ENERGY PROCUREMENT OPTIONS

CONTROL YOUR UTILITIES GRID

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MONTGOMERY COUNTY ENVIRONMENTAL SERVICES

August 27, 2014

9:35-10:05 AM

Room C111

OVERVIEW

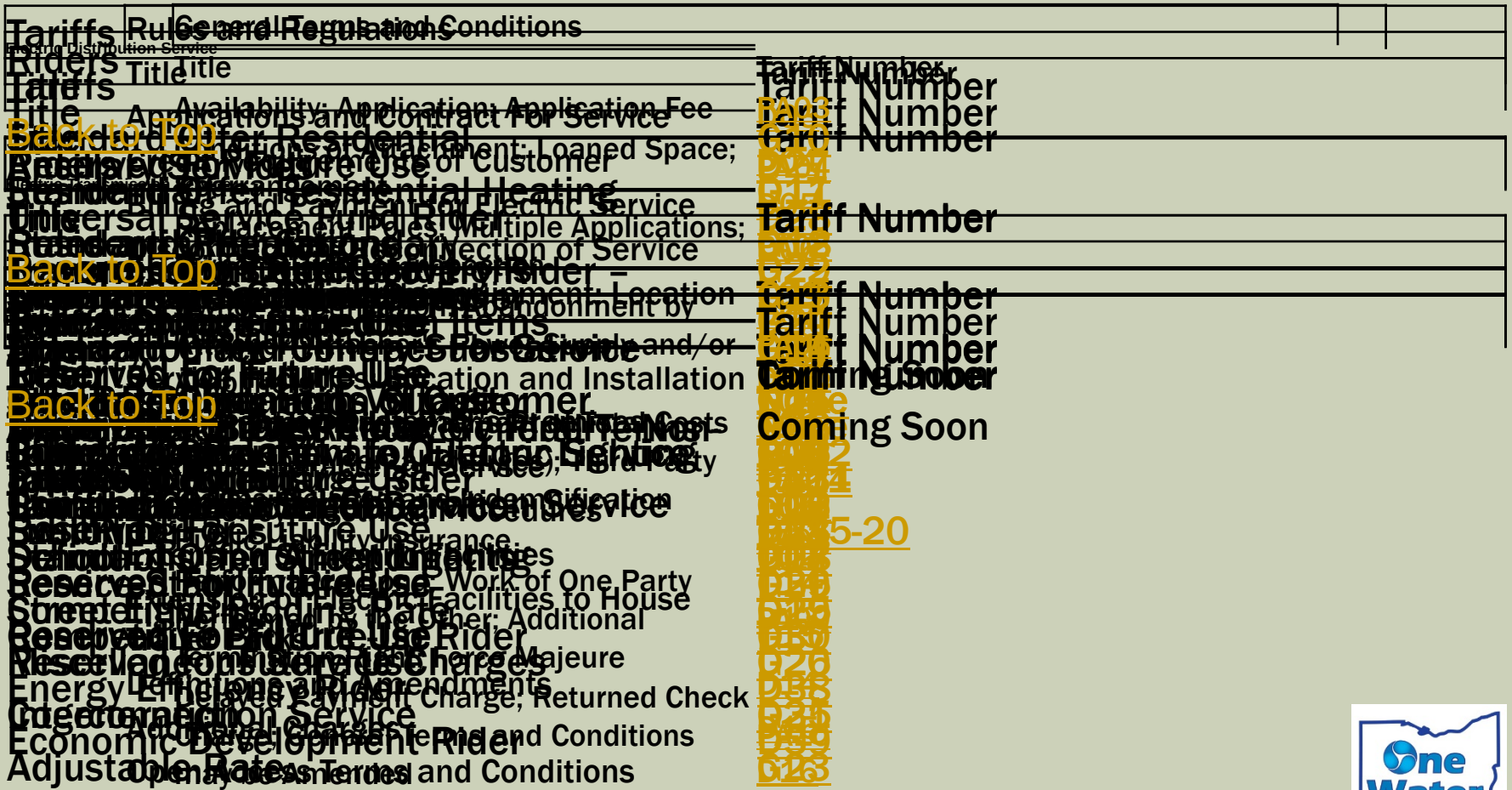
- Energy purchasing options
  - Tariff Rate
  - Fixed Rate
  - Index Rate
  - Block and Index
- Block and Index Breakdown
- Case Study: Montgomery County, OH
  - Strategy
  - Logistics
  - Data
- Capacity Charge
  - What it means to energy bill
  - How to keep it under control

PARTS OF ENERGY BILLS

- Distribution and Transmission – approx 32% of bill
  - No control over this portion of bill
- Generation Charges – approx 60% of bill
  - Control over this portion if using fixed or block pricing
  - Largest portion of overall bill
  - Index pricing and operational changes give some control
- Capacity Charge – approx 8% of bill
  - Control of going off the grid during 5 peak hours each year
  - Can be done, but need to know your plant and PJM demands

USING TARIFF RATES

ENOUGH SAID (DP&L TARIFFS HEADERS)



FIXED RATES

- One account or group of accounts fixed price for 1/2/3 years for the generation portion of their bills
- Simple way to handle generation costs
- Higher pricing for this convenience
- Pricing depends on load – not amount
- When you get pricing
  - It can be good or bad
  - Limited on when you can fix your price
- Over a year, will be lower than tariff rate, but higher than index rate

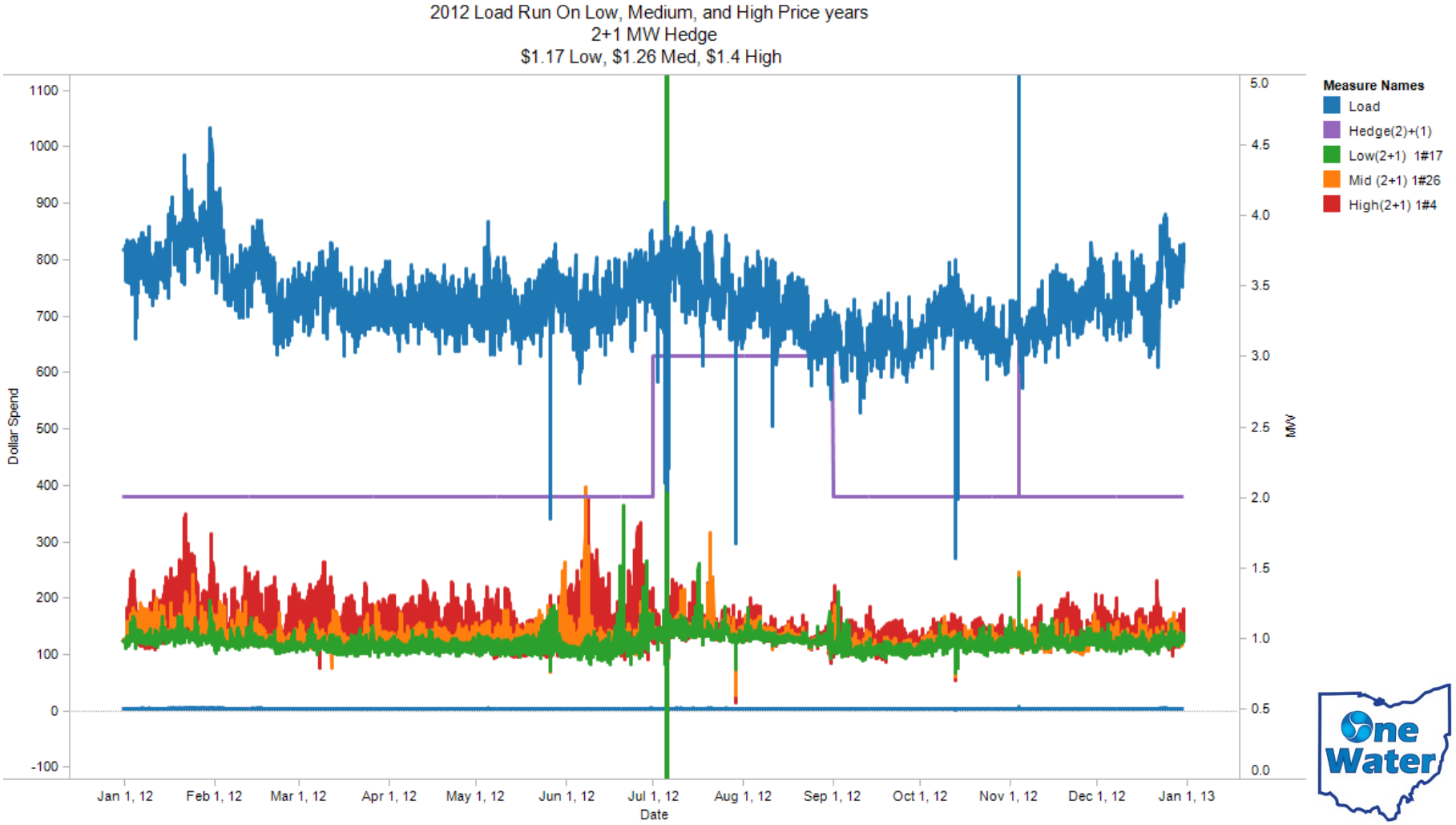
INDEX RATES

- Fluctuates hour to hour based on regional supply and demand
- Weather sensitive
- Pricing can be very good, but also can be very bad
- Nights and weekends cheaper
- Greater than 85 degrees and below 15 degrees prices usually spike upward
- Works out well for wastewater
- Drinking water demand can get costly

BLOCK AND INDEX

- Fixed pricing for a portion of usage (BLOCK)
  - 1 MW minimum block
  - Over 100 KW demand accounts
- Index pricing for the remaining usage (INDEX)
- Can project low and high costs using historical data
- Not 100% full proof (POLAR VORTEX)

BLOCK AND INDEX
GRAPHICALLY



The trends of Hedge(2)+(1), High(2+1) 1#4, Load, Low(2+1) 1#17, Mid (2+1) 1#26, Hedge(2)+(1), High(2+1) 1#4, Load, Low(2+1) 1#17 and Mid (2+1) 1#26 for Date. Color shows details about Hedge(2)+(1), High(2+1) 1#4, Load, Low(2+1) 1#17 and Mid (2+1) 1#26. The view is filtered on Date, which keeps all values.

MCES ENERGY PROCUREMENT

CASE STUDY

Past,
Present,
Projected

MONTGOMERY COUNTY
ENVIRONMENTAL SERVICES

One Water

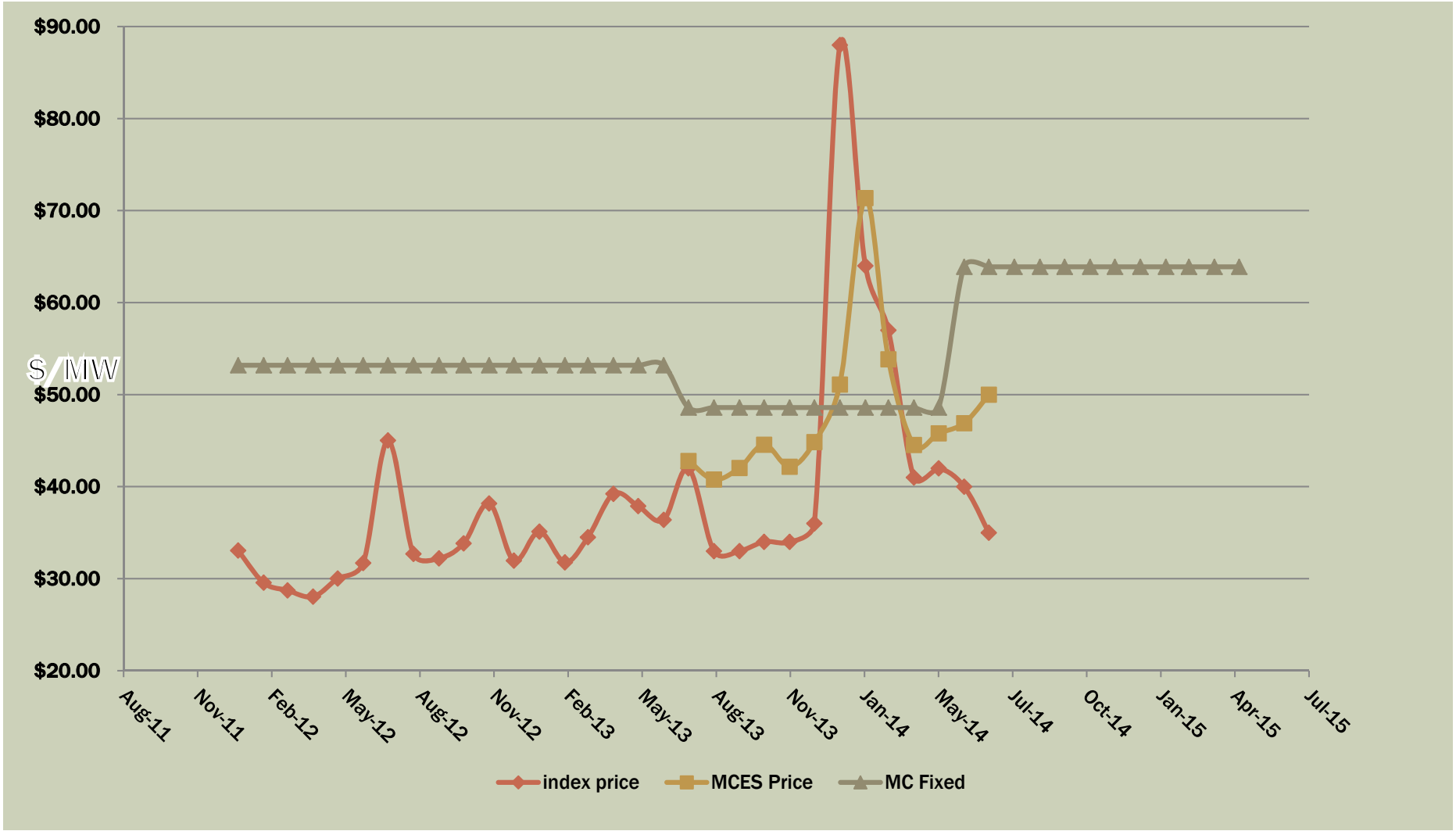
HOW DID BLOCK & INDEX COME ABOUT?

2.5 YEARS OF WORK IN ONE MINUTE

- STEP Energy Procurement presentation – **Dec. 2011**
- look into Block & Index with STEP - **Spring 2012**
- Got overview of the concept – saw that some accounts could use Block & Index to MCES financial advantage
- Ran our usage numbers vs. historical index pricing
- Formed Energy Procurement Team – **Summer 2012**
- Screened and hired Energy Broker - *STEP Resources*
- Got go ahead from county admin for B&I– **Spring 2013**
- Evaluated energy suppliers and chose *GDF Suez* – **Spring 2013**
- Broke off "7" accounts to purchase block(s) -**May 2013**
- Purchased 1 year Block (2-3 MW), index on remaining usage
- Blocked second year, switched energy supplier (DPLER)- **June 2014**
- **Ready to block out to 2015-16 with DPLER - Current**

$ PER MEGAWATT (MW)

GENERATION AND CAPACITY COSTS



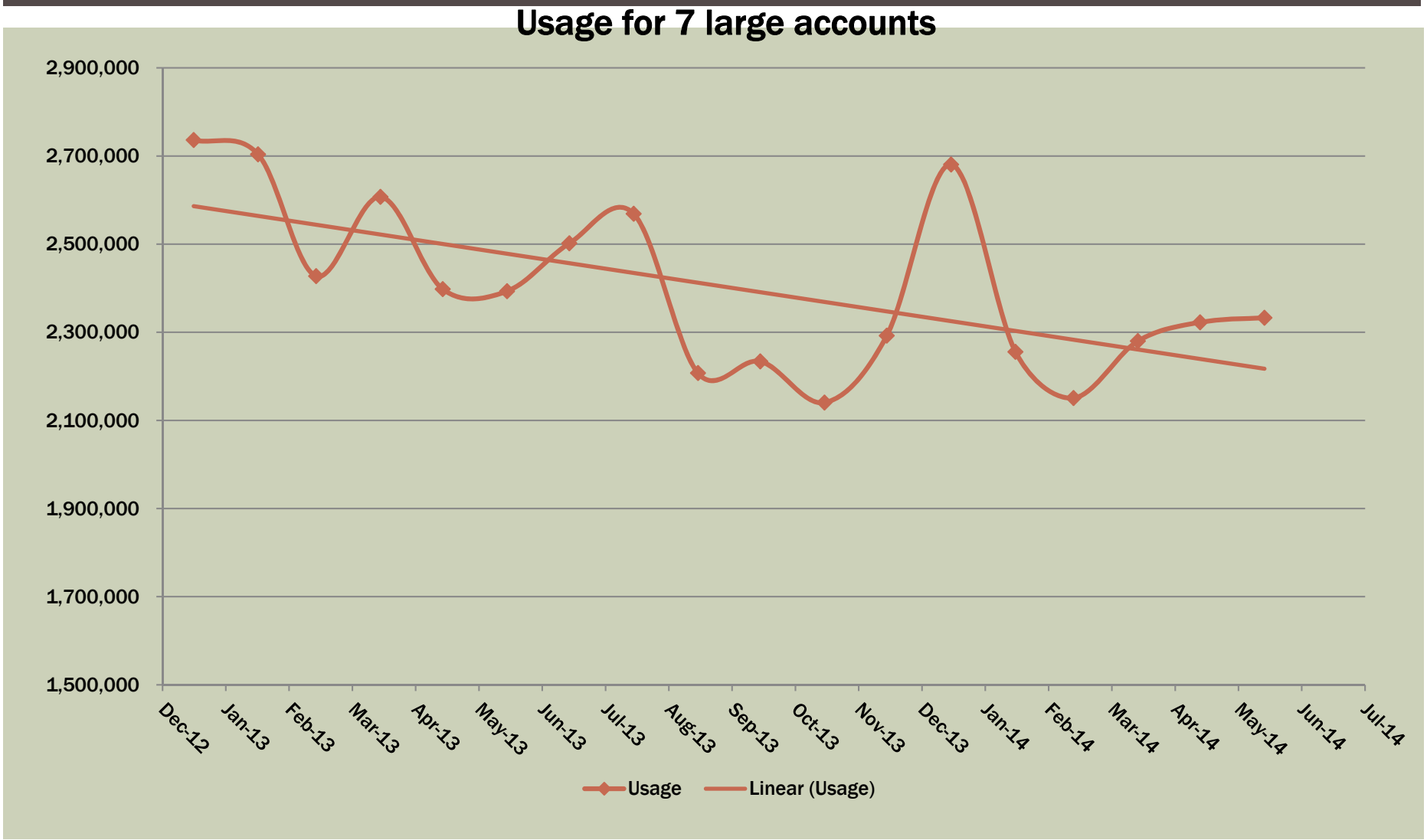
LESSONS LEARNED

- 1 in 20 year polar vortex winter, (Jan-Feb-Mar 2014) can erase gains from the rest of the year.
  - Blocked off a third MW for Jan + Feb 2015
  - MCES has some control over building heating, but not much
- Signed a long term deal with supplier
  - 5-10 years to assure better long term planning
  - Once a year going out for pricing is not good

SUCCESSES

- M2 & M4 (Booster Stations) off hour pumping
  - WS Operations pumping more water at less expensive overnight hours
  - Day ahead pricing and monitoring tank levels
  - Using more efficient M4 instead of M2
- Fast execution of block pricing
  - Less than 24-hour block purchases achieved
- Decreased usage at facilities
  - Western Regional
  - Dryden Road
- Offline for capacity charge peak hours (2013/14)
  - WR/PTP/ER
- Reduced usage at facilities

DECREASED USAGE



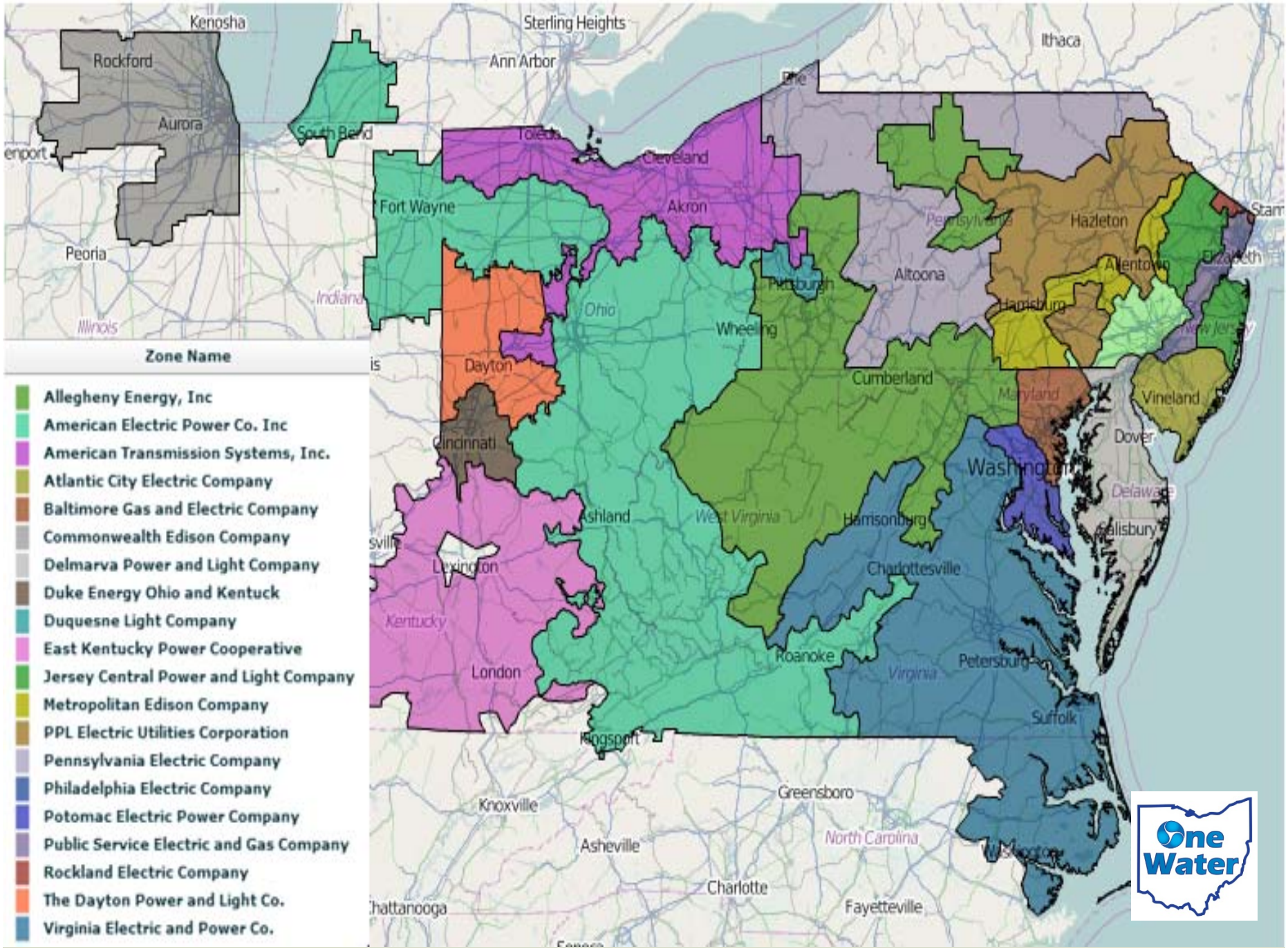
DECREASED USAGE AND COSTS

WESTERN REGIONAL

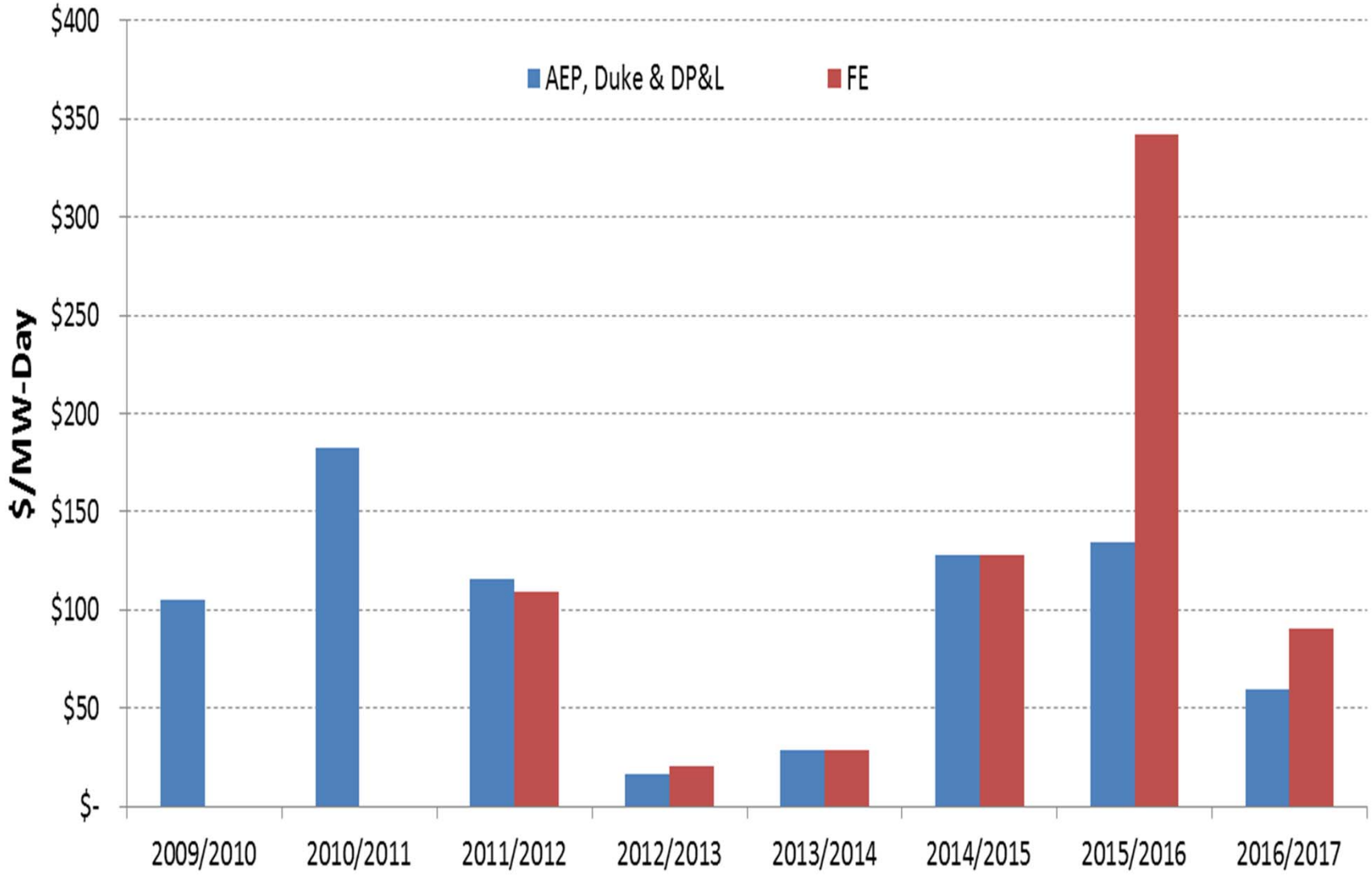
Western Regional	Usage (kWh)	Overall costs	Overall Cost Per month
February 2013-June 2013	1,327,856	$ 452,594	$ 90,519
July 2013-June 2014	1,046,147	$ 787,107	$ 65,592
July 2014-June 2015	936,815	$ 63,078	$ 63,078

CAPACITY CHARGE

Predicting Peaks


Kenosha
Rockford
Aurora
Peoria
Illinois
Indiana
Sterling Heights
Ann Arbor
South Bend
Fort Wayne
Toledo
Cleveland
Akron
Ohio
Wheeling
Dayton
Cincinnati
Ashland
West Virginia
Lexington
Kentucky
London
Knoxville
Asheville
Charlotte
Chattanooga
Greensboro
North Carolina
Fayetteville
Roanoke
Virginia
Petersburg
Suffolk
Harrisonburg
Charlottesville
Cumberland
Maryland
Washington
Delaware
Dover
Vineland
Salisbury
Harrisburg
Altoona
Hazleton
Allentown
Ithaca
Zone Name
Allegheny Energy, Inc
American Electric Power Co. Inc
American Transmission Systems, Inc.
Atlantic City Electric Company
Baltimore Gas and Electric Company
Commonwealth Edison Company
Delmarva Power and Light Company
Duke Energy Ohio and Kentuck
Duquesne Light Company
East Kentucky Power Cooperative
Jersey Central Power and Light Company
Metropolitan Edison Company
PPL Electric Utilities Corporation
Pennsylvania Electric Company
Philadelphia Electric Company
Potomac Electric Power Company
Public Service Electric and Gas Company
Rockland Electric Company
The Dayton Power and Light Co.
Virginia Electric and Power Co.
One Water

Ohio Capacity Clearing Prices
Jun 2009- May 2017



CAPACITY CHARGE CALCULATION

- Set on previous year “5” highest PJM-RTO peak hours
  - Megawatts your account using during these “5” peak hours
    - Average of these “5” MW usages during peak hours set your MW for the following year

IF WE DID NOTHING…

July 2013→july 2014

- Peaks set in Summer 2012
- WR – 1869.07 KW Demand During Peaks
- 1869 KW = 1.869 MW
- 1.869 MW * $28.37 *365 DAYS
- $19,354 Capacity Charge

July 2014→July 2015

- Peaks set Summer 2013
- WR- 1869.07 KW Demand During Peaks
- 1869 KW = 1.869 MW
- 1.869 MW * $128.12 * 365
- $87,404 Capacity Charge
- $68,050 increase for next year

RUNNING PLANT GENERATOR (12 TIMES)

HIT ALL 5 PEAK HOURS

Money spent/ results

- Fuel = (4800 gal * $3.50) = $16,800
- Labor = (12 days*3 hr*$35/hr*1.145 OPERS) = $1,442
- $18,242 Spent – no DPL bill during time (-$12, 560)
  - Cost of $5,682

Money saved (7/14→7/15)

- Doing nothing Capacity Charge $89,404
- We spent $5,682 to go off the grid
- Capacity Charge for (7/14→ 7/15) = $5,611
- Total Savings = $78,111 for Capacity Charge in Future (July 2014→July 2015)

PREDICTING PEAK HOURS

Telemetry time: 08/18/14
07:30 EDT

Load	MW
PJM RTO Total	86,979
Mid-Atlantic Region	29,554
Southern Region	10,710
Western Region	46,715
AE Zone	1,113
AEP Zone	14,496
APS Zone	5,143
ATSI Zone	7,788
BC Zone	3,362
COMED Zone	10,648
DAYTON Zone	1,984
DEOK Zone	3,159
DOM Zone	10,536
DPL Zone	1,869
DUQ Zone	1,623
EKPC Zone	1,420
JC Zone	2,256
ME Zone	1,622
PE Zone	4,171
PEP Zone	3,608
PL Zone	4,269
PN Zone	2,061
PS Zone	4,646
RECO Zone	173

https://edatamobile.pjm.com/eDataWireless/SessionManager?a=instLoad


Questions?