

Load Forecast Adjustment Guidelines

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.

Dominion requested a forecast adjustment to account for the growth of data centers in Northern Virginia. This has been in place in some form since the 2014 Load Forecast Report.

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

Ascertain that the load shift is related to a single site or a limited number of related sites (not a systemic cause)

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.

The load shift is all related to increased numbers of data centers. Due to the negligible economic impact of data centers as compared to their load impact, the data center growth is not adequately reflected in the Virginia economic variables. PJM determined that the adjustments are significant both in sheer size and as a percentage of a Dominion's load.

Adjustment Estimation- for each identified and verified issue, 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 (e.g., forecast runs with and without the load involved, trend analysis)

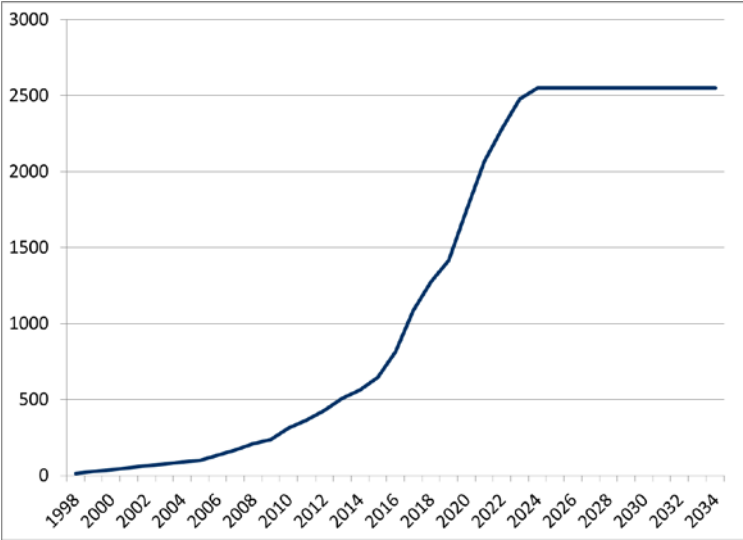
Acquire any contracted amounts of load changes

For any after-the-fact adjustments, review the zone's forecast model's residual pattern

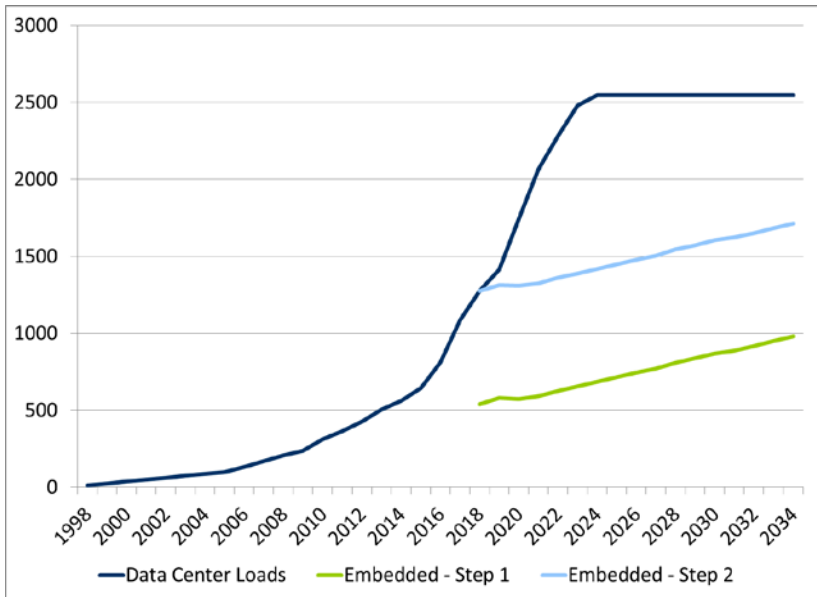
Review any available independent analysis of the impact of the load change.

Dominion provided customer-specific history of data center load for those sites already in service and forecasted amounts for any existing sites still ramping up their load, as well as any sites that are not currently in service but are committed and being actively planned for by

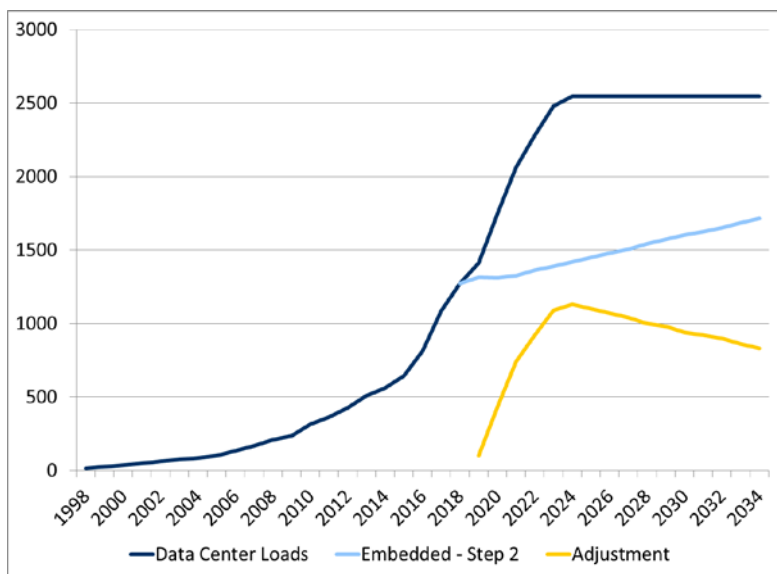
Dominion in its distribution planning out to 2024. These loads have reached nearly 1,300 MW as of 2018 and are forecast to amount to over 2,500 MW by 2024. Projections are not available after 2024, so the assumption was made to keep data center load flat in the out year. History and projection of data center loads are in the chart below.



To formulate an appropriate forecast adjustment, PJM first had to determine the amount already embedded in the forecast. To arrive at this amount, a forecast was run with data center loads removed from the historical period and this was compared with a forecast with the data center loads still in. The difference between these two forecasts provides the first take on an embedded amount (see green line in graph below). PJM then examined residual patterns in its forecast model for 2018 and did not observe appreciable difference to justify not recognizing data center load existing in 2018 and earlier as already embedded. Due to this, data center load existing in 2018 and earlier is considered already fully embedded. Future embedded amounts thus use existing data center loads as the starting point (see light blue line in graph below).



The forecast adjustment is then determined as the difference of the forecasted amount and the embedded amount. The forecast adjustment grows to 1,130 MW in 2024 before gradually tapering through the forecast horizon.



Adjustment Review – Each proposed load forecast adjustment will be reviewed with the Load Analysis Subcommittee prior to inclusion in the load forecast. The final decision on any load adjustment is made by PJM.

Because of the type of the load and the expected acceleration, PJM has determined it necessary to make a discrete forecast adjustment to the DOM transmission zone load to account for this trend.

Year	2019	2020	2021	2022	2023	2024	2025	2026
Data Center Load (MW)	1413	1744	2064	2280	2478	2548	2548	2548
less Embedded (MW)	1314	1308	1324	1359	1388	1422	1455	1487
Peak Adjustment (MW)	100	440	740	920	1090	1130	1090	1060
Year	2027	2028	2029	2030	2031	2032	2033	2034
Data Center Load (MW)	2548	2548	2548	2548	2548	2548	2548	2548
less Embedded (MW)	1520	1560	1601	1628	1653	1686	1720	1754
Peak Adjustment (MW)	1030	990	950	920	890	860	830	790
<i>*Peak Adjustment is rounded to the nearest 10 MWs</i>								