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
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
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

2012 Load Run On Low, Medium, and High Price years
2+1 MW Hedge
$1.17 Low, $1.26 Med, $1.4 High

Measure Names
- Load
- Hedge(2)+1
- Low(2+1) 1#17
- Mid (2+1) 1#26
- High(2+1) 1#4

The trends of Hedge(2)+1, High(2+1) 1#4, Load, Low(2+1) 1#17, 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 for Date. The view is filtered on Date, which keeps all values.
MCES ENERGY PROCUREMENT
CASE STUDY
HOW DID BLOCK & INDEX COME ABOUT?
2.5 YEARS OF WORK IN ONE MINUTE

- 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

Usage for 7 large accounts
## Decreased Usage and Costs

**Western Regional**

<table>
<thead>
<tr>
<th>Period</th>
<th>Usage (kWh)</th>
<th>Overall costs</th>
<th>Overall Cost Per month</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 2013-June 2013</td>
<td>1,327,856</td>
<td>$452,594</td>
<td>$90,519</td>
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<tr>
<td>July 2013-June 2014</td>
<td>1,046,147</td>
<td>$787,107</td>
<td>$65,592</td>
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<tr>
<td>July 2014-June 2015</td>
<td>936,815</td>
<td>$63,078</td>
<td>$63,078</td>
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</tbody>
</table>
CAPACITY CHARGE
Ohio Capacity Clearing Prices
Jun 2009- May 2017

$\text{$/MW-Day}$

- AEP, Duke & DP&L
- FE

Yearly Breakdown:
- 2009/2010
- 2010/2011
- 2011/2012
- 2012/2013
- 2013/2014
- 2014/2015
- 2015/2016
- 2016/2017
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
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

IF WE DID NOTHING...
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

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<thead>
<tr>
<th>Load</th>
<th>MW</th>
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<tbody>
<tr>
<td>PJM RTO Total</td>
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<tr>
<td>Mid-Atlantic Region</td>
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<td>Southern Region</td>
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<td>Western Region</td>
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<td>AE Zone</td>
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[https://edatamobile.pjm.com/eDataWireless/SessionManager?a=instLoad](https://edatamobile.pjm.com/eDataWireless/SessionManager?a=instLoad)
Questions?