



Pasadena Water and Power

Load Analysis for Rate Makers

APPA Conference
Pricing and Market Analysis
September 17, 2018





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ROLES AND RESPONSIBILITIES



Load 101

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Step 1

- Understand the limitations

Step 2

- Collect Historical Information

Step 3

- Research Upcoming Planned Projects

Step 4

- Understand Current and Future Regulatory Mandates



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UNDERSTANDING YOUR LOAD



Load 101

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Step 1

- Understand the limitations

Step 2

- Collect Historical Information

Step 3

- Research Upcoming Planned Projects

Step 4

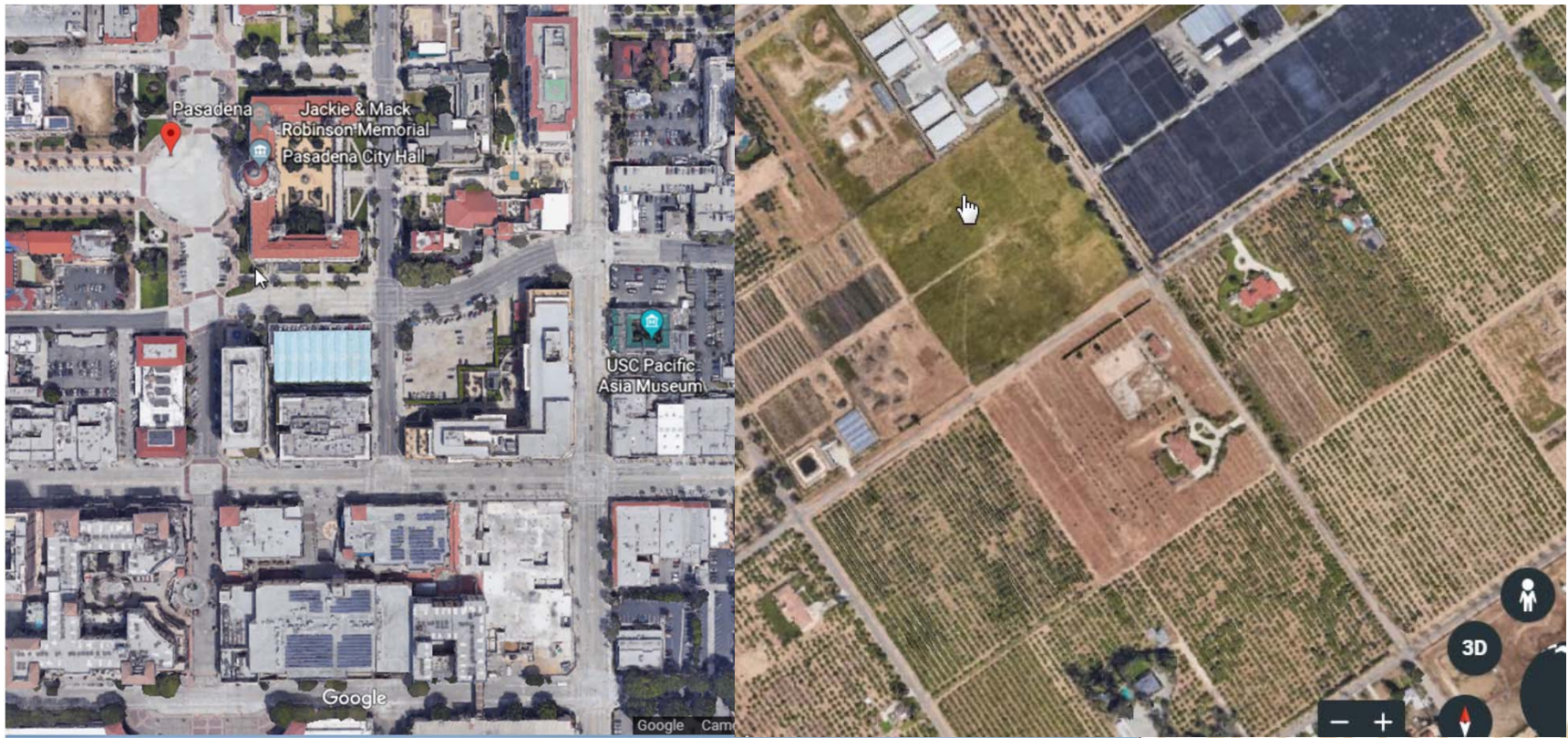
- Understand Current and Future Regulatory Mandates



Understand the Limitations

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- Lack of Space
 - > Cities that are built out vs. those aren't

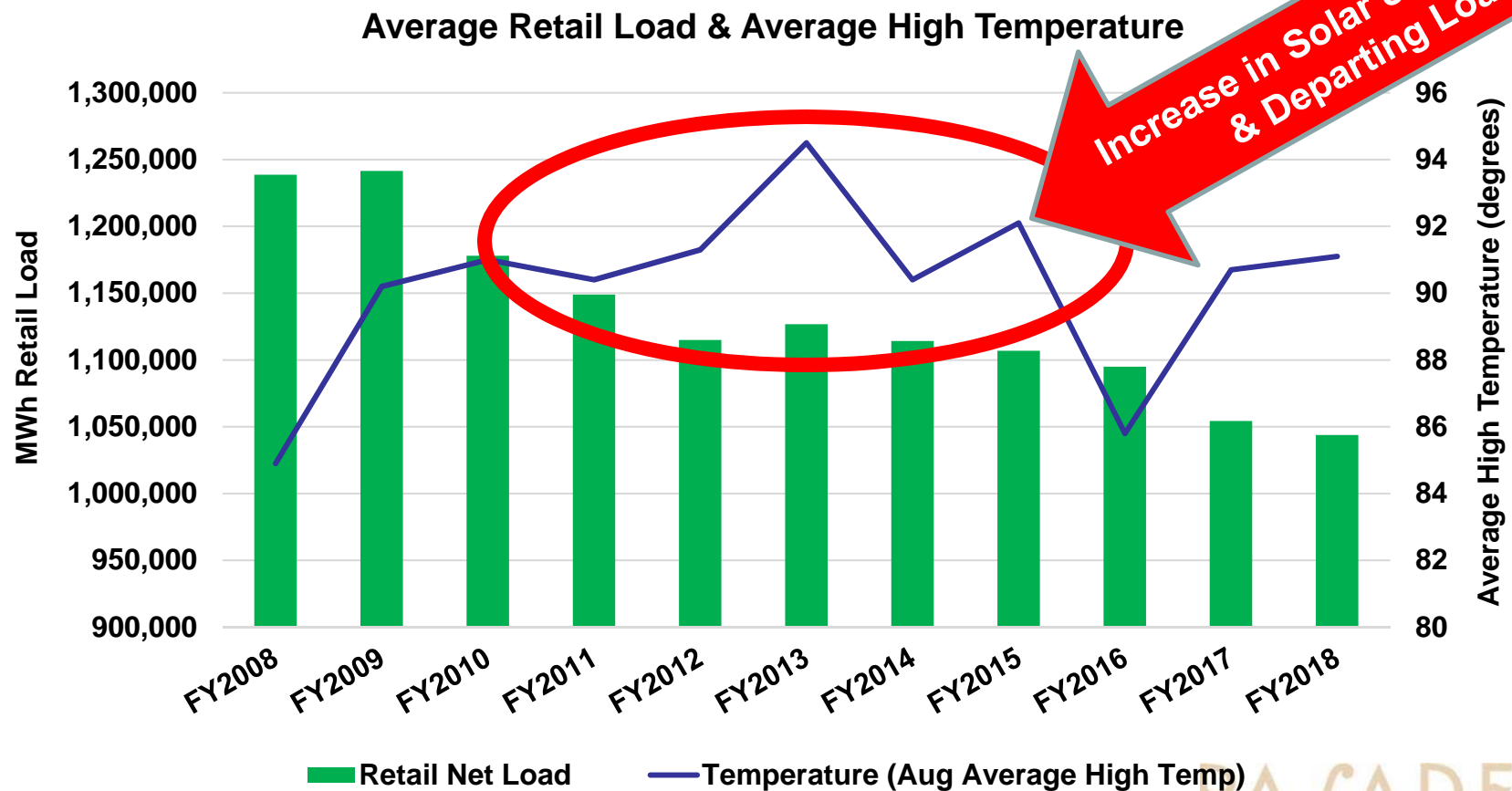




Historical Information & Data

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- Trends with load



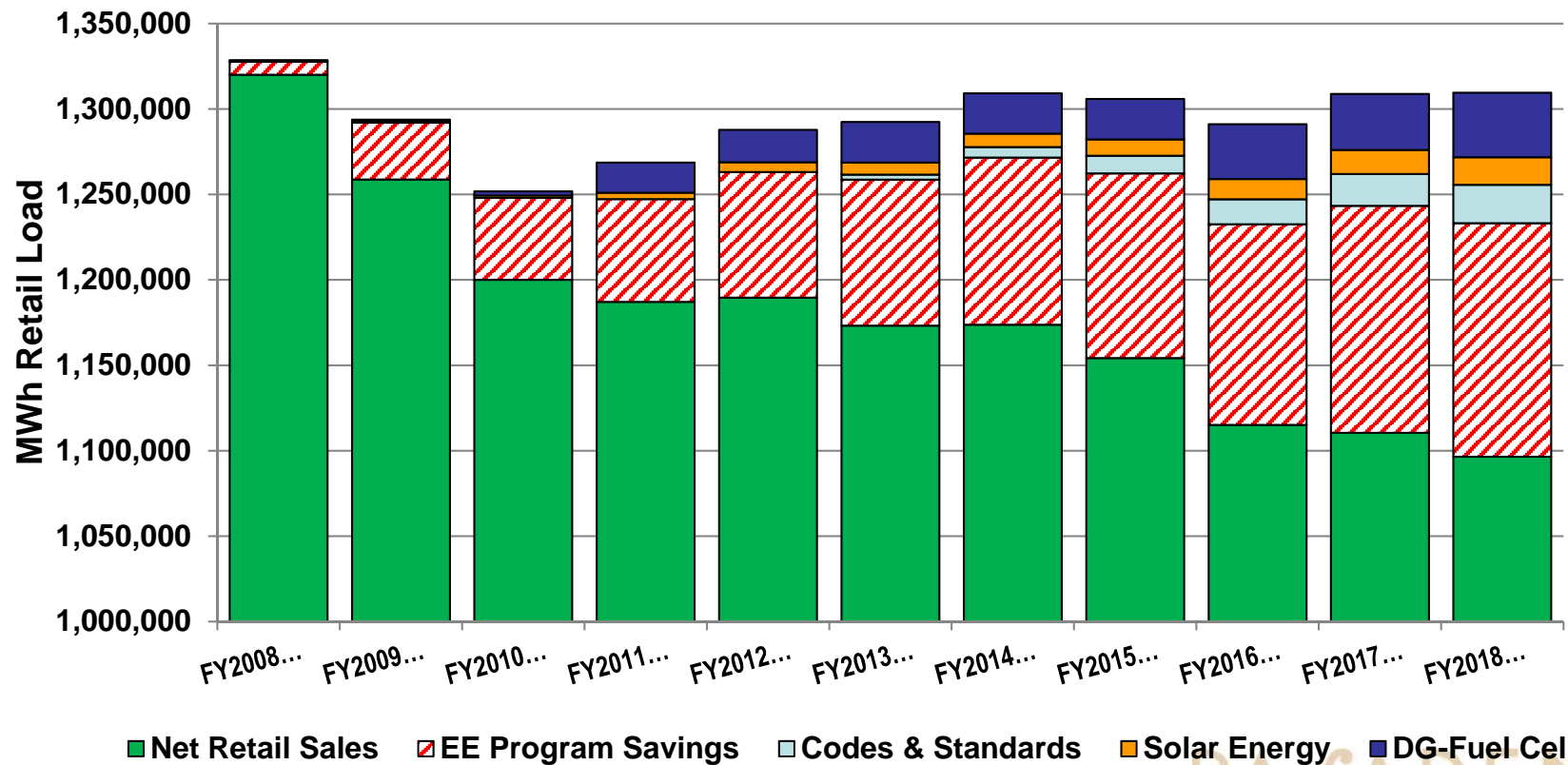


Understanding Historical Load

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- The Real Story

Retail Sales and Sources of Reductions (MWh)





Historical Information & Data

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- How to forecast for variables (weather, economic cycles, etc.)
 - > Variables
 - Population, employment, past energy usage, temperatures
 - > Data Sources
 - U.S. Census
 - Department of Finance
 - Internal Departments (Planning and Finance)



Planned Projects & Other Load factors

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- Work with Planning Department and T/D to identify:
 - > New load (additions)
 - New construction
 - Re-use of property
 - > Departing load (subtractions)
 - Companies departing
 - Demand Side Management
- Transportation Electrification Impacts





Regulations/Mandates (CA)

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- **Transportation Electrification**
 - > Governor's Executive Order
- **SB 1 (2006)**
 - > Implement Solar rebates to encourage solar installations
- **Title 24**
 - > Zero net energy requirements for new construction
 - Commercial by 2030
 - Residential by 2020



Transportation Electrification

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**Governors
Executive
Order of 5
million EVs by
2030**



**PWP
Share:
40,000
Cars**



**PWP Potential
Load Growth:
113 GWh**



**Increase in
EV
Incentives**



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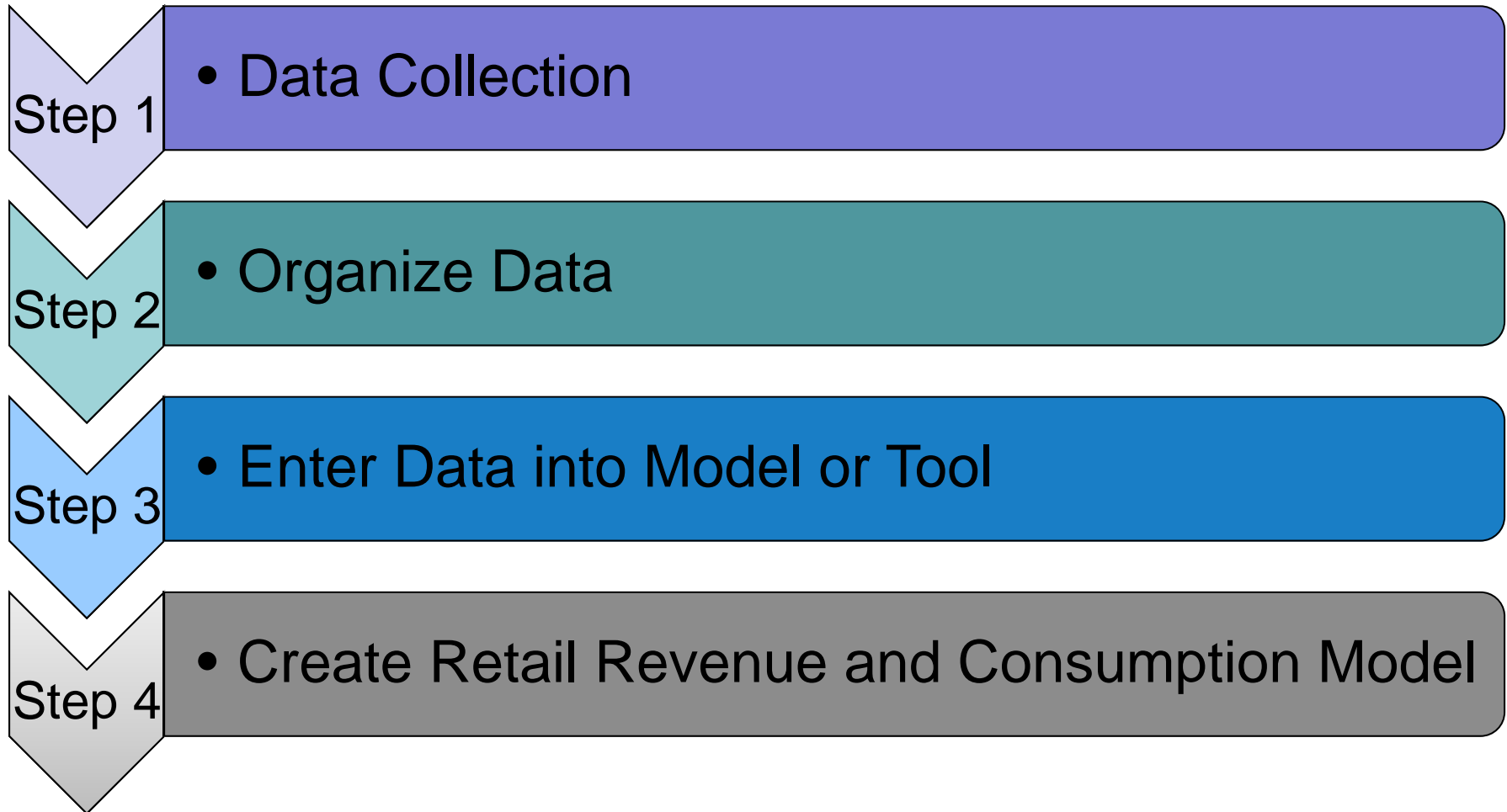
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DEVELOPING LOAD ANALYSIS AND FORECASTS



Steps

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SOFTWARE APPLICATIONS

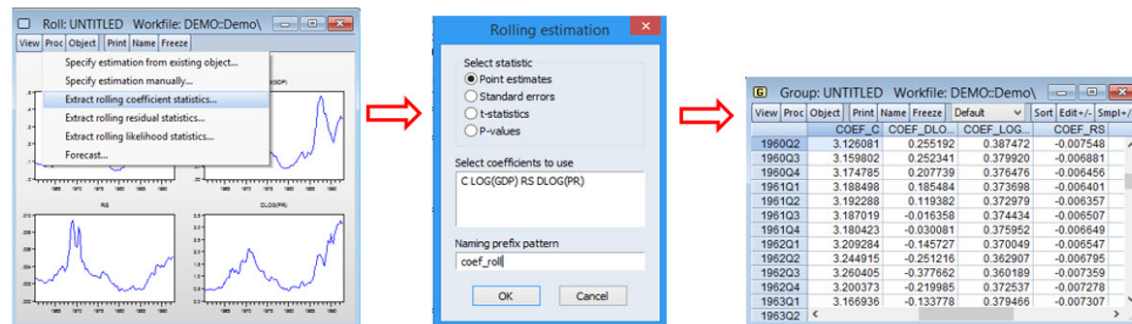


Tools

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- Statistical Software

- > E-Views
- > STATA
- > SPSS

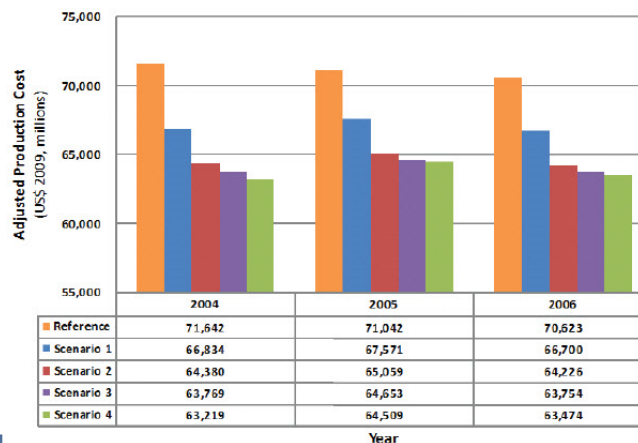


- Production Cost Model

- > ABB
- > Plexos
- > Aurora

- Excel

- > PWP method



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Pasadena Forecast

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Average
Load over
last 5-10
years



Projects
Online or
Offline



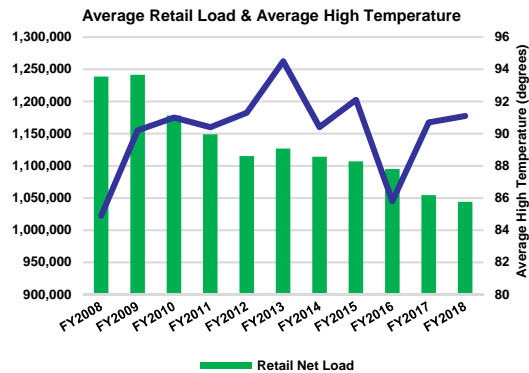
New Load
profile for
TE



New Load
profile for
DSM



New Retail
Load



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