (DER) data<sup>2</sup> [DP, TO]<sup>6</sup></p> <ul style="list-style-type: none"> <li>a. Location (bus from item 1)</li> <li>b. Real power capability</li> <li>c. DER type (solar, battery, diesel generator, etc.)</li> </ul> <p>10. Other information requested by the Planning Coordinator or Transmission Planner <u>necessary</u> for modeling purposes. [BA, GO, DP, TO, TSP]</p>

## Redline to last posted

### Attachment 1 Data Reporting Requirements Footnotes

1. Data specified in the sub-bullets of each column that are required for both steady-state and dynamics are not duplicated in the table.
2. For purposes of this attachment, the functional entity references are represented by abbreviations as follows: Balancing Authority (BA), Distribution Provider (DP), Generator Owner (GO), Planning Coordinator (PC), Resource Planner (RP), Transmission Owner (TO), Transmission Planner (TP), and Transmission Service Provider (TSP).
3. For purposes of this item, aggregate Demand is the gross Demand aggregated at each bus under item 1 under Steady State Column that is identified by a Transmission Owner as a load serving bus rather than the net Demand that incorporates offsets due to output from Distributed Energy Resources. A Distribution Provider is the typical responsible entity for providing this information, generally through coordination with the Transmission Owner.
4. ~~This~~Generating and storage units includes IBR, synchronous condensers, and pumped storage.
5. The Transmission Owner is the typical responsible entity for collecting and providing data for unregistered IBRs that are not DERs.
6. The Distribution Provider is the typical responsible entity for collecting and providing data for DER connected to its system either directly or through an unregistered Distribution Provider (i.e., not included on the NERC Compliance Registry) with no other registered entity systems between the DER connection point and the Distribution Provider's system. The Transmission Owner is the typical responsible entity for collecting and providing data for DER where there is no associated registered Distribution Provider between the DER connection point and the Transmission Owner's system.
7. Aggregation thresholds for DER may be specified in the joint Planning Coordinator/Transmission Planner modeling data requirements and reporting procedures developed under Requirement R1.



## Redline to last posted

### MOD-032 Supporting Document

#### Process for Updating the Unacceptable Models List Maintained by the Electric Reliability Organization (ERO)

The Unacceptable Models List is maintained separately by NERC as the ERO. This attachment describes the process by which changes may be made to the Unacceptable Models List.

The following steps shall be taken to add a model to or remove a model from the Unacceptable Models List:

1. Any person or entity may submit a request to the ERO to add or remove a model from the Unacceptable Models List. This request shall include, at a minimum:
  - a. The model name;
  - b. Alternative model name(s), if any;
  - c. Organization(s) the submitting entity represents;
  - d. Description of the model's stated intent;
  - e. Request to add model as an "unacceptable" model or remove model as an "unacceptable" model;
  - f. Technical supporting documentation that includes the ability of the model to meet or not meet small and large disturbance behavior;
  - g. Identification of any Confidential Information as defined in Section 1500 of the NERC Rules of Procedure; and
  - h. An explanation, if any of the above technical support items are unavailable to the supporting entity.



## Redline to last posted

2. ERO staff shall review and evaluate the information in the Unacceptable Models List change request, along with any group or subcommittee of the NERC Reliability and Security Technical Committee (RSTC), or its successor, charged with assisting in such reviews. If no such group or subcommittee has been identified, ERO staff may work with other industry subject matter experts as needed to review and evaluate the request.
3. ERO staff shall provide public notice that identifies the model being considered for addition to or removal from the list, includes a non-confidential summary of the rationale offered, and provides at least 30 days to submit comments.
4. The results of the ERO review and the recommended action shall be presented to the NERC RSTC in a duly noticed public meeting.

## Redline to last posted

5. The NERC RSTC may recommend the NERC Vice President of Engineering and Standards approve the change request, reject the change request, or remand the application back to the ERO to work with the submitting entity. If the NERC RSTC recommends approving the change request, the NERC RSTC shall also recommend an effective date for the change.
6. The NERC Vice President of Engineering and Standards, considering the recommendation of the NERC RSTC, shall approve the change request, reject the change request, or remand the application back to ERO staff to work with the submitting entity. If approved, the NERC Vice President of Engineering and Standards shall also determine the effective date for the change.
7. The ERO shall provide public notice of a change to the Unacceptable Models List along with the effective date of the change. The revised Unacceptable Models List shall be posted to the NERC website and filed with the applicable governmental authorities for informational purposes.

## Chapter 1: Unacceptable Models List

Models that have been identified as unacceptable as list in Table 1 below. Revisions to this list may be made in accordance with the process described in "Updates to the Unacceptable Models List" above.

Table 1: Unacceptable Model List		
Known Unacceptable Model Name	Model Description	Effective
<b>Renewable Energy Models</b>		
WT3G1, WT3G2, wt3g	Generic Type 3 WTG Generator/Converter Model - Doubly-fed induction generator	Effective Date of MOD-032-2
WT4G1, WT4G2, wt4g	Generic Type 4 WTG Generator/Converter Model - Variable speed generator with full converter	Effective Date of MOD-032-2
WT3E1, wt3e	Generic Type 3 WTG Electrical Control Model	Effective Date of MOD-032-2
WT4E1, WT4E2, wt4e	Generic Type 4 WTG Electrical Control Model	Effective Date of MOD-032-2
WT3T1, wt3t	Generic Type 3 WTG Turbine Model	Effective Date of MOD-032-2
WT3P1, wt3p	Generic Type 3 WTG Pitch Control Model	Effective Date of MOD-032-2
WT12A1, wt1p, wt2p	Generic Type 1 and 2 WTG Pitch Control Model	Effective Date of MOD-032-2
WT4E1, wt4t	Generic Type 4 WTG Power Converter Model	Effective Date of MOD-032-2
wt4p	Generic Type 4 Pitch Control Model	Effective Date of MOD-032-2
REECB1, REECBU1, <u>reec_b</u>	Generic Phase 2 PV Electrical Controls Model	Effective Date of MOD-032-2
<b>Machine Models</b>		

## Chapter 2: Unacceptable Models Technical Rationale

The below provides the technical rationale for each unacceptable model provided on the current Unacceptable Models List.

The purpose of this list of unacceptable models is to develop and maintain a repository of models deemed acceptable by the ERO and industry stakeholders for use in developing interconnection-wide models developed by the MOD-032 Designee. The NERC System Analysis and Modeling Subcommittee (SAMS) initially developed this list and is maintained and updated by staff. This list seeks to bring together multiple sources of data to ensure uniformity in the use of models across interconnections. While models may be deemed 'obsolete' or 'deprecated' due to known issues, those models are not removed from the software vendor libraries for various reasons. However, those models should not be used for developing interconnection-wide models. For additional information about this list, please contact NERC staff at [advancedsystemanalyticsmodeling@nerc.net](mailto:advancedsystemanalyticsmodeling@nerc.net) with any questions.

Table 1: Unacceptable Model List	
Known Unacceptable Model Name	Rationale For Inclusion
<b>Renewable Energy Models</b>	
WT3G1, WT3G2, wt3g	Replaced by 2 <sup>nd</sup> Generation renewable models. 1 <sup>st</sup> Generation generic models have produced numerical instability for on-fault conditions for power electronics represented by this model
WT4G1, WT4G2, wt4g	Replaced by 2 <sup>nd</sup> Generation renewable models. 1 <sup>st</sup> Generation generic models have produced numerical instability for on-fault conditions for power electronics represented by this model
WT3E1, wt3e	Replaced by 2 <sup>nd</sup> Generation renewable models. 1 <sup>st</sup> Generation generic models have produced numerical instability for on-fault conditions for power electronics represented by this model
WT4E1, WT4E2,	Replaced by 2 <sup>nd</sup> Generation renewable models. 1 <sup>st</sup> Generation generic models have produced numerical instability for on-fault conditions for power electronics represented by

## *Redline to last posted*

### *Transmission Owner*

- 1.5.3. Requirements for model submissions consistent with the model submitted for planning purposes in accordance with ~~the Criteria for Acceptable Models maintained by the Electric Reliability Organization-~~ MOD-032, as applicable;

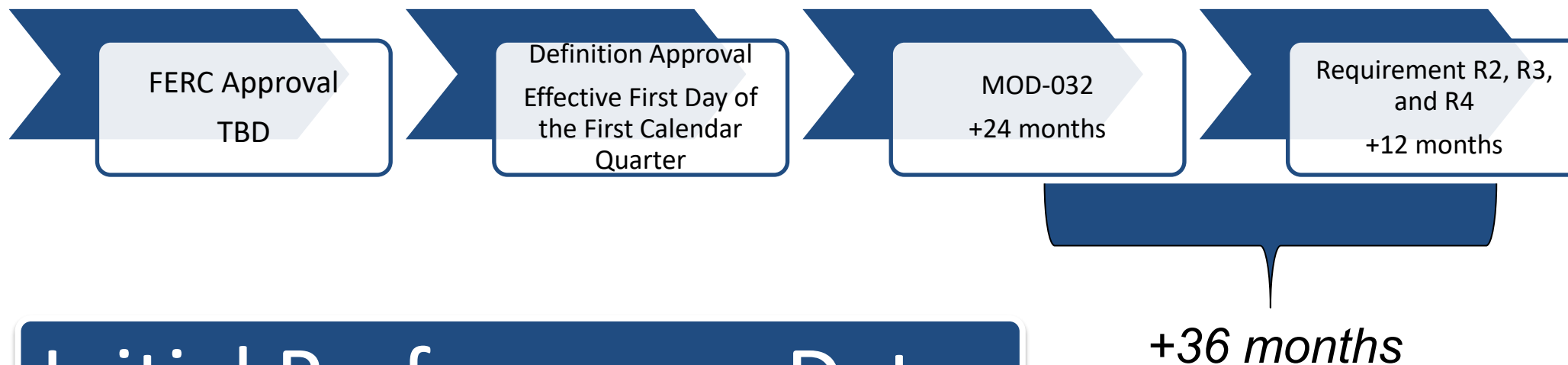
### *Balancing Authority*

- 2.5.3. Requirements for model submissions ~~in accordance with the Criteria for Acceptable Models maintained by the ERO~~ consistent with the model submitted for planning purposes in accordance with MOD-032, as applicable;

## *Redline to last posted*

### *Reliability Coordinator*

- 1.5.3** Requirements for model submissions with the model submitted for planning purposes in accordance with ~~the Criteria for Acceptable Models maintained by the Electric Reliability Organization~~ MOD-032, as applicable;



## Initial Performance Dates



Requirement R2, R3, and R4 Revisions  
+12 months after MOD-032-2 effective date



Current R2, R3, and R4 Requirements  
Must continue to comply during the phased-in compliance period



- July 23 through 30 – Quality Review
- August 1 – DT to review QR Comments
- August 8 – Draft 2 comment and ballot period



- NERC Project 2022-02 Project Page ([link](#)).
- NERC Project 2022-02 Standards Authorization Request ([link](#)).
- Dynamic Modeling Recommendations ([link](#)).
- FERC Order 901 ([link](#)).
- Standards Development Work Plan in Response to FERC Order No. 901 ([link](#)).



# Questions and Answers

**NERC**

NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

# System Model Validation with IBRs

## MOD-033

Project 2021-01

Project 2021-01 Drafting Team  
Industry Webinar  
July 22, 2025

RELIABILITY | RESILIENCE | SECURITY

	Ballot
<b>Standard</b>	Quorum / Approval
<b>MOD-033-3 (237 Votes)</b>	86.81% / 57.06%
<b>Implementation Plan (232 Votes)</b>	86.57% / 59.43%

- Large Majority (> 95%) agreed that modifications done in MOD-033-3 posted draft are editorial to enhance clarity, *Not Substantive Changes*
- Clarify that System Model to be validated in MOD-033 and System Model assembled as outcome of MOD-032 are fully aligned regarding various IBR models included in each
- Clarify that System Model to be validated in MOD-033 is a “planning” System model – omitting this qualifier causes ambiguity
- Eliminate inconsistent usage of System vs system if unintentional
- Integrate footnote verbiage into Requirement (avoid footnotes if possible)
- Clarify if 24 months clock for system model validation gets reset

## Redline to last posted

- R1. Each Planning Coordinator shall implement a documented Model Validation process for **planning models developed in accordance with Reliability Standard MOD-032<sup>1</sup>, representing ~~for~~** its portion of the existing System, that includes the following attributes: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*
- 1.1. Comparison of the power flow simulation performance of the steady state System model<sup>1</sup> to actual System behavior, represented by state estimator case(s) or other Real-time data sources, at least once every 24 calendar months;
1. **Such planning models will thus include registered IBRs (Inverter-Based Resources) as well as unregistered IBRs or aggregated DERs (Distributed Energy Resources) present in the existing System. ~~System models include unregistered Inverter-Based Resources (IBRs) and aggregate Distributed Energy Resources (DERs) when present. The phrase “unregistered IBR” refers to a Bulk Power System connected IBR that does not meet the criteria that would require the owner to register with NERC for mandatory Reliability Standards compliance purposes.~~**

## Redline to last posted






- R1. Each Planning Coordinator shall implement a documented Model Validation process ... .. that includes the following attributes:
- 1.2. Comparison of the dynamic local event simulation performance of the dynamic System model to actual System behavior, represented by Real-time data sources such as Disturbance data recording(s), at least once every 24 calendar months (using a dynamic local event that occurs within 24 calendar months of the last dynamic local event used in comparison<sup>2</sup>) and completing each comparison within 24 calendar months of the dynamic local event. **If no dynamic local event occurs within this 24 calendar months period, use the next dynamic local event that occurs.**
  - ~~2. If no dynamic local event occurs within this 24 calendar months period, use the next dynamic local event that occurs.~~

## Redline to last posted

### Page 2

The proposed revisions in MOD-033-3 are intended to improve the clarity of the requirements and are not substantive in nature; i.e., they do not change the scope of the requirements, **nor do they reset the 24-month clock in Requirement R1, Parts 1.1 and 1.2.** While MOD-033-3 is not dependent on the proposed revisions to Reliability Standards in the other two Milestone 3 projects, it is dependent on the ~~two~~ proposed Glossary terms **“Model Validation” and “Distributed Energy Resources”.**



- Clarify that System Model to be validated in MOD-033 and System Model assembled as outcome of MOD-032 are fully aligned regarding various IBR models included in each  (in R1)
- Clarify that System Model to be validated in MOD-033 is a “planning” System model – omitting this qualifier causes ambiguity  (in R1)
- Eliminate inconsistent usage of System vs system if unintentional  (in R1)
- Integrate footnote verbiage into Requirement  (in part 1.2)
- Clarify if 24 months clock for system model validation gets reset  (in IP)

*Resulting draft MOD-033-3 continues to have no substantive changes with respect to existing approved MOD-033-2*

- August 8 – Draft 2 comment and ballot period

- NERC Project 2021-01 Project Page ([link](#)).
- NERC Project 2021-01 Standards Authorization Request ([link](#)).
- FERC Order 901 ([link](#)).
- Standards Development Work Plan in Response to FERC Order No. 901 ([link](#)).

A map of North America, including the United States, Canada, and Mexico. A horizontal band of medium blue color stretches across the middle of the map, passing through the United States. The text "Questions and Answers" is centered within this band.

# Questions and Answers