Load Forecasting Weather Normal Methodology, Assumptions, and Calculation Process

Multiple weather stations are used for to calculate DEP system-level temperatures (see table in calculation process below). Daily average temperatures from each weather station are retrieved from National Oceanic and Atmospheric Association (NOAA). The daily average temperatures are then calculated per the weighting of each station to determine the "system level" daily average temperatures (see example below). Forecasted weather is based on a 30 year weather normal. The 30 weather normal calculation is based on averaging 30 years of daily average temperatures at the system levels for DEC and DEP. For example, in the 2020 IRP, weather data was used from years 1990-2019.

The Company's process for Calculation of Normal Weather (30 Year Weather Normal) is below. Weather normal and peak normal calculations are performed in ITRON Software using ITRONs Algorithms (summary of ITRON steps below)

Weather Normal Calculation Process:

1. Stations and weightings for the DEP area as follows:

Jurisdiction	Weight	Station Code	Station Name
DEP	0.1000	ILM	Asheville Regional Airport
DEP	0.0900	RDU	Columbia Metropolitan Airport
DEP	0.1800	MCO	Fayetteville Regional Airport
DEP	0.2700	TLH	Wilmington Intl Airport
DEP	0.3600	PIE	Raleigh-Durham International Airport

2. Update historical daily average temperatures for DEC/DEP
3. Determine and set 30 year period for the new weather normal (the 2020 Carolinas IRPs used years 1990-2019)
4. Calculate daily Heating and Cooling degree days (using 59 degrees for heating base and 65 degree for cooling base), based on daily average temperatures
5. Calculate daily normal weather - rank, sort and average daily Heating and Cooling degree days - (using algorithms in ITRON Software)
5. Sum up the daily normal Heating and Cooling degree days to monthly and annual totals for forecasting purposes

Peak Normal Calculation Process:

Steps 1-3 above are the same as the weather normal process above.
4. Set the 30 year period for the new monthly peak normal (the 2020 Carolinas IRPs used years 1990-2019)
5. Calculate daily normal weather - rank, sort and average the maximum daily Heating and Cooling degree days - (using algorithms in ITRON Software)
6. Gather and report the average maximum daily Heating and Cooling degree day for each month in the forecast period