

Todd Anderson

Chief Meteorologist – Energy Trading

Dominion Energy



I'm excited to be here!

Coal has *ALWAYS* been an important part of my life!

Duke Energy Roxboro Steam Electric Plant at Lake Hyco



Shoveled coal for my granddad's
workshop furnace!



And Christmas of 1968!



Todd Anderson - Meteorologist

Meteorology – Greek for the word
“meteoron” : of the atmosphere
Or perhaps “meteoros” : in the sky

The study of the atmosphere with a
focus on weather and forecasting.

Meteorology is NOT this!





This
is what
I do!

Attended NC State University



A Face for Radio!



First PAID Job in Weather



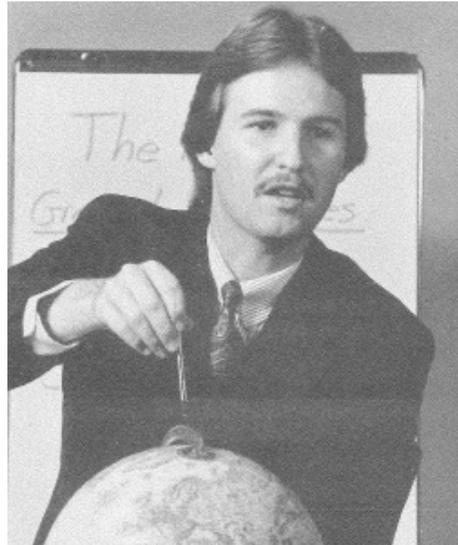
How I got my start in this business: Was it fate or an act of God?



It was all about that cool logo!



1987
I've been
traded!



Todd is sent
north to
Virginia Power



CP&L receives
an old bucket
truck and two
future linemen

The Corporate Weather Center Then - Circa 1988



Weather Center - Now



Thunderstorms



Lightning



Hurricane Damage



Ice Storms

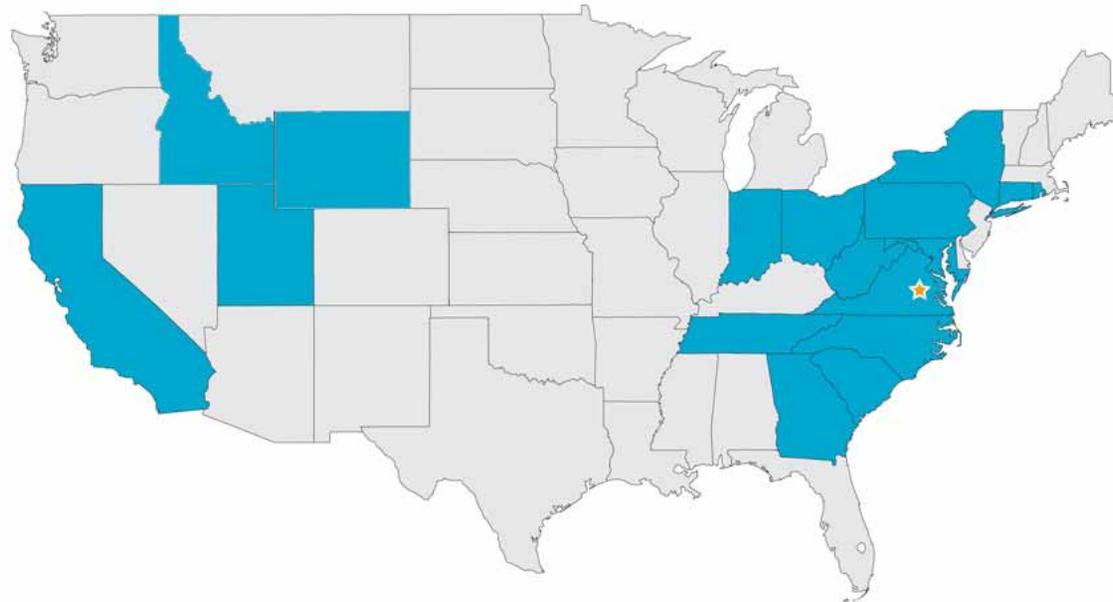


Snow Storms



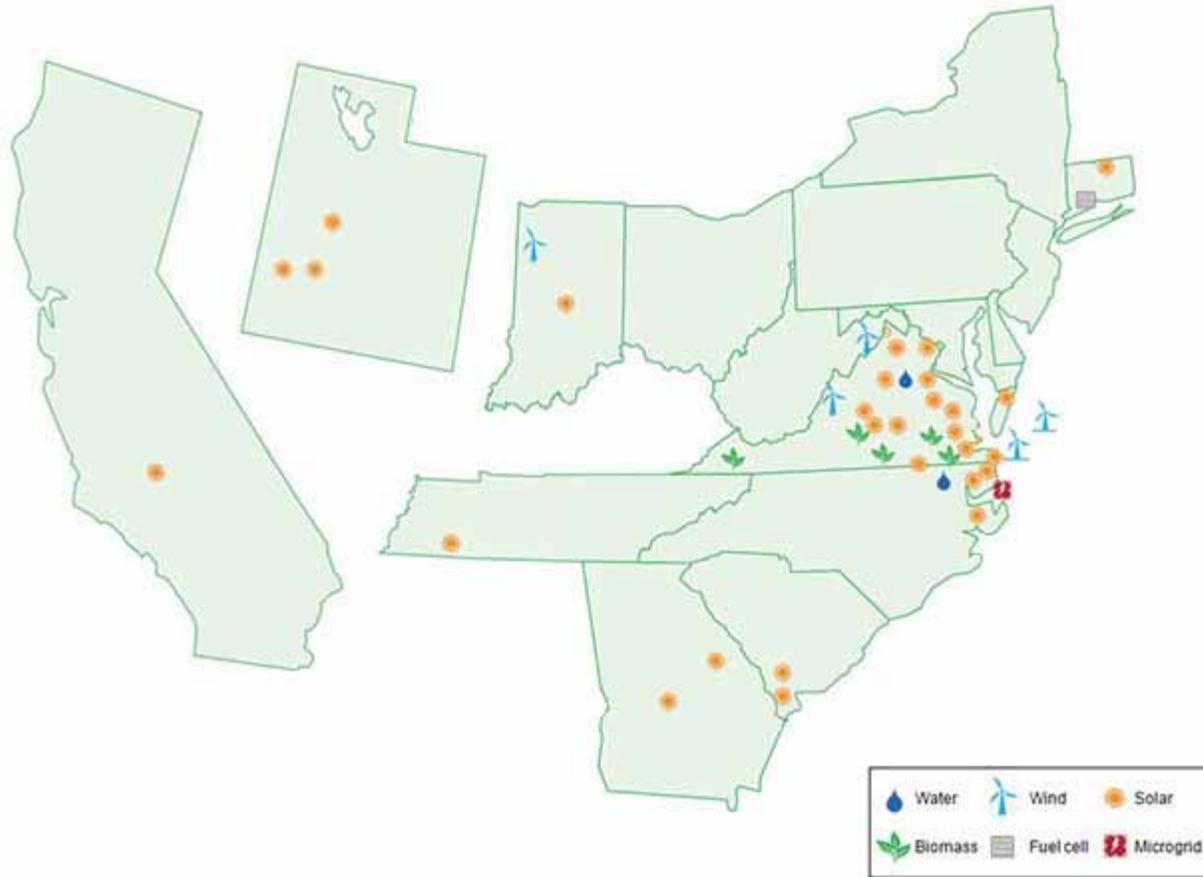
Geographical Footprint

Gas and electric distribution, gas pipeline, renewable energies, merchant generation



★ Richmond, VA Corporate Headquarters

Renewable Generation



But I wear a lot of hats!



Environmental Monitoring



Nuclear Emergency Response



Transportation, anti-icing and deicing of coal



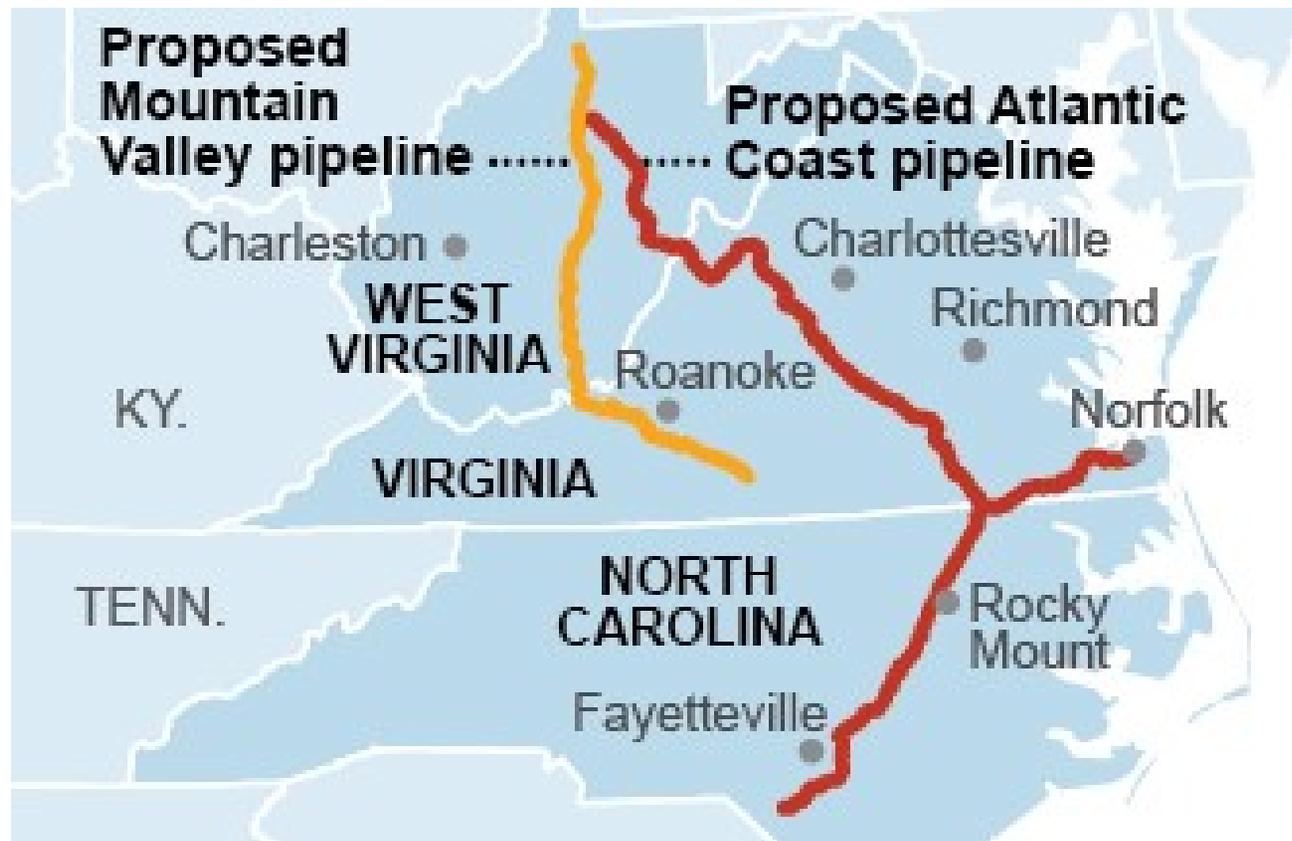
Precipitation Forecasts for Biomass Operations



Salt Water Contamination



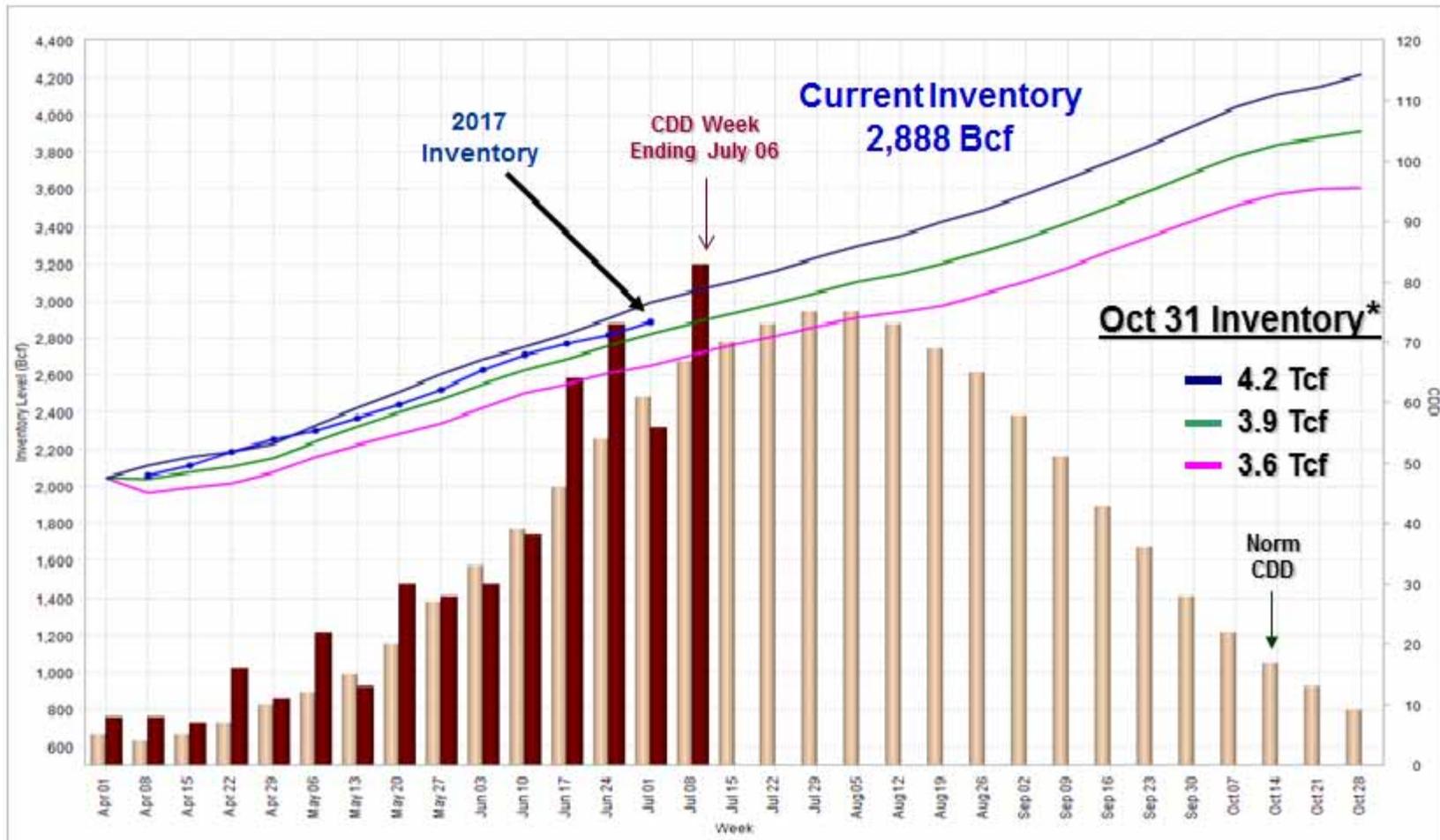
Construction for New Infrastructures



Construction of New Facilities



Natural Gas Supply vs. Weather

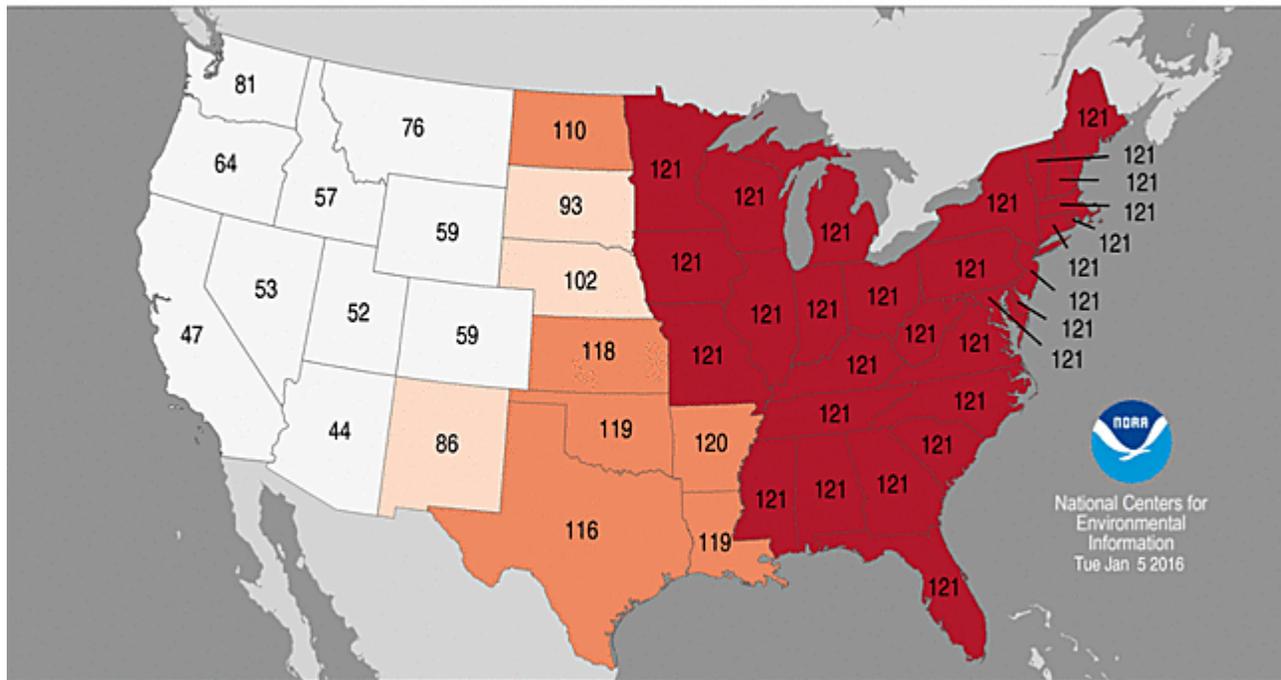


Rate Case Hearings

Statewide Average Temperature Ranks

December 2015

Period: 1895-2015



National Centers for Environmental Information
Tue Jan 5 2016

Energy Trading



Wind Energy



Offshore Wind Studies



Solar Energy



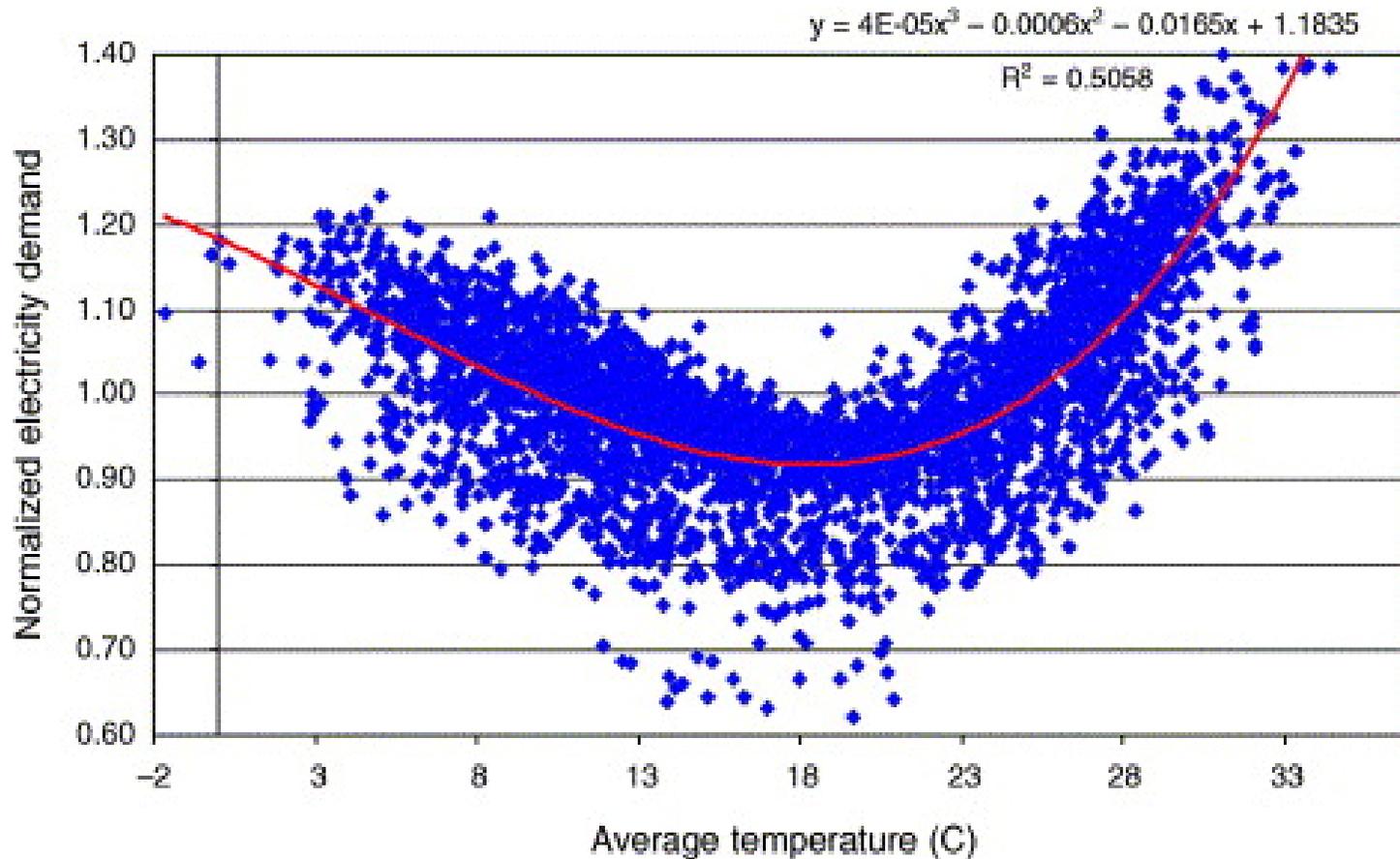
Energy Control Center



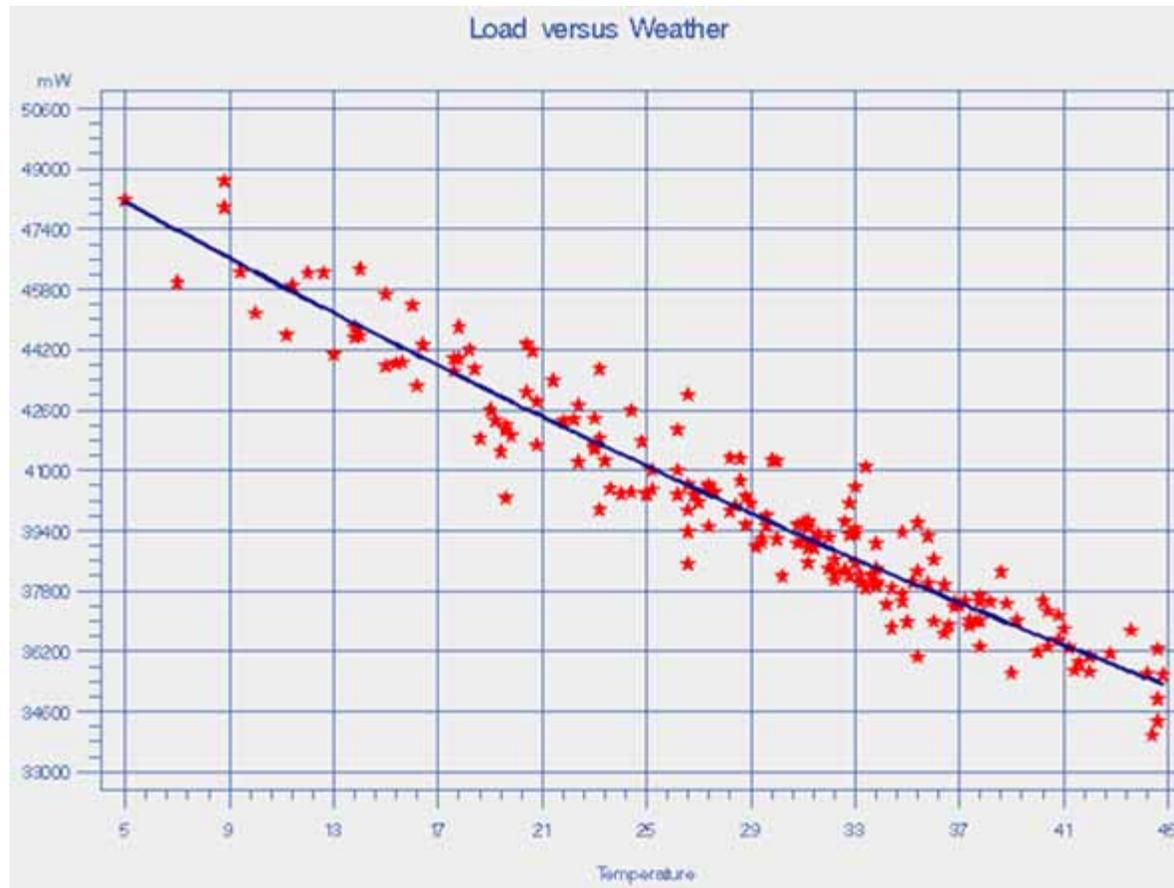
Load Forecasting



Energy Use is a Function of Weather

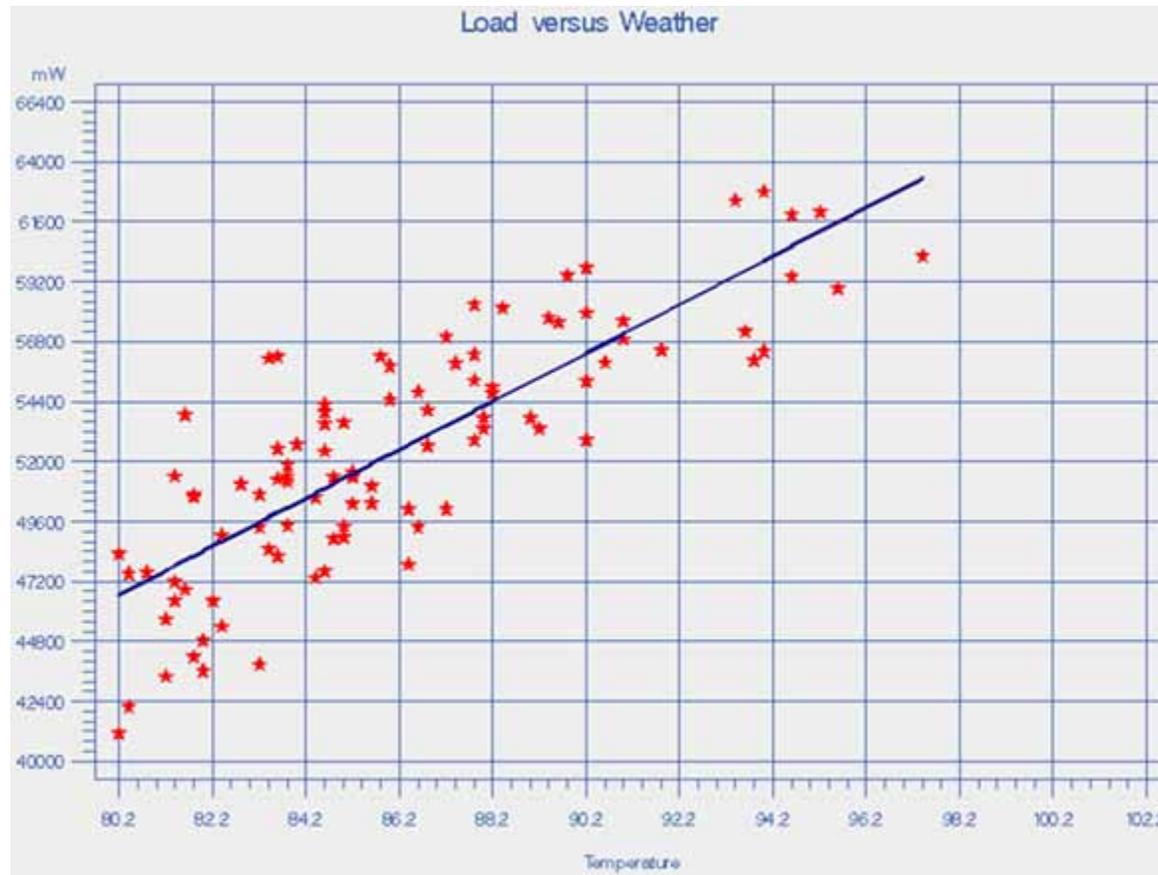


Cold Mornings



Hot Afternoons

Scatter due to humidity and storms

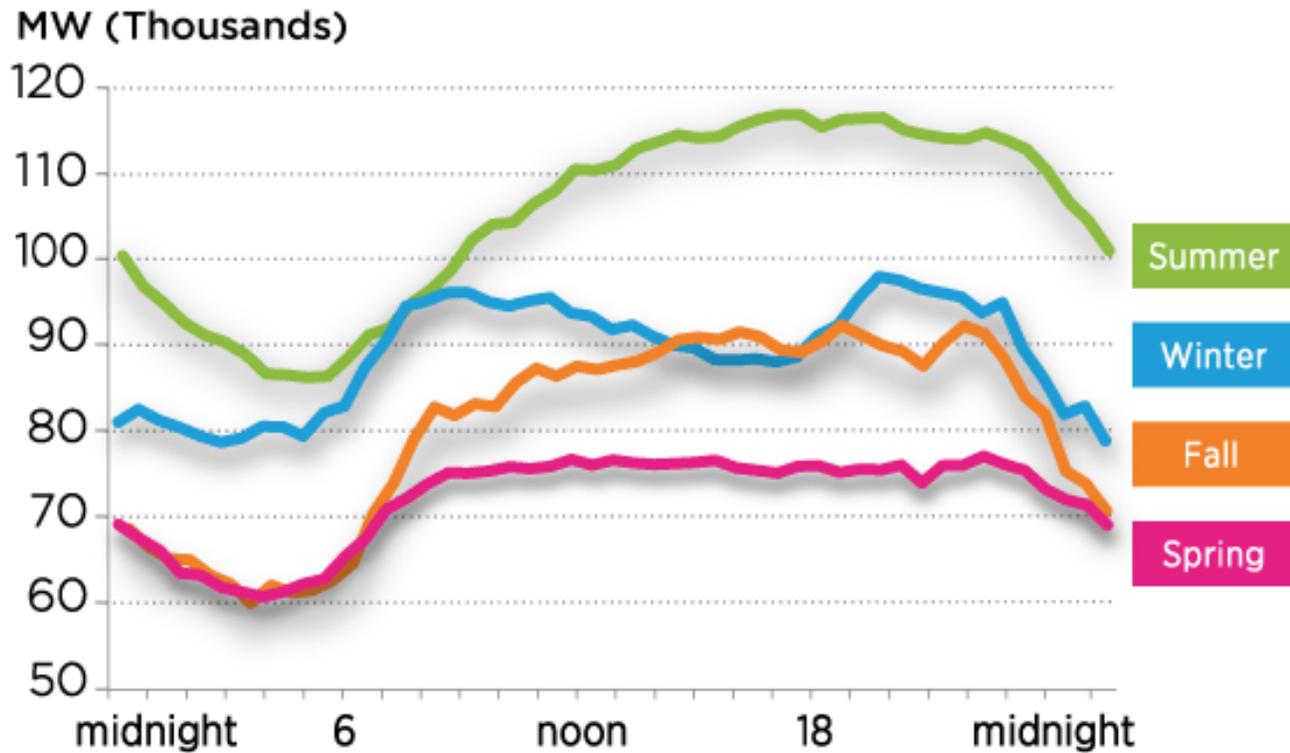


Load Forecast Variables

- Time of Day
- Day of Week
- Day of Year
- Holidays
- Sunrise / sunset
- Historic Usage
- Customers
- Temperature
- Dew Point
- Cloud Cover
- Sunshine
- Wind Speed
- Precipitation

PJM Load Shapes per Season

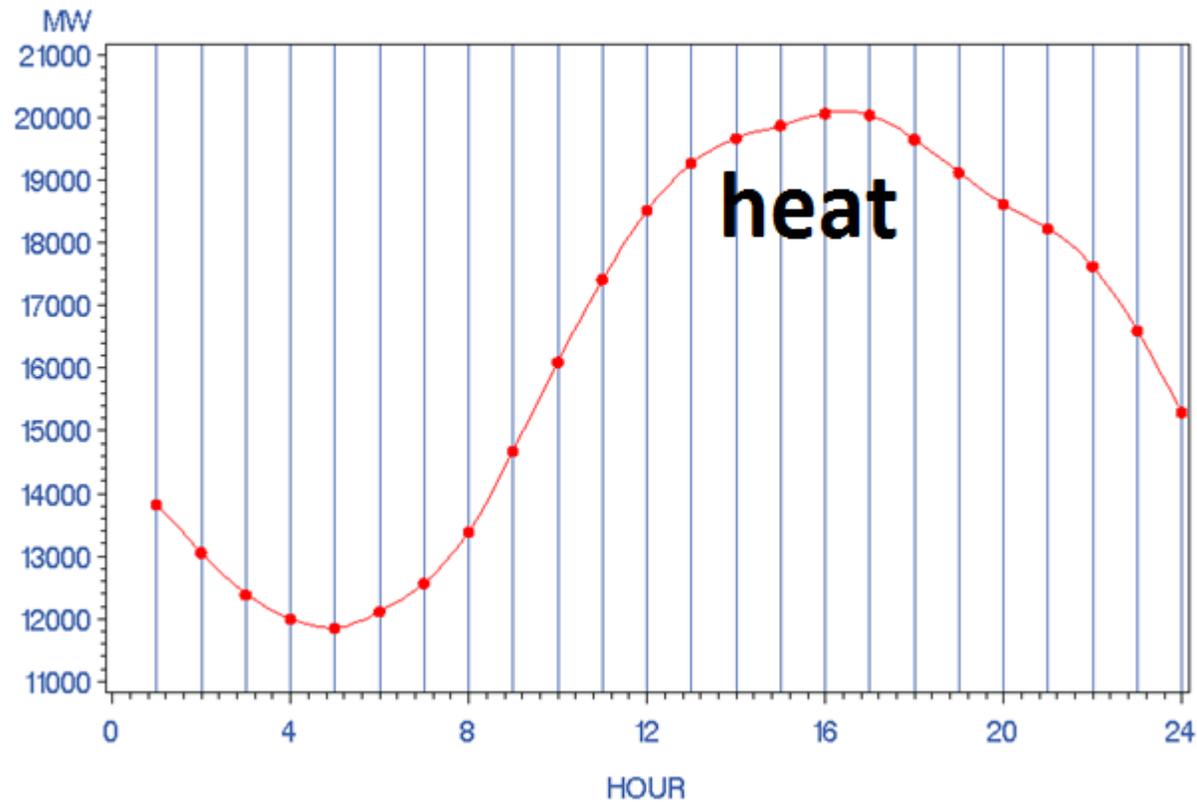
source: PJM Learning Center



Summer Load Curve for Dominion

PJM South

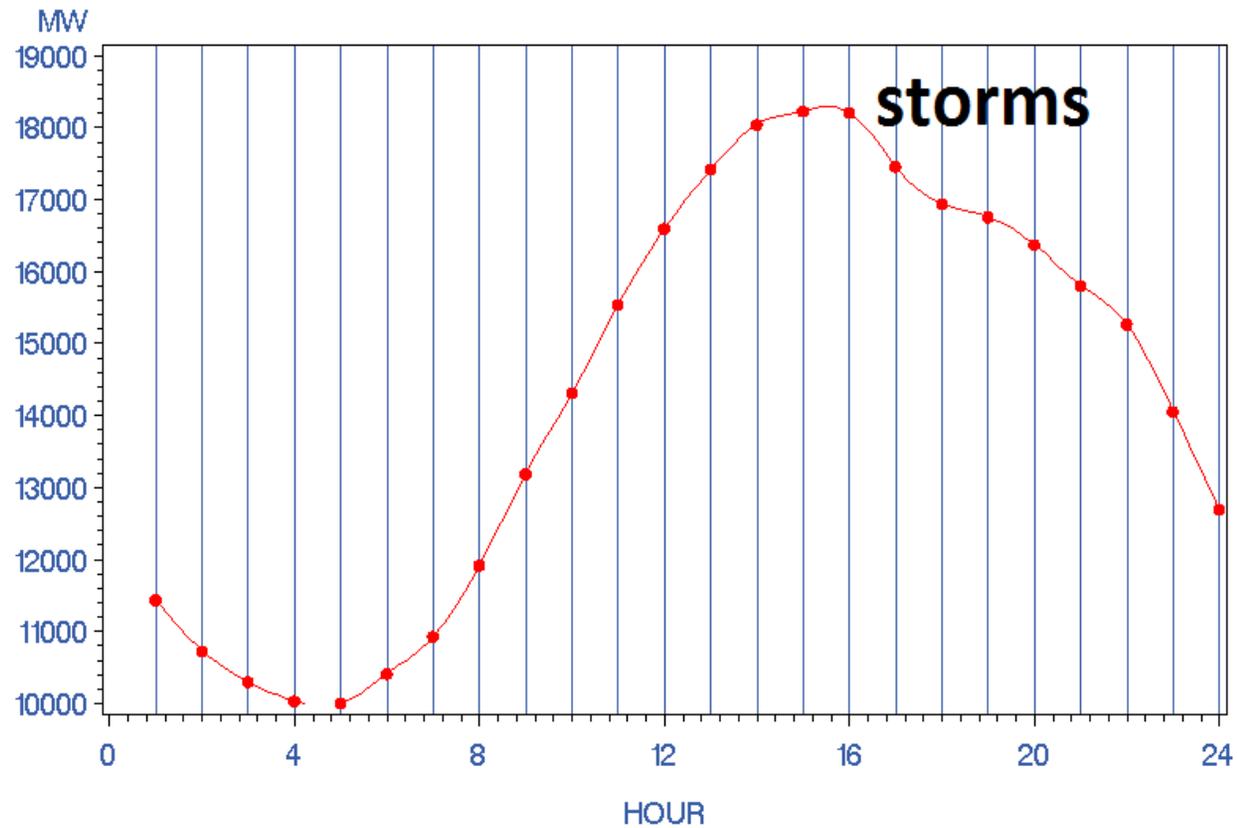
Load (MW) for 22JUL11



Summer Load Curve for Dominion

PJM South

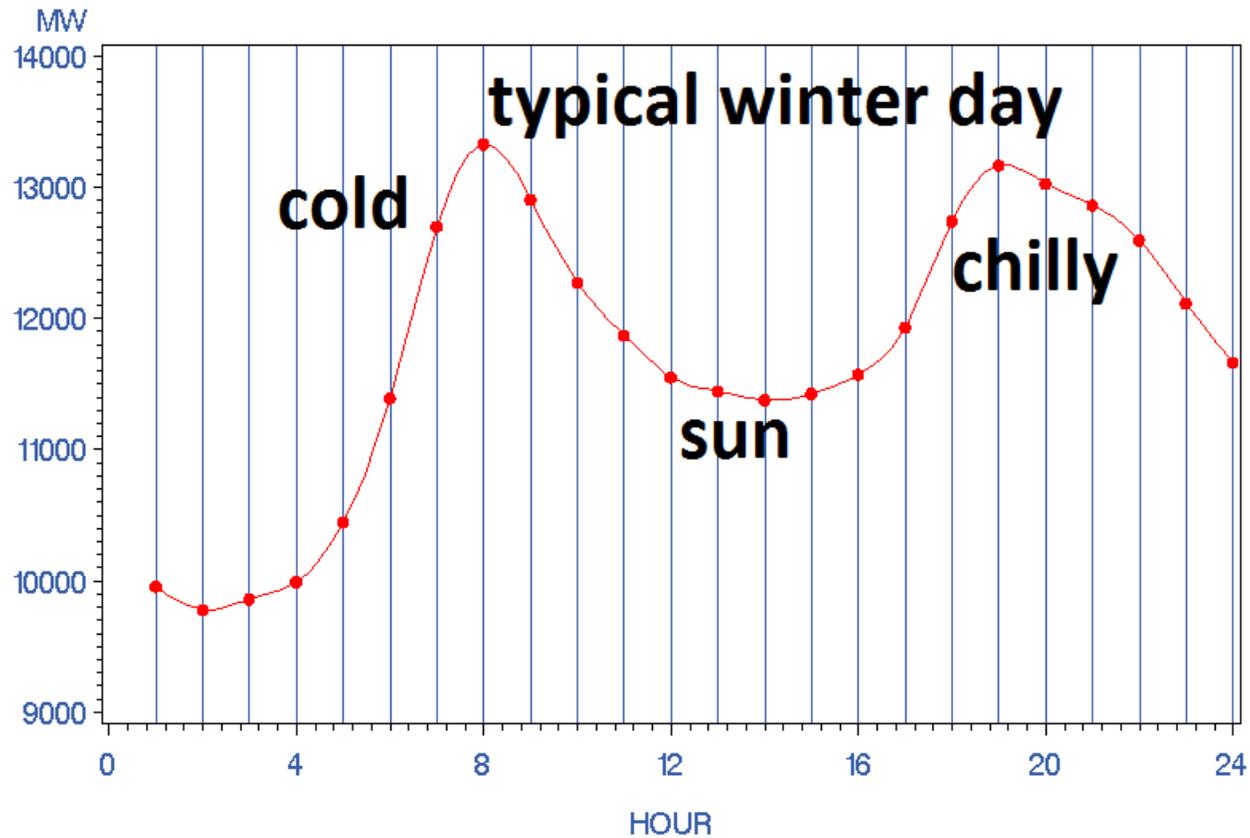
Load (MW) for 18JUL16



Winter Load Curve for Dominion

PJM South

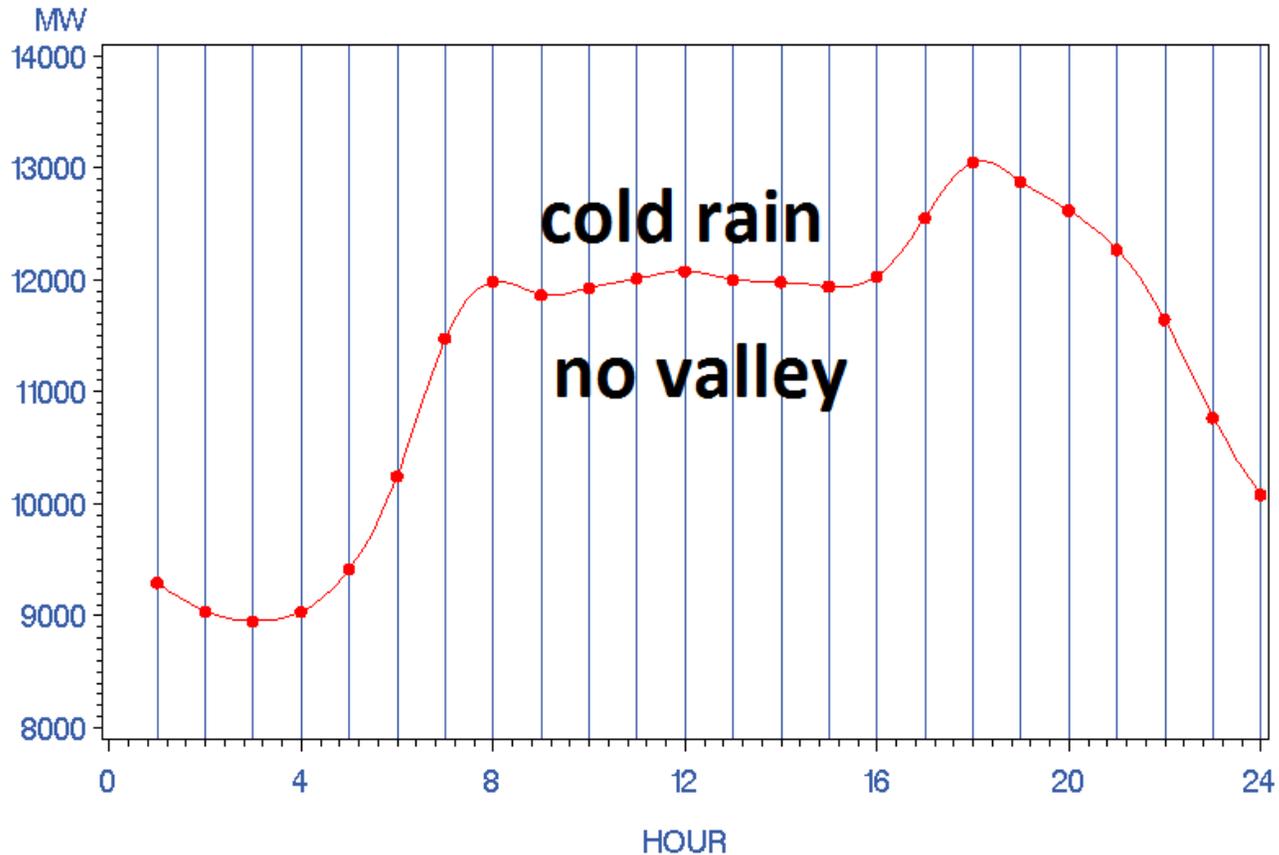
Load (MW) for 27JAN17



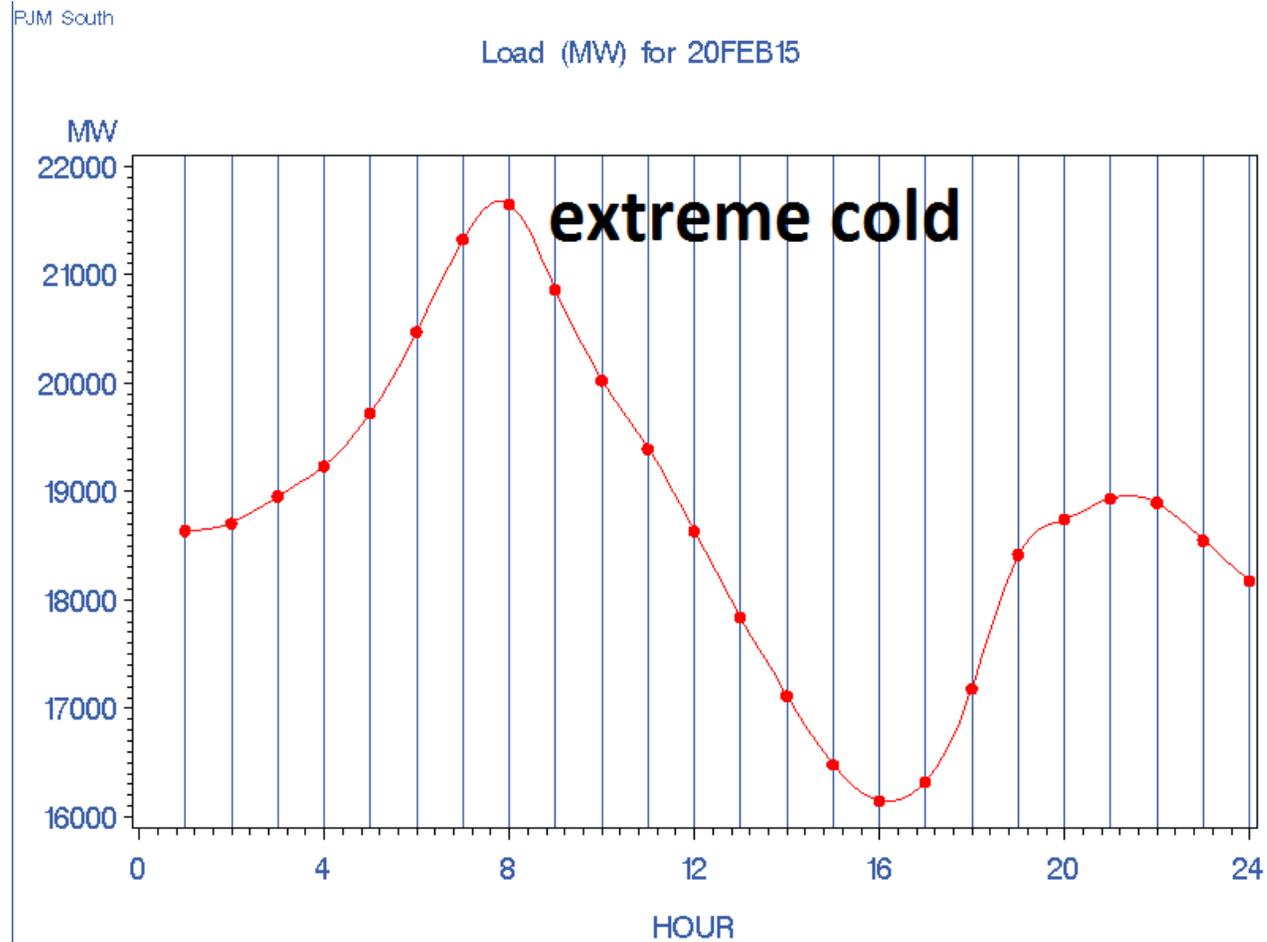
Winter Load Curve for Dominion

PJM South

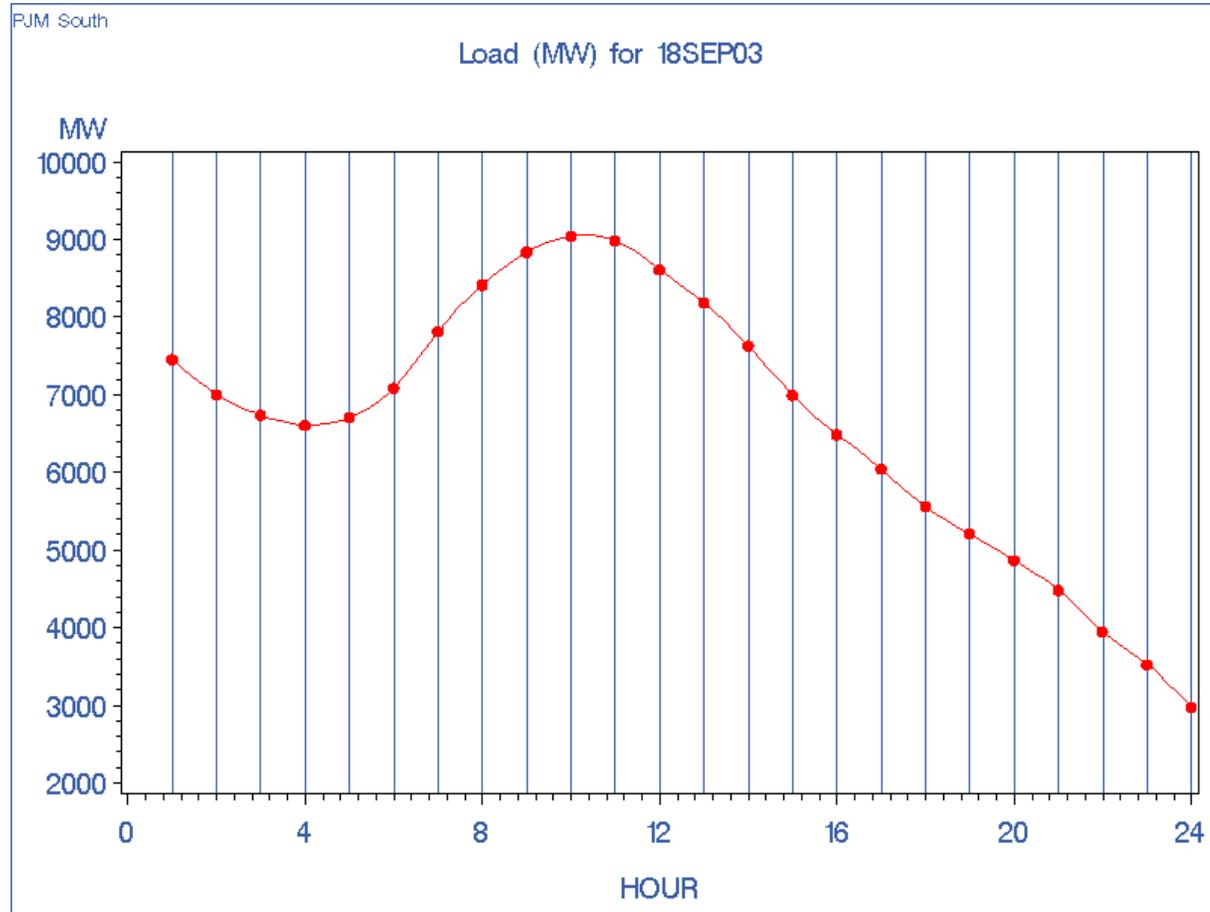
Load (MW) for 06DEC16



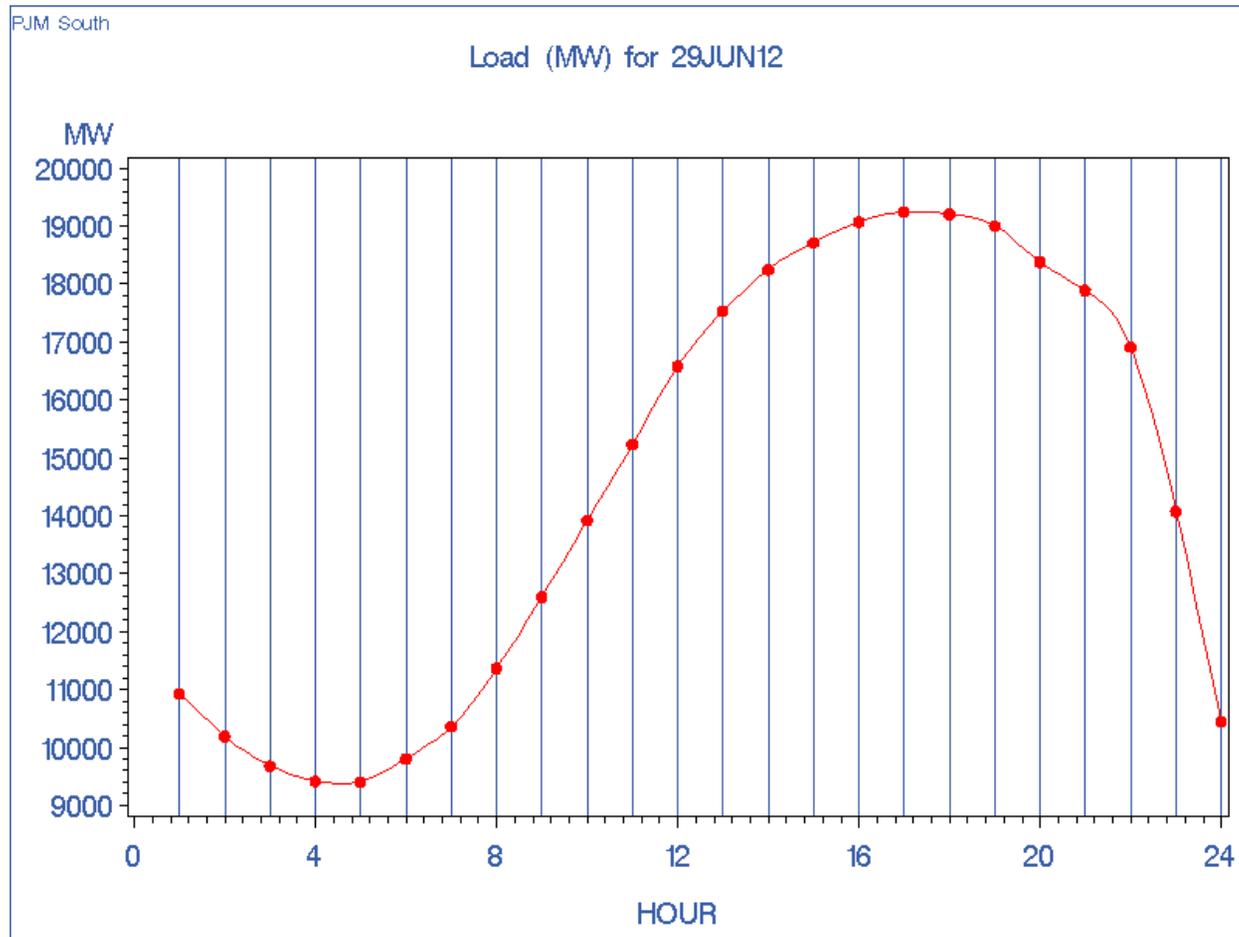
Winter Load Curve for Dominion



Hurricane Isabel

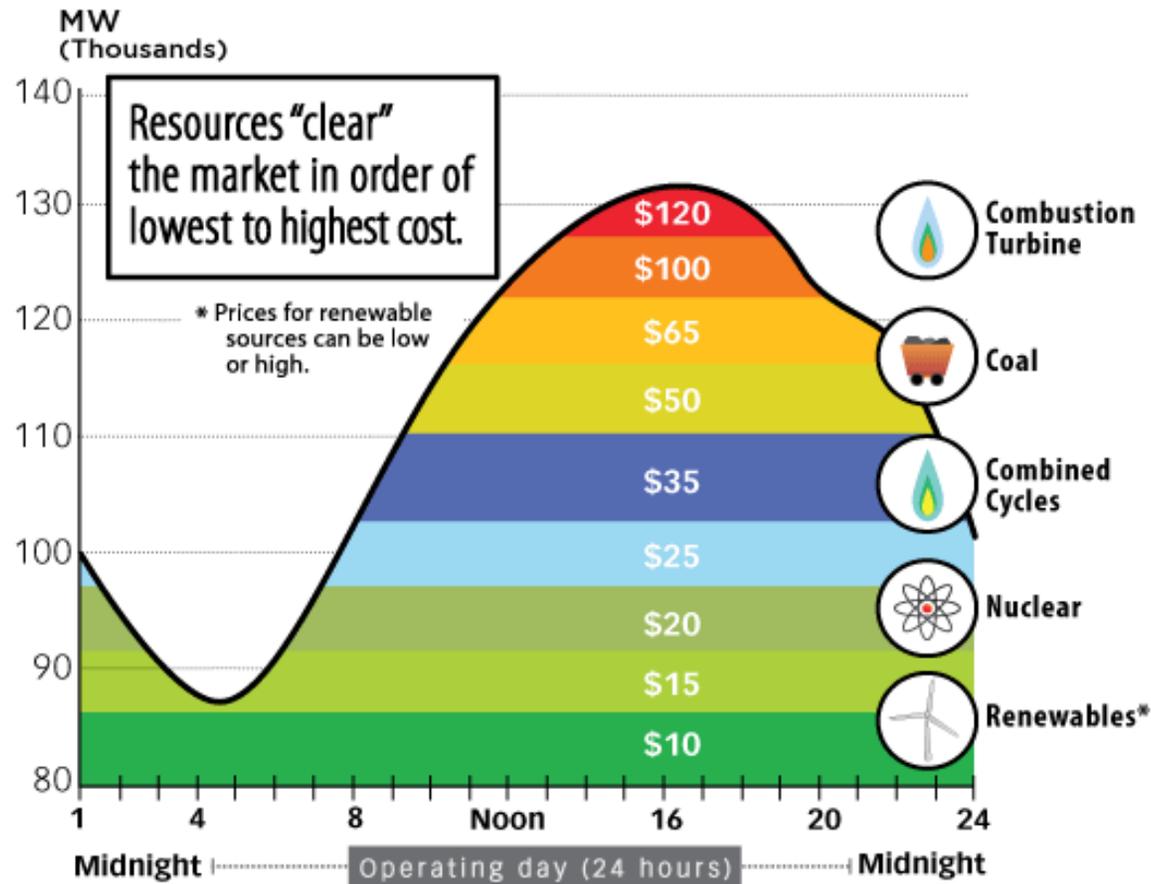


The Derecho



Economic Dispatch

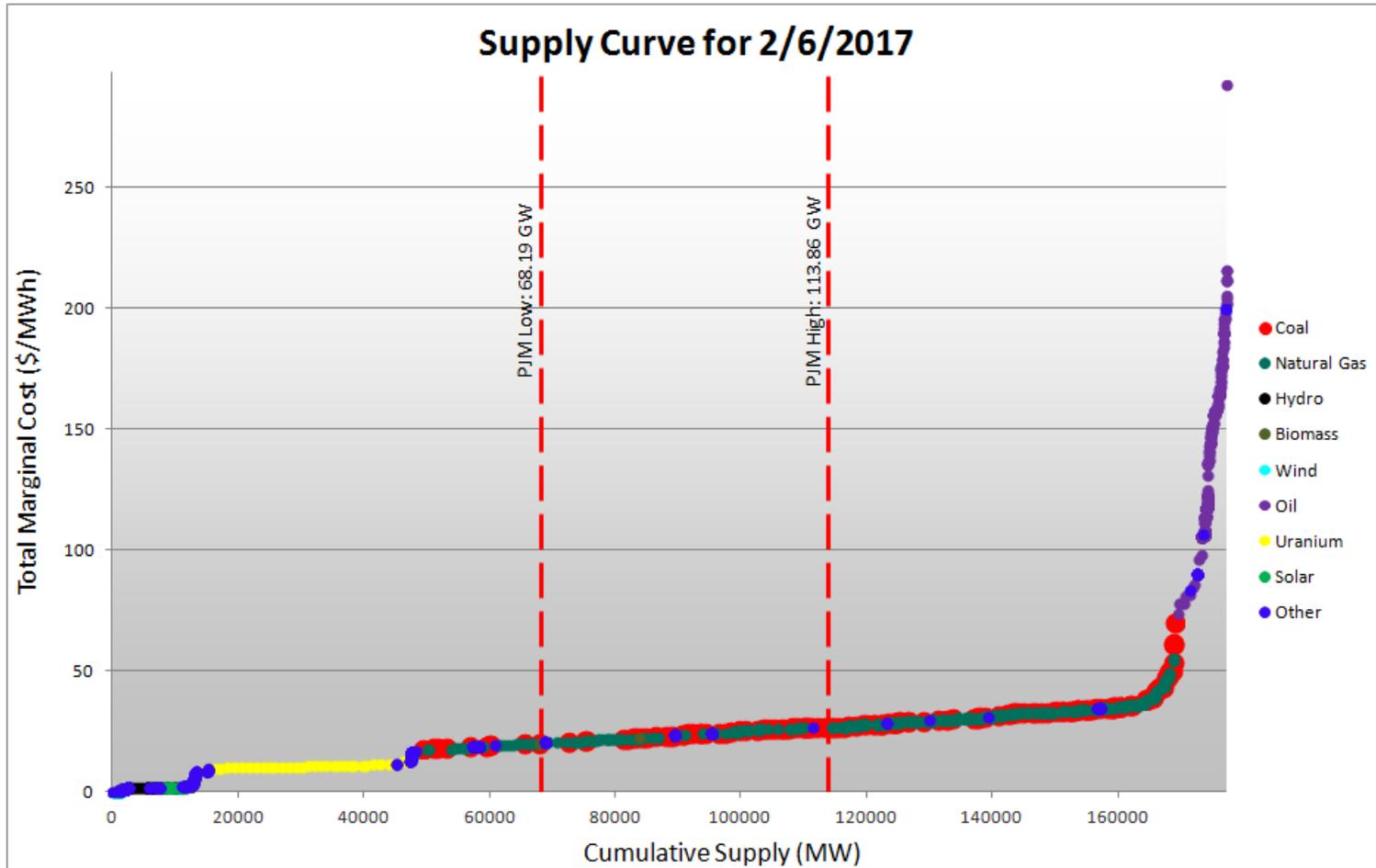
source: PJM Learning Center



PJM ISO Supply Curve

Price Date: February 6, 2017

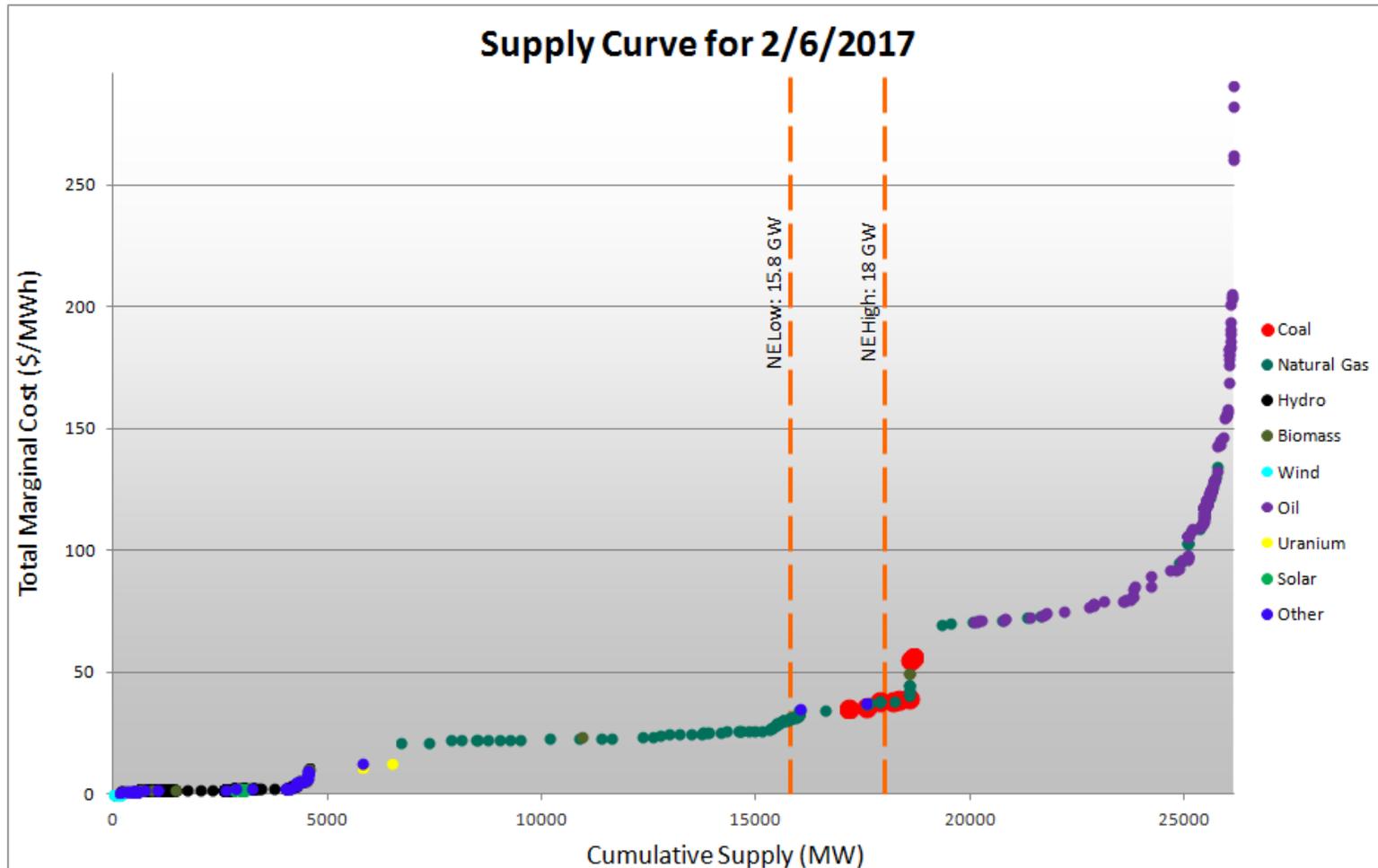
Load Date*: February 7 – February 13, 2017



New England ISO Supply Curve

Price Date: February 6, 2017

Load Date*: February 8 – February 13, 2017



The Beauty of Weather



















Thanks!

