

Attachment B: Load Forecast Adjustment Guidelines

The intention of these guidelines is to ensure that any adjustments made to PJM's load forecast model are properly identified, estimated, and reviewed prior to incorporation into the forecast.

Issue Identification

- PJM annually solicits information from its member Electric Distribution Companies (EDC) for large load shifts (either positive or negative) which are known to the EDC but may be unknown to PJM. PJM will send the request in mid-July with responses expected in time for any proposed adjustments to be reviewed with the Load Analysis Subcommittee in ~~October/November~~September/October. Industry groups and/or large end-use customers who anticipate large load adjustments should engage with their EDC and be transparent with as much information (historical and forecast) as possible.
- Requested load adjustments deemed appropriate by PJM will be used in the forecast that drives both market and reliability RTEP studies.
- ~~Any other load changes which are brought to PJM's attention.~~

Issue Verification – verify that identified issue is real and significant, using the following methods:

- Determine if the load change has been publically acknowledged through the media, press release, regulatory process, etc.
- Verify that requesting EDC has adjusted its own financial/planning forecast. When appropriate, the requesting EDC should provide PJM with the certainty backed by a Letter of Agreement and/or Electric Service Agreement (LOA/ESA).
- Ascertain ~~that whether~~ the load shift is related to a single site or a limited number of related sites (not a systemic cause)
- Identify if load would be captured in the load forecast model to identify potential double counting. These steps may include: Discuss with economic forecast vendor(s) whether or not the load shift is reflected in its/their economic forecast(s). Also, determine if the requested load adjustment's load impact is consistent with its economic impact. Additionally, determine if the requested load adjustment is tied to any of the metro areas that PJM uses to define the economic variable of a zone.
- Verify that any behind-the-meter generation adjustment has complied with PJM's behind-the-meter process
- Determine adjustment's significance, either by sheer magnitude or percentage of a zone's load.
- For PJM's review, provide any available independent analysis of the impact and magnitude of the load change.

Adjustment Estimation - for each identified and verified issue, PJM will estimate its impact on peak load using the following methods (which may be combined):

- Acquire load history for the load that has/will change and produce analysis to isolate the impact. Load history should be provided on an hourly granularity. In the event that no load history exists, the EDC should provide PJM with expected hourly behavior of load.
- Acquire an extended forecast of the adjustment from the EDC out 15 years.
- ~~Acquire any contracted amounts of load changes~~

- For any after-the-fact adjustments, review the zone's forecast model's residual pattern
Review any available independent analysis of the impact of the load change.

Adjustment Review – each proposed load forecast adjustment will be reviewed with the Load Analysis Subcommittee prior to inclusion in the load forecast. Each requesting EDC will be expected to present on their adjustment request including backup documentation at a September/October LAS meeting. The final decision on any load adjustment is made by PJM, and will be reflected in the Load Forecast.

Any adjustment that is reflected in the Load Forecast will be summarized by the requesting EDC in a public document describing the method and forecasting approach followed. This public document will be posted by PJM with the load report materials.

Example 1: Single large load change (positive or negative)

Issue Identification – EDC notifies PJM that a large industrial load is to increase/decrease load

Issue Verification – PJM reviews request and may specifically verify:

- The industrial load change is widely reported in local media. A proof of requested load change validity is provided when a single load change is commercially sensitive;
- The EDC has adjusted its own financial and planning forecasts to reflect the load change at the plant;
- The affected load is confined to one site/customer account.
- PJM consults with economic forecast supplier to determine if the load change is reflected in their economic forecast.

Adjustment Estimation – PJM requests historical hourly load data and/or hourly forecast load data for the end-use customer. If the large load is being removed, PJM may remove hourly loads from history. If the large load is being added, adjustments to the hourly forecasted loads will be made. The final load adjustment will be included in the load forecast after review with LAS.

Example 2: Industry level load change

Issue Identification – EDC notifies PJM that it plans to integrate a large amount of load associated with one industry during the forecast horizon.

Issue Verification – PJM meets with the EDC and through follow-up conference calls, e-mail exchanges and PJM independent investigation it is determined that:

- The load in question is confined to a cluster of sites in one small area of the zone.
- The EDC has adjusted its own financial and planning forecasts to reflect the change in load;
- The new load sites are not fully reflected in the economic variables included in the model.
- Updated expected near term growth (accounting for requested load changes) supported by contracts in place with the EDC, construction companies, and suppliers.

Adjustment Estimation – PJM requests historical hourly load data and/or hourly forecast load data for specific industry. PJM investigates its model inputs and makes modifications to history to reflect load impacts in order to avoid double counting. The adjusted the forecast of accelerated load growth (or reduction) is layered on to reflect the expansion.

Example 1: Loss of a Single Industrial Load

Issue Identification – in response to PJM's annual solicitation for information regarding large

load shifts, a member EDC notified PJM that it was losing a large industrial load, which was a plant scheduled to shut down in a few months (and prior to the release of the next load forecast)

Issue Verification—PJM reviewed the EDC's request and through conference calls, e-mail exchanges, an EDC provided case statement, and PJM independent investigation it was determined that:

- The plant closing was widely reported in local media as well as by a press release from the end-use customer;
- The EDC had adjusted its own financial and planning forecasts to reflect a closure at the plant;
- The affected load was confined to one site/customer account.
- The customer's peak load was approximately 500 MW.

Additionally, PJM consulted with its economic forecast supplier and determined that the forecasts of metropolitan areas within the affected zone were not adjusted to reflect the plant closure. Based on these findings, PJM concluded that the load shift was factual and material.

Adjustment Estimation—PJM requested and received historical load data for the end-use customer. An attempt was made to separately model the zone's peak load without the customer's load in order to draw a comparison to the forecast of the zone's full load. While the model produced a reasonable result for the first forecast year (-370 MW), the difference quickly shrank and eventually became negative. As an alternative, the average daily peak over the model's estimation was computed. This value (-369 MW) was essentially equal to the difference between the two models in the first forecast years. PJM notified the EDC and members that the zone's load forecast would be lowered by 370 MW.

Example 2: Accelerating Load

Issue Identification—a member EDC proactively notified PJM that it was in the early stages of preparing to integrate a large amount of accelerating load associated with one industry through 2023 and requested a face-to-face meeting to discuss the issue.

Issue Verification—PJM met with the EDC and through follow-up conference calls, e-mail exchanges and PJM independent investigation it was determined that:

- The load in question was associated with greenfield construction and was confined to a cluster of sites in one small area of the zone.
- The EDC had adjusted its own financial and planning forecasts to reflect the increased load;
- The new load sites have the characteristic of an extremely low number of employees per site, and therefore have a peak load impact out of proportion to their economic impact.
- Expected growth in the next three years was already underway and contracts with the EDC, construction companies, and suppliers were in place.

PJM consulted with its economic forecast supplier to verify the claim that the new load would involve very little employment increases or other economic impact and that the forecasts of metropolitan areas within the affected zone were not adjusted to reflect the activity associated

with expected construction and on-going business. Based on these findings, PJM concluded that the matter merited further review.

Adjustment Estimation— PJM requested and received both historical and forecast data related to an expected load expansion related to a specific industry. PJM investigated its model inputs and made modifications to reflect the expansion into the assumptions for the appropriate sector (i.e. Commercial or Industrial). These model inputs were then used in the base load forecast.

