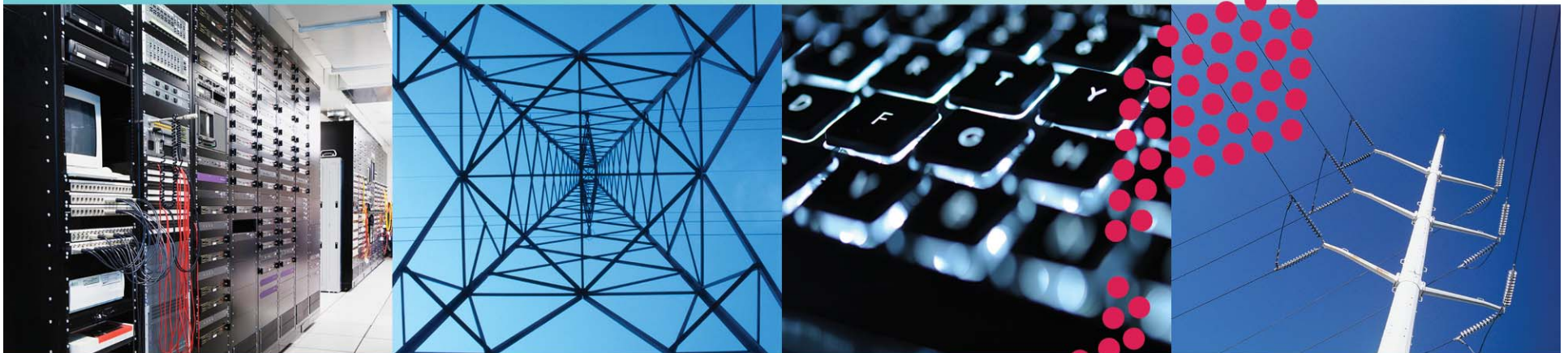


Normal Weather Inputs

Long-Term Hourly Forecast



A  Sempra Energy utility[®]



August 2, 2018 Demand Analysis
Working Group (DAWG) Meeting

Ken Schiermeyer

Objective

- Create Normal Weather that still exhibits typical weather patterns
 - Including heat build-up
 - Monthly highs/Monthly lows
- Used as a weather input into the hourly forecast
 - Hourly Model₁ to Hourly Model₂₄
 - Hourly model considers weather, calendar binary and other concepts that impact hourly load shapes
 - Hourly forecasts are calibrated to annual energy and annual system peak.

30-Year Average Temperature



1. Calculate average daily temperature over 30 year history.
2. Daily average temperatures are ranked high to low for each month in the 30-year history.
3. Daily temperatures are averaged by rank across the 30 years.
4. This process is repeated for each month.
5. We will use these monthly averages to create a shape for each month using base year 2009.

Example: January

Rank	Jan-87	Jan-88	Jan-89	Jan-17	Average
1	64	63	64		66	65
2						
3						
⋮						
29						
30						
31	43	49	45		51	49

* Temperatures are ranked high to low

Creating Monthly Shapes

Example: January cont'd

Rank	30 Year Average Jan	Ranked Jan 2009	Day of Month			
1	65	67	1/19/2009			
2	↓	↓	↓			
3						
⋮						
⋮						
29						
30						
31				49	49	1/5/2009

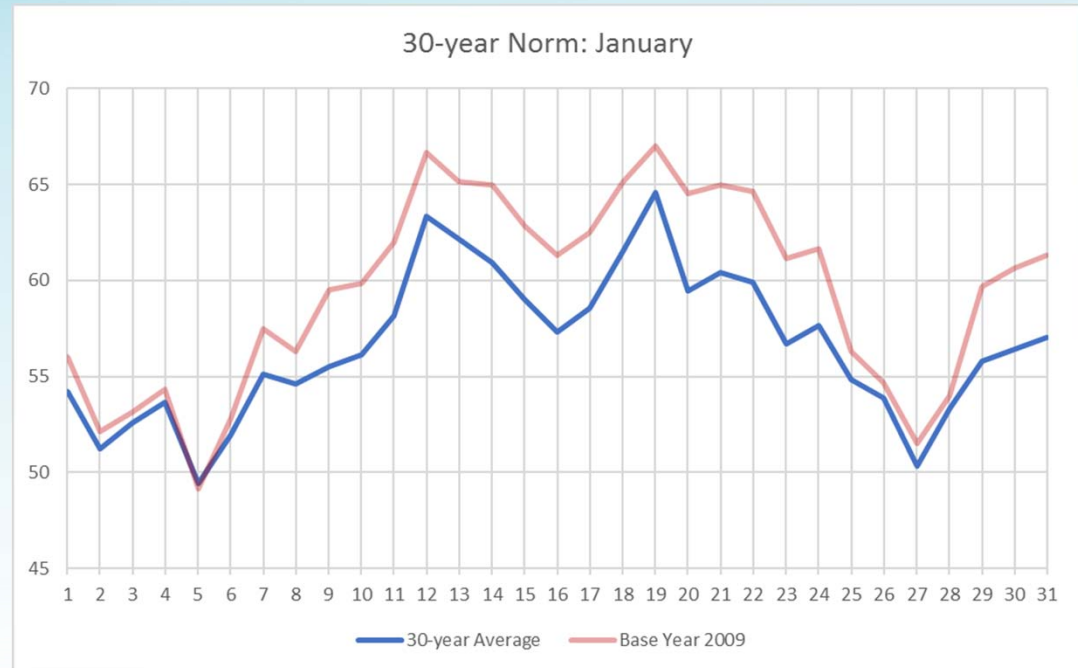
Daily average temperatures for each month in base year are ranked high to low.

30-year average temperatures are assigned to the day of the month from base year ranking.

Rank	30 Year Average Jan	Day of Month		
1	65	→ Jan 19		
2	↓	↓		
3				
⋮				
⋮				
29				
30				
31			49	→ Jan 5

Final Normalized Weather Pattern

Rank	30 Year Average Jan	Day of Month
1	65	Jan 19
2		
3		
⋮		
29		
30		
31	49	Jan 5



- Normalized weather is used in forecasting models to calculate weather-normalized hourly consumption.

Normal Weather for August (Summer Month)

