

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.

FirstEnergy requested that PJM consider adding load to the APS, ATSI, PENELEC, and METED zonal forecasts to recognize the growth in natural gas processing plants in those areas. This was an update to a forecast adjustment that has been in place in some form beginning with 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.

FirstEnergy stated that their internal forecasts have been increased to reflect the load adjustment they are requesting, and supplied a list of projects including primarily compressor stations and processing plants related to increasing fracking-related services. PJM considered only future projects outside of the metropolitan areas used to define the economic footprint of the APS territory (indeed, most projects are in unincorporated counties). As a result, this activity is not captured in the economic forecast used for APS. PJM determined that the loads are significantly large to warrant investigation.

Loads related to ATSI, PENELEC and METED zones are not considered significant enough to warrant any load forecast adjustments, with the majority of the fracking industry load having already come online.

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

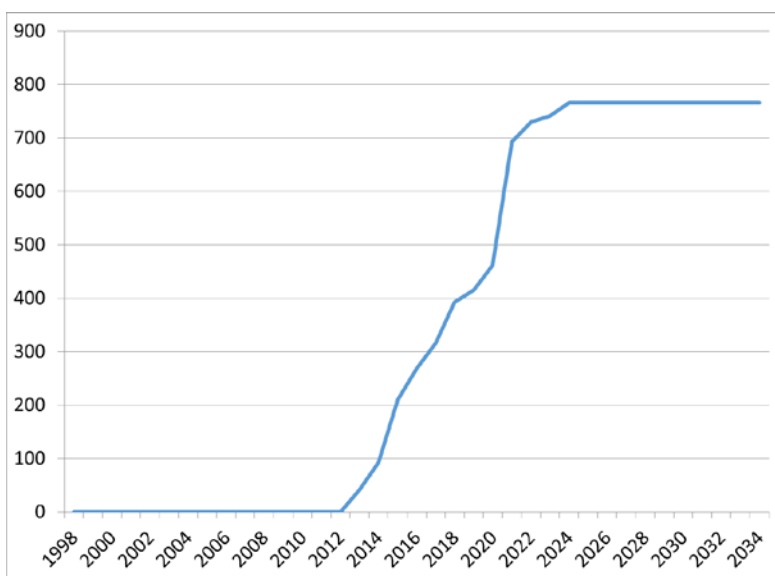
Acquire load history for the load that has/will change and produce analysis to isolate the impact (e.g., forecast runs with and without the load involved, trend analysis)

Acquire any contracted amounts of load changes

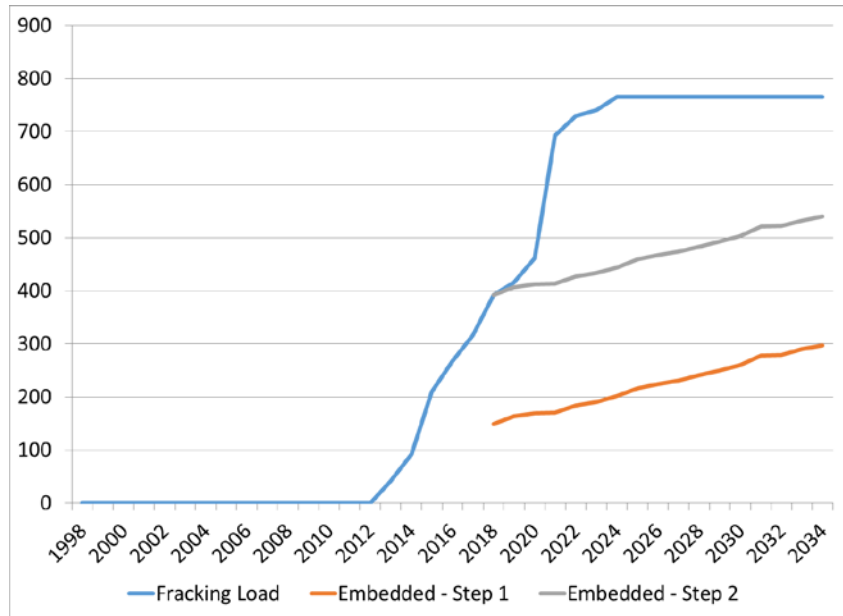
For any after-the-fact adjustments, review the zone's forecast model's residual pattern

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

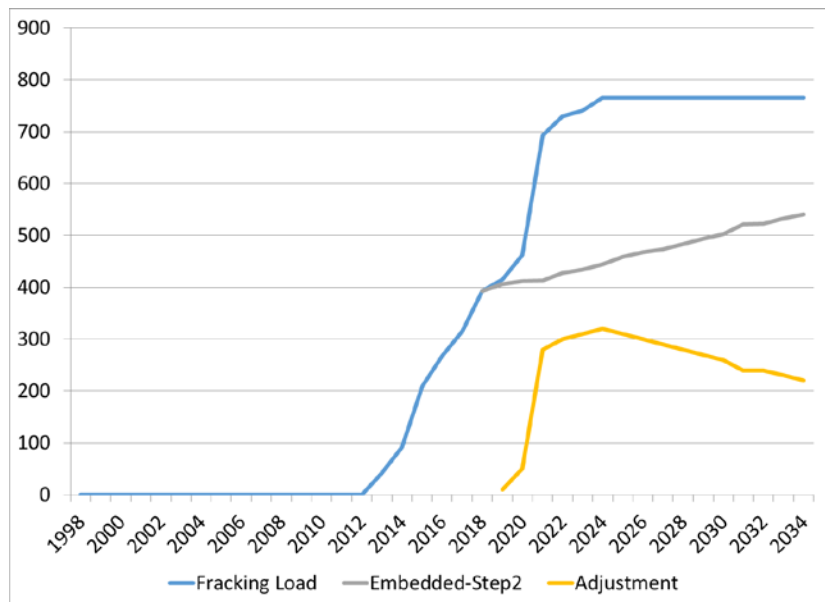
First Energy provided historical and future fracking related loads out to 2024. These loads are approximately 400MW and expected to reach nearly 800MW by 2024 (see chart below). Projections are not available after 2024, so the assumption was made to keep load flat thereafter.



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 fracking loads removed from the historical period and this was compared with a forecast with the fracking loads still in. The difference between these two forecasts provides the first take on an embedded amount (see orange 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 fracking load existing in 2018 and earlier as already embedded. Due to this, fracking load existing in 2018 and earlier is considered already fully embedded. Future embedded amounts thus use existing fracking loads as the starting point (see gray 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 320 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 APS transmission zone load to account for this trend.

Year	2019	2020	2021	2022	2023	2024	2025	2026
Peak Adjustment (MW)	10	50	280	300	310	320	310	300
Year	2027	2028	2029	2030	2031	2032	2033	2034
Peak Adjustment (MW)	290	280	270	260	240	240	230	220