

Summary of M-03A Rev 11 Changes

SOS

June 2016

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Overview of Changes:

- Updated URL for Tariff Facilities List throughout document
- Miscellaneous administrative and formatting updates
- Section 1.2: Submission timelines and detail added for modeling updates specific to Generators.
- Section 3.2: Submit-on-time functionality and process outlined; (old) Exhibit 3 deleted (redundant/confusing); Exhibit 3 (General Schedule for Submitting Modeling Data) enhanced to distinguish between Required and Preferred In Service Date for Project; Exhibit 4 (Network Model Data Submission and Model Validation Timeline) enhanced to display corrected timelines, and new timelines added for 'Preferred In Model Build' and 'PJM Tests New Model'
- Section 3.2.1: New section added for EHV Modeling.
- Section 3.4: Paragraph added to outline non-automated process for submitting fixed tap changes to PJM.

Overview of Changes:

- Section 4.1: Paragraph 5 updated to reflect current practices.
- Section 4.8.1: Sharing of data and one-lines across DMS Members outlined.
- Section 4.9: Reference added for PJM Sub-Transmission Modeling White Paper.
- Section 4.9.3: Instructions added for BES notification of BES exceptions
 - Exhibit 12 and preceding paragraph moved to Section 2.4 (now Exhibit 2).
- Appendix C: New paragraph added to outline BESNet process with supporting web links.
- Appendix E: Acronyms & Descriptions moved from Appendix D to Appendix E to accommodate new Appendix D for BtMG.

Overview of Changes:

- Section 1.2.1: New section outlining Electrical Model Responsibilities for Behind the Meter Generation (BtMG)
- Appendix D: New appendix added for new Behind the Meter Generation (BtMG) Submission Form, outlining procedure for form submission.
 - New Exhibit D1 (blank BtMG submission form)
 - New Exhibit D2 (sample BtMG Submission Form for Distribution)
 - New Exhibit D3 (sample BtMG Submission Form for Transmission)
- Additional clarifications requested by OC

Previous Text:

- Provide generator location and contact information.
 - Provide path that electrically connects facility with a Bulk Electric System (BES >100 kV) substation.
 - This is the closest electrical path, or least impedance path, that is a normally closed-in path with a BES Station facility that is expected to supply this BtMG facility.
 - BtMG facility's generation typically reduce the amount of load that is supplied through the identified path from the BES station.
- Provide telemetry of generating units MW/MVAR output and status of switching devices. See Manual 14D, Appendix A for details.
- Provide real-time operations information to PJM and other TOs
- Provide engineering data updates for generator, transmission and distribution system models to PJM and other TOs as necessary
- Provide equipment model. The information submitted for the BtMG's NERC EIA-860 list should be used as a reference for completing the form found at: <http://pjm.com/committees-and-groups/subcommittees/dms.aspx>. See Appendix D for details for form completion and submission. This NERC EIA-860 submission is at the following website: <http://www.eia.gov/electricity/data/eia860/> (refer to detailed data in zipped files on right side of page, "3_1_Generator" spreadsheet).

Adjusted Text:

- Provide generator location and contact information.
 - **The knowledgeable party should** provide path that electrically connects facility with a Bulk Electric System (BES >100 kV) substation **or at minimum the transmission station for which the path connects.**
 - This is the closest electrical path, or least impedance path, that is a normally closed-in path with a BES Station facility that is expected to supply this BtMG facility.
 - BtMG facility's generation typically reduce the amount of load that is supplied through the identified path from the BES station.
- **Determine the feasible options for** providing telemetry of generating units MW/MVAR output and status of switching devices. See Manual 14D, Appendix A for details.
 - **Manual 14D, Section 4.1.7 identifies guidelines for metering/telemetry installations**
 - **Manual 14D, Section 4.2.3 identifies metering for individual generators**
- **When BtMG is 10 MW or greater (or has been identified as requiring metering for operational security reasons)** provide engineering data updates for generator, transmission and distribution system models to PJM and other TOs as necessary
- Provide equipment model. The information submitted for the BtMG's NERC EIA-860 list should be used as a reference **by the knowledgeable party** for completing the form found at: <http://pjm.com/committees-and-groups/subcommittees/dms.aspx>. See Appendix D for details for form completion and submission. This NERC EIA-860 submission is at the following website: <http://www.eia.gov/electricity/data/eia860/> (refer to detailed data in zipped files on right side of page, "3_1_Generator" spreadsheet).

- Added for more clarification

- Location of the options for providing telemetry.

- ex. The generator owner can negotiate data transmission to and from PJM through the local utility or transmission owner.

- Added for more clarification

Previous Form:

Modeling Information	
Generator Model Update:	
<ul style="list-style-type: none"> ➤ Commercial name: <input type="text"/> ➤ Attach Generator single-line diagram ➤ Generator Information: <ul style="list-style-type: none"> ◆ Unit Type (see below): <input type="text"/> ◆ Fuel Type: <input type="text"/> ◆ Maximum Output PMax (total): <input type="text"/> MW ◆ Number of Units: <input type="text"/> ◆ Operating Voltage: <input type="text"/> (kV) 	
Transmission Model Details:	
<ul style="list-style-type: none"> ➤ Nearest Transmission Substation name: <input type="text"/> ➤ Attach Transmission Substation single-line diagram 	
Telemetry:	
<ul style="list-style-type: none"> ➤ From TO via ICCP <ul style="list-style-type: none"> ◆ Provide status of circuit breakers and switches ◆ Provide MW and MVAR measurements ◆ Provide Voltage 	

Previous Description:

BtM Generator Contact	Direct phone contact to Operations person operating the BtM Generator (which may include contact information outside normal business hours).
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Adjusted Form:

Modeling Information	
Generator Model Update (required section):	
<ul style="list-style-type: none"> ➤ Commercial name: <input type="text"/> ➤ Attach Generator single-line diagram ➤ Generator Information: <ul style="list-style-type: none"> ◆ Unit Type (see below): <input type="text"/> ◆ Fuel Type: <input type="text"/> ◆ Maximum Output PMax (total): <input type="text"/> MW ◆ Number of Units: <input type="text"/> ◆ Operating Voltage: <input type="text"/> (kV) 	
Transmission Model Details (can be supplied by TO in Network Model Request):	
<ul style="list-style-type: none"> ➤ Nearest Transmission Substation name: <input type="text"/> ➤ Attach Transmission Substation single-line diagram 	
Telemetry (see Manual 14D, Appendix A (9) to determine applicability):	
<ul style="list-style-type: none"> ➤ From TO via ICCP <ul style="list-style-type: none"> ◆ Provide status of circuit breakers and switches ◆ Provide MW and MVAR measurements ◆ Provide Voltage 	

Adjusted Description:

BtM Generator Contact	Direct phone contact to the BtM staff person that can take control and operate all aspects of Operations person operating the BtM Generator (which may include contact information outside normal business hours).
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Appendix

Section 1.2:

- Outlines GSU details needed specifically for units 20MW+ connected to BES in consistent with Manuals 1, 3, 14b, 14d
- Added information on where to view build schedule and exhibit on submission timelines

Section 1.2.1:

- New section detailing model update requirements to link telemetry as required in Manual 14d Appendix A Item 9 for BtMG 10MW+
 - Adding reference to this section in Manual 14d Appendix A Item 9

Section 3.2:

- Removed Exhibit 3: Timeline for PJM Actions in Coordinating Model Update - Sample Summer Process since info already covered in Exhibit 4: Network Model Data Submission & Model Validation Timeline
 - Repointed all references to removed exhibit to Network Model Data Submission & Model Validation Timeline exhibit
- Added task for model update testing period to Network Model Data Submission & Model Validation Timeline exhibit
- Adjusted effective model update area with colors to better explain period being modeled and time period to date of model build forward

Timeline for Model Update — Sample

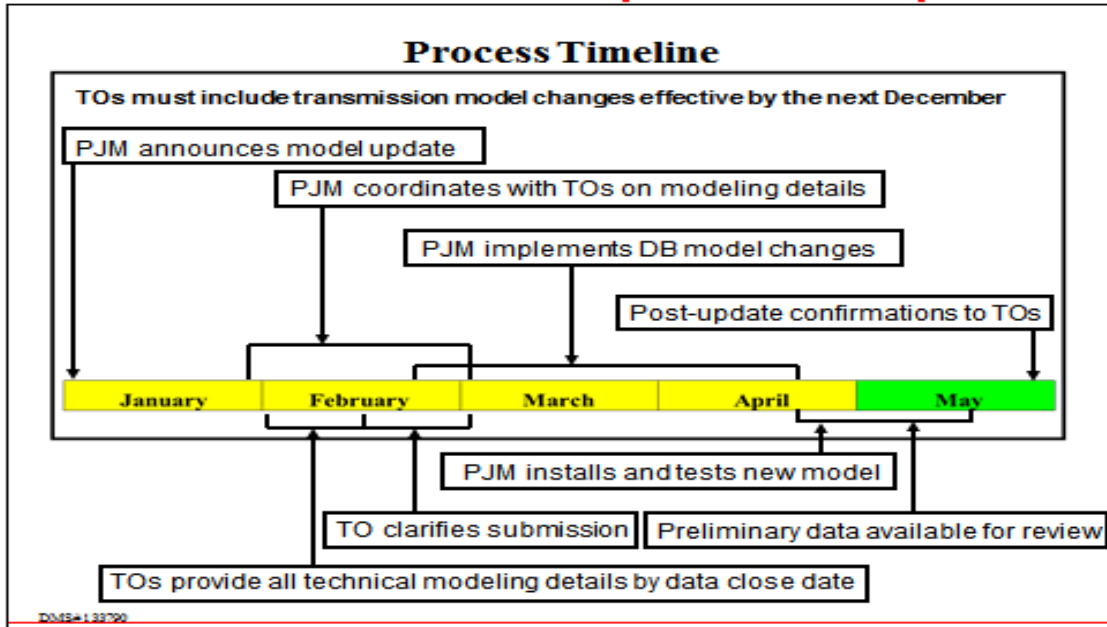


Exhibit 3: Timeline for PJM Actions in Coordinating Model Update — Sample Summer Process

FORMAL BUILD MILESTONES (Winter)

Month	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
TOs Submit Data																															
PJM Packages Submitted Data																															
Cut-Ins, Outage Request, Telemetry, Ratings																															
PJM Tests New Model																															
Model Build Implementation																															
TOs Check Changes																															

INTERIM BUILD MILESTONES (Spring)

Month	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
TOs Submit Data																															
PJM Packages Submitted Data																															
Cut-Ins, Outage Request, Telemetry, Ratings																															
PJM Tests New Model																															
Model Build Implementation																															
TOs Check Changes																															

FORMAL BUILD MILESTONES (Summer)

Month	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
TOs Submit Data																															
PJM Packages Submitted Data																															
Cut-Ins, Outage Request, Telemetry, Ratings																															
PJM Tests New Model																															
Model Build Implementation																															
TOs Check Changes																															

INTERIM BUILD MILESTONES (Fall)

Month	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
TOs Submit Data																															
PJM Packages Submitted Data																															
Cut-Ins, Outage Request, Telemetry, Ratings																															
PJM Tests New Model																															
Model Build Implementation																															
TOs Check Changes																															

Color Key

	Required in model build
	Preferred in model build
	Desired/discretionary in model build
	Testing Period
	Changes Implemented

Exhibit 43: Network Model Data Submission & Model Validation Timeline

Section 3.2:

- Updated renumbered Exhibit 3: General Schedule for Submitting Modeling Data by replacing Target In-Service Date for Project with Required & Preferred In-Service Date for Project columns to better align with updated Exhibit 4: Network Model Data Submission & Model Validation Timeline

<u>Quarterly Build Name</u>	<u>Build Type</u>	<u>Information Submission Close Date Timeframe</u>	<u>EMS Model Update Date</u>	<u>Required In-Service Date for Project</u>	<u>Preferred In-Service Date for Project</u>
<u>Spring</u>	<u>Interim¹</u>	<u>Late November</u>	<u>March</u>	<u>April - Sept.</u>	<u>October + 11 months</u>
<u>Summer</u>	<u>Formal</u>	<u>Early February</u>	<u>May</u>	<u>June - Nov.</u>	<u>December + 11 months</u>
<u>Fall</u>	<u>Interim</u>	<u>Early June</u>	<u>September</u>	<u>Oct. - March</u>	<u>April + 11 months. -</u>
<u>Winter</u>	<u>Formal</u>	<u>Early September</u>	<u>December</u>	<u>Jan. - June</u>	<u>July + 11 months</u>

- Two new paragraphs added that detail Submit-on-time functionality now available through Network Model application.

Section 3.2.1:

- New section added to state that EHV equipment update info should be communicated to PJM a year in advance of energization

Section 3.4:

- Specific direction added on how to submit updates on load tap parameters and nominal voltage information for transformers

Section 4.1:

- Additional clarifying text on using the data posted on the secure DMS SharePoint site to review model updates

Section 4.8.1:

- Added example of types of files stored on the DMS SharePoint site

Section 4.9:

- Added reference to Sub-Transmission whitepaper

Section 4.9.3:

- Added reference to PJM Compliance Bulletin 14 and utilization of NERC BESnet tool to request changes to transmission facility BES status
- Transmission Facilities page on PJM.com exhibit moved to section 2.4

Appendix C:

- PJM Compliance Bulletin 14 referenced
- Required use of BESNet tool identified

Appendix D:

- *Note: Detailed review of processes and procedures referenced in this appendix provided as part of a separate DMS agenda item*
- Detailed explanation of field requirements in the new PJM Behind the Meter Generation Submission Form
- Example of form submission where unit tied to transmission facilities
- Example of form submission where unit tied to distribution facilities

Appendix E:

- Acronyms & Descriptions moved from Appendix D to Appendix E to accommodate new Appendix D for BtMG