4.1 Overview of EMS Model Change Control and Feedback

PJM shares the concern of all TOs that it is important to provide the best models, and therefore the best analysis, to operators for reliability and commercial evaluations of the system. To this end, PJM has been progressively improving the information available to Transmission Owners participating in the EMS model update process. The type of feedback required is two-fold. First, and foremost, participants in the model building process need to receive confirmation, and validate, that the changes they’ve submitted have been correctly incorporated into the PJM EMS models. Second, participants in the process want information about changes submitted by others so they can then appropriately modify internal real-time models. Due to confidentiality restrictions, PJM is not in a position to freely share all information available. Consequently, the distribution of information about the changes made to PJM models may be restricted.

In response to requests to improve feedback to participants in the data gathering process, PJM initially began providing summaries of model changes placed in the production PJM EMS models. Since, as noted earlier in this document, System Operation Subcommittee – Transmission members (SOS-T) are designated as the ‘owners’ responsible for transmission models of their system, model change data is channeled through representatives of that group, as well as, to members of the Data Management Subcommittee and designated EMS modeling contacts assigned by SOS-T representatives.

The data made available is summarized in the spreadsheet format shown in Exhibit 6 Sample Model Update Build Summary below. Detailed model change information is also summarized and provided on a substation and equipment level, along with a snapshot view of the EMS one-lines in use at PJM at the time of the most recent model build.

<table>
<thead>
<tr>
<th>ID</th>
<th>Co.</th>
<th>Series</th>
<th>In-svc.</th>
<th>Model Updated</th>
<th>Short Description</th>
<th>Long Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>CO1</td>
<td>YYW</td>
<td>MM/DD/YY</td>
<td>MM/DD/YY</td>
<td>Revise Grandview</td>
<td>At Grandview, install new bkr. xfer 138 kV supply to new position</td>
</tr>
</tbody>
</table>

Exhibit 6: Sample Model Update Build Summary

Detailed model change information is also summarized and provided on a substation and equipment level, along with a snapshot view of the EMS one-lines in use at PJM at the time of the most recent model build. Preliminary detailed reports will be made available to TOs providing model update inputs as soon as practical after installing the new model on the Test system. However, users are cautioned that the data is subject to change as described in section 5.1.2.3 Validation & Benchmarking New EMS Models.

In addition, Transmission Owners have multiple views of the EMS data base available to them, including eDART connectivity information and power flows provided to Transmission Owners to support day-ahead planning. Power flows used to support the FTR Market are also available (note that Market models are based on the PJM EMS model). Through the power flows, Transmission Owners have access to engineering data such as impedances, load buses, etc. (Note: Impedance data is also available to Transmission Owners via eDART/TERM application forms. In addition, the eDART Network Model application allows users to access copies of PJM’s EMS one-line diagrams (in Adobe SVG format). PJM constructs EMS one-lines to reflect both existing and future conditions. Participants meeting established EMS model update schedules are able to view planned changes in advance since new projects and system changes are included in the PJM models approximately six (6) months before going into service. However, the new equipment will remain switched out
of service until going live. To assist users, PJM issues a change summary sheet upon completion of each new EMS build. PJM will make details of the changes available to SOS-T, DMS and designated Transmission Owner users upon request. (PJM reserves the right to reject the request.) It is the responsibility of participants in the model building process to review the change summary sheets, one-line diagrams, and other information.

Exhibit 5: Sample Model Update Build Summary

SOS-T members or their representatives are charged to validate that PJM represents their systems accurately and to provide corrections as required. Several additional mechanisms have been made available as support for this process has evolved to supplement eDART connectivity information available through tiers.

PJM reserves the right to initiate selective model audits, with the support of SOS-T, in the future.

PJM has provided information for TOs to review and validate their models. It is expected that SOS-T members will use the data available to them to develop processes internal to their organizations to verify that the PJM models correctly represent the connectivity and engineering data provided by them to PJM. This data is now available through a variety of mechanisms. A discussion of more advanced mechanisms to intended for use by Transmission Owners to validate engineering data and substation nodal connectivity follows. TOs are expected to review the available information and provide feedback regarding problem areas within two weeks of receiving the update information from each model build.

Users are responsible for providing data according to the established schedules and for reviewing information and providing corrections as required.

Regularly scheduled meetings of the Data Management Subcommittee, hosted by PJM, are also an opportunity for TOs to obtain feedback about projects in adjacent utilities. These meetings are held in February, May and November each year.

Specific information is also made available upon user request. In addition, users can email data recorded in the eDART Network Model application to each other.