5.0 Load forecast

5.1   LOAD FORECAST METHODOLOGY

The 2017 LTO's load forecast methodology is a blend of top-down economic-based Alberta Internal Load (AIL) peak forecasts combined with bottom-up hourly Point-of-Delivery (POD)-level load shapes. This process allows the AESO to have a POD-by-POD forecast, required as an input into transmission planning, which is aligned with an economic-driven AIL-level forecast.

The top-down approach utilizes a forecast of AIL which is based upon a similar framework to the AESO's mid-term load forecast used in the AESO's *24 Month Supply and Demand Forecast*. A decision to rely on this forecast model was made following a review of the AESO's 2016 LTO Reference Case load forecast and the near-term load growth of that scenario (See 2016 LTO, Section 4).

This load forecast model was extended out to 2037 for the purposes of the 2017 LTO. The 2017 LTO load forecast model is an hourly AIL load model that accounts for economic variables (Alberta Real Gross Domestic Product (GDP), population, and labour) aligned with the aforementioned economic outlook as well as temperature and calendar variables including time of day, holidays, weekdays, and months. The AIL winter peaks are extracted from this forecast and are adjusted for energy-efficiency assumptions. These efficiency-adjusted winter peaks are used as a target to calibrate the bottom-up POD-by-POD forecast.

To generate POD-level area and regional load forecasts, a bottom-up approach is used. Every POD in the province receives a generic hourly load shape based on historical load values. These shapes are then grown based on economic and regional information, distribution facility owner information at time of forecast development, and historical growth rates. The summation of the hourly load across every POD is then reconciled to the energy efficiency-adjusted AIL winter peak forecast described above. From there, load forecast values across the province are assessed for reasonableness and alignment with recent known information.

This load forecast methodology was used to derive the 2017 LTO. However, the AESO is reviewing its load forecast methodology and tools as part of the capacity market implementation and as part of the AESO's goal of continual process improvement. Through that review, the AESO may adjust its load forecast for the purpose of ongoing NIDs as more information becomes available, and adjust its methodology process for future LTOs.

5.2   LOAD FORECASTS

The 2017 LTO contains two load forecast scenarios.

The Reference Case load growth reflects the current economic outlook. The Low Load-growth Scenario tests the impacts of lower load growth corresponding to significantly reduced oilsands and economic growth in Alberta. A high-growth scenario was not explored as prior AESO LTO forecasts have significantly higher load than the 2017 LTO Reference Case and these can be used to understand the impacts of higher load growth.