Lecture 4: Regulation in Ohio

Energy Law and Policy

Fall 2013

Class Schedule

- 8/26: INTRODUCTION AND BACKGROUND
- 8/28: Forces controlling energy policy; Jim Halloran, PNC Bank.
- 9/4: Energy Policy Overview and History of Energy Regulation
- 9/9: History of Regulation
- 9/11 History of Regulation
- 9/16 Regulation of electricity in Ohio
- 9/18 Beth Polk – Retail Electricity Markets
- 9/23 David Fornari – Managing energy and resources
- 9/25 Bill Bowen – science and policy of global warming
- **9/30 Regulation of electricity in Ohio**
- 10/2 Aggregation/Energy Portfolios
- 10/7 Matt Brakey – Retail electricity/SB 221
- 10/9 SB 221/Substitute Bill 58/Energy Efficiency

Background

- What was the traditional model?
  - Cost plus returns on investment
  - Vertical integration
- What are “restructured markets”?
  - Market based generation
  - Unbundled utilities
  - Regional transmission organizations
  - Regulated distribution

Utilities in Ohio Under Traditional Model

- Regulated by the Public Utility Commission
- Restriction on geographic area
  - "certified" territories
- Provided bundled package of generation, transmission and distribution
- Electricity Rates were set by PUCO
  - 80% of utility revenue was from rates
  - Rate of return based on investments that were "used and useful"
  - Ratepayers bore risk of new investments – so long as they were useful to process of delivering power.

State of Ohio in 1999

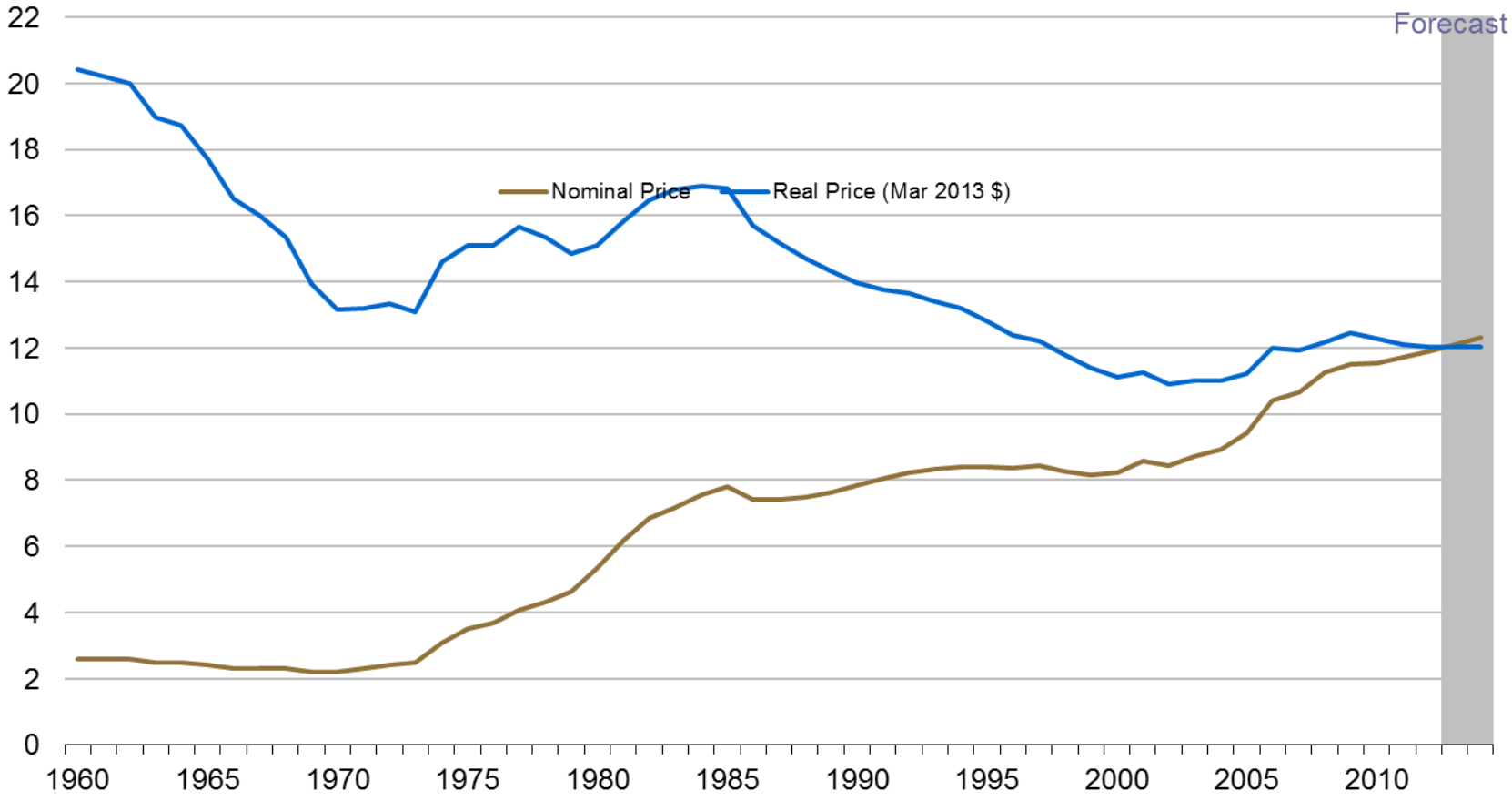
- Eight for-profit electric utilities
  - 91% of the electric market
  - Four investor owned utilities generated and supplied most of the market
    - AEP-Ohio
    - Dayton Power & Light
    - First Energy
    - Duke Energy
- Twenty six non-profit electric utilities

Movement to Deregulate

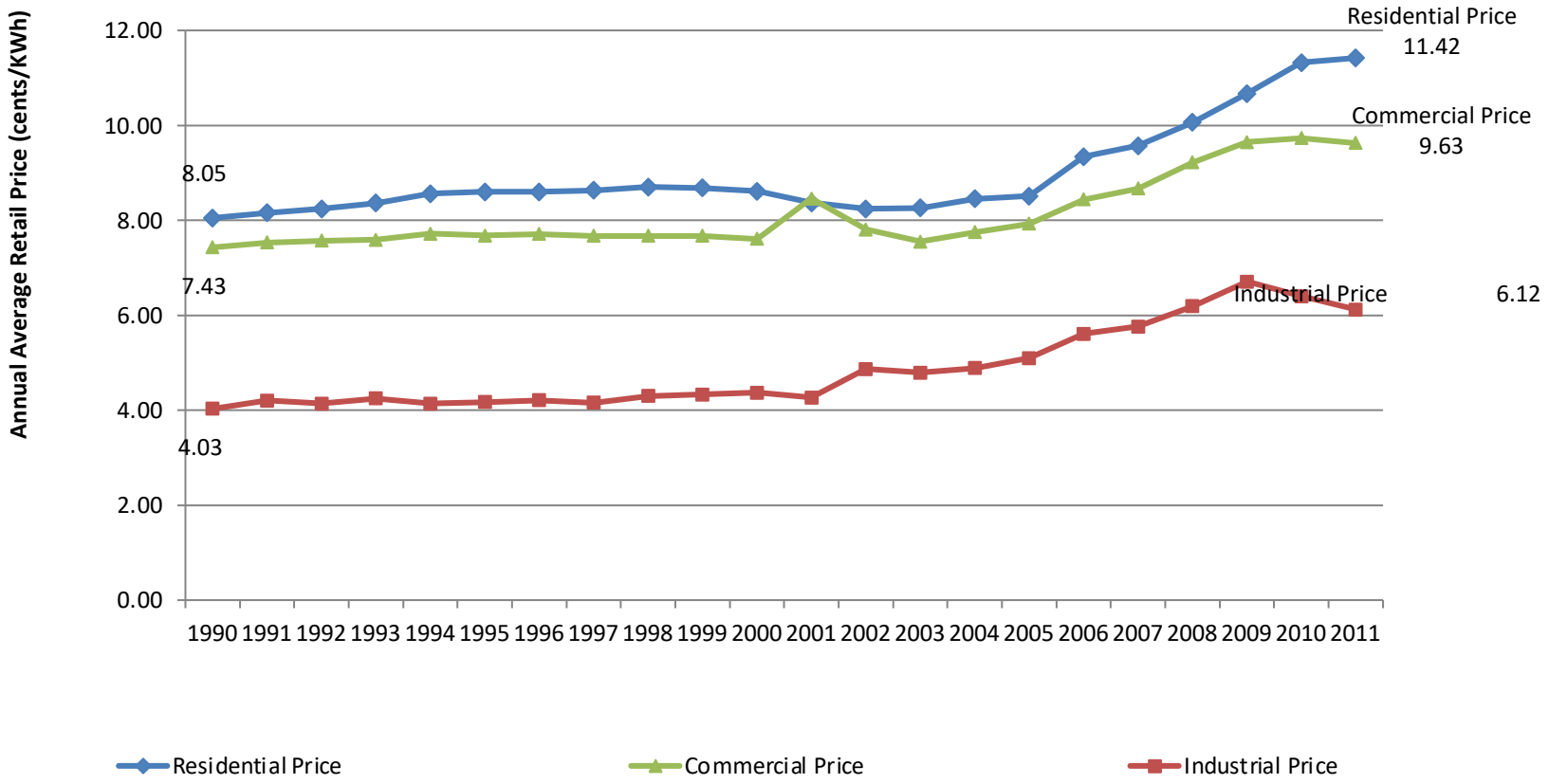
- What was happening in Ohio in the 1990's
  - Stable electricity prices
- So why should Ohio Restructure?
  - Who was pushing for deregulation?
  - Why?

Annual Residential Electricity Price

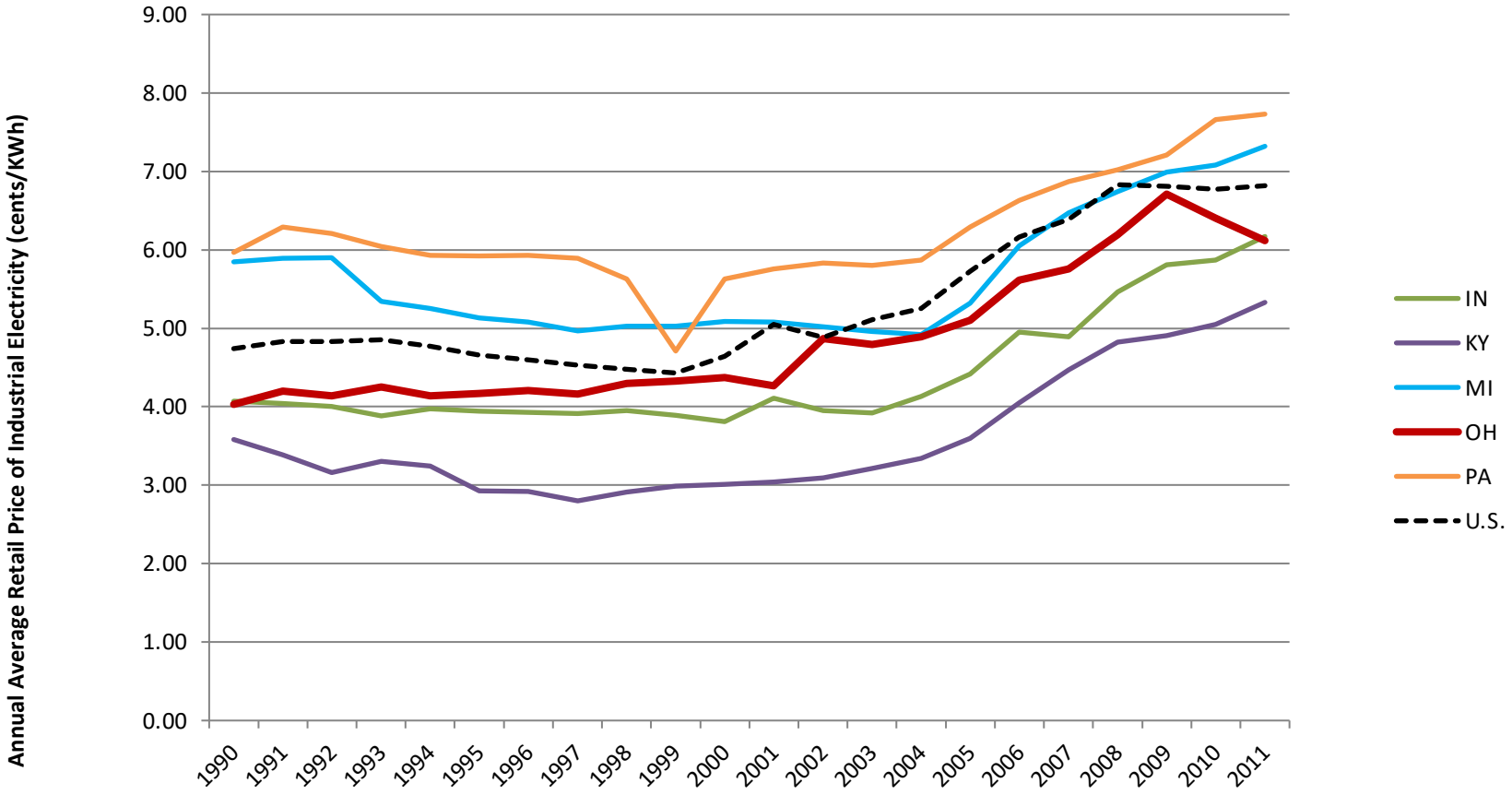
cents per kilowatthour (kwh)



Ohio Retail Electricity Prices: 1990 to 2011

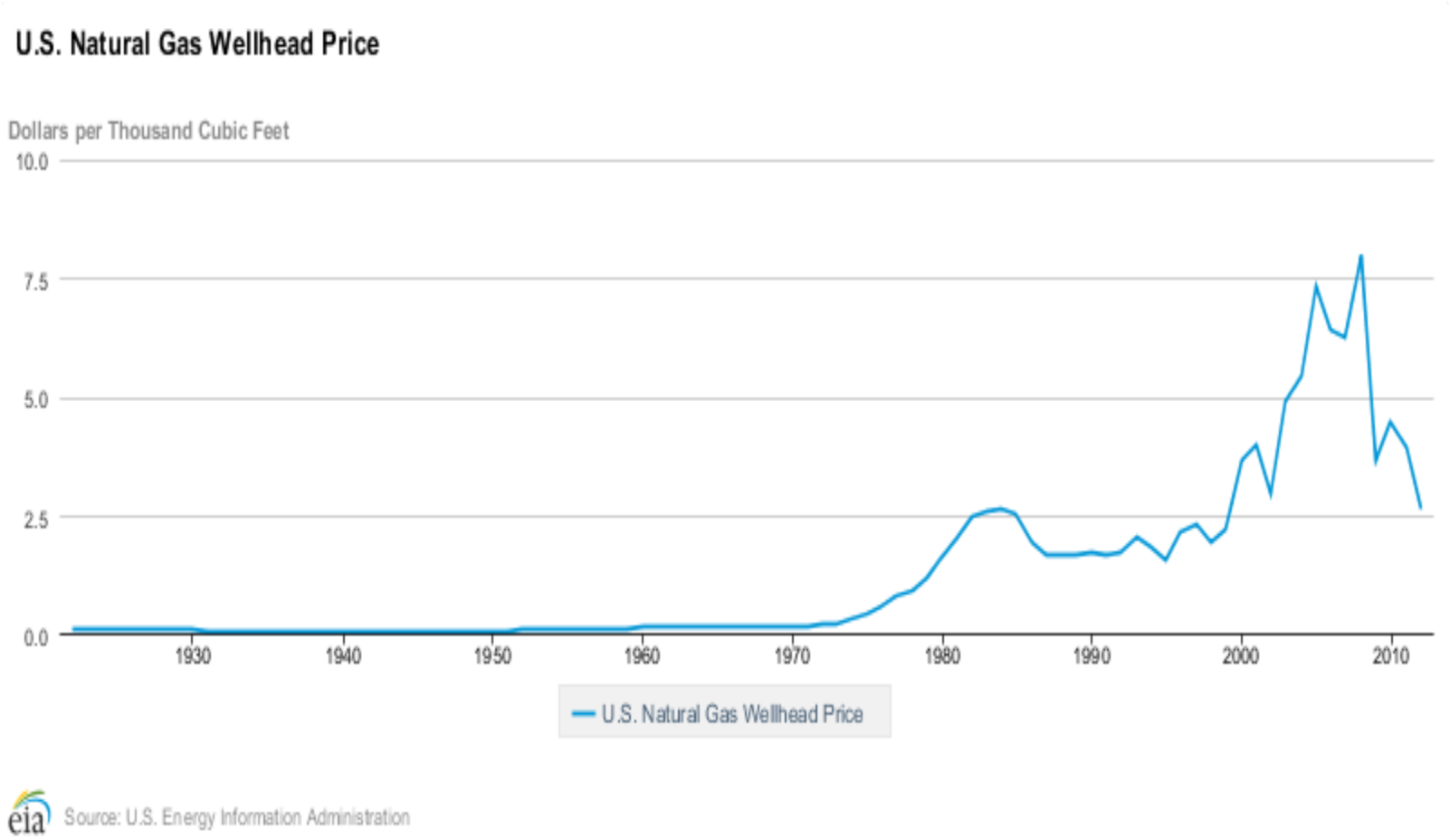


Average Retail Price of Industrial Electricity – 1991–2011



Industry and Electricity

- Best Jobs are found within Energy Intensive Industries.
  - High capital projects tend to require more skilled workers.
  - Energy intensive projects and processes tend to be capital intensive.
    - Lord & Ruble, 2010
- Electricity Costs are the Third Most Important Issue in Site Selection for Industry.
    - Deliotte, 2009


U.S. Natural Gas Wellhead Price
Dollars per Thousand Cubic Feet
10.0
7.5
5.0
2.5
0.0
1930
1940
1950
1960
1970
1980
1990
2000
2010
U.S. Natural Gas Wellhead Price
eia
Source: U.S. Energy Information Administration

Ohio Senate Bill 3

- Passed 1999
  - Went into Effect January 1, 2001
- Required utilities to separate (unbundle) their services
- Retained monopoly status for distribution and transmission.
- Allowed retail customers to choose their retail suppliers from among:
  - Power marketers
  - Power brokers
  - Aggregators
  - Generators

Senate Bill 3

- Began with Market Development Period through 2005
  - Default option – "provider of last resort" -- price frozen pending development of wholesale market.
  - 2004-2005 – First Energy conducts wholesale competitive bidding for default option.
- Rate Stabilization Period – 2005-2008
  - Competitive retail market did not develop by 2005.
  - Generation rates for utilities capped with 3-11% increases
  - Distributions rates frozen.

Senate Bill 221 -- 2008

- Sweeping legislation to replace rate stabilization plans. Four goals:
  - Stable rates
  - Renewable and advanced energy portfolios
  - Energy efficiency mandate
  - Modernize infrastructure
- Revisions to Market Restructuring
  - Developed Hybrid Approach to Default Market

SB 221 – Default Option

- Utilities choose Standard Service Offer (SSO) option:
  - Electric Security Plan – "cost of service"
  - Market Rate Option – wholesale market supply
- PUCO has authority to decide if SSO is "fair and equitable" for consumers (stabilization).
- Required accelerated pace to corporate separation
  - But to date only First Energy separated.

Electricity Market Docket – 2012

- PUCO opened up docket in December 2012 to study electricity markets in Ohio. Questions Include:
  - Whether existing retail market is functional
  - Whether current default service model impedes competition
  - Whether hybrid model works
  - What new legislation/regulation might improve competition.
- Invited comments from stakeholders.
  - To date 112 comments have been entered.

Stakeholders in PUCO Docket

- Electric Distribution Utilities (EDU)
- Commercial Retail Electricity Service Companies (CRES)
- Industrial Users (OMA, IEU-Ohio, OEG)
- Aggregators (NOPEC)
- Environmental Groups
- Consumer Advocates
- Demand Response Companies

9/25 Open Letter from EDUs

- Purpose: to update commission on progress of discussions on the Retail Market Investigation
- Process has been productive because “ideas can be exchanged and views shred without the risk of the discussion being used for purposes of litigation.”
- Goal: for EDUs and market participants to “more efficiently work together”
- Next Steps: for EDUs and CRES suppliers to implement recommendations.

EDUs in Ohio Today

- Transmission companies
  - AEP Transmission Co.
  - American Transmission Systems, Inc.
- Distribution companies
  - CEI
  - Ohio Edison Co.
  - Toledo Edison Co.
  - Dayton Power & Light
  - Duke Energy Ohio
  - Ohio Power Co.
  - Ohio Valley Electric Company

Wholesale Markets

- Sale of power for purposes of resale. Includes:
  - Independent Power Producers
  - Suppliers formerly with EDUs
  - Distributed Generators
  - Brokers
- Interstate in nature – regulated by FERC
  - Open Access Rules – 1996
    - FERC Orders 888 and 889
  - Creation of Independent System Operators.
    - Function: to manage wholesale markets, ensure open access to transmission

Need for Wholesale Markets

- Retail providers
  - Shortfall in own generation
  - Shortfall in purchased generation
  - Identification of cheaper power
- Default market auctions

Independent System Operators

- Created by FERC in 1996 with Order 888
  - Utilities turn over operation of their grid to an operator that:
    - Dispatches power
    - Has no financial stake in power markets
- Goals:
  - To encourage efficient buying and selling of power
  - Open access to transmission lines

Regional Transmission Organizations

- FERC Order 2000 – 1999.
  - Changed name of ISO to RTO
  - Found that open access rules were not enough to ensure market development
    - "Residual discrimination" from vertically integrated companies
- Detailed what an Independent System Operator should do
  - Encompass large geographic area
  - Standard market designs – developed best practices

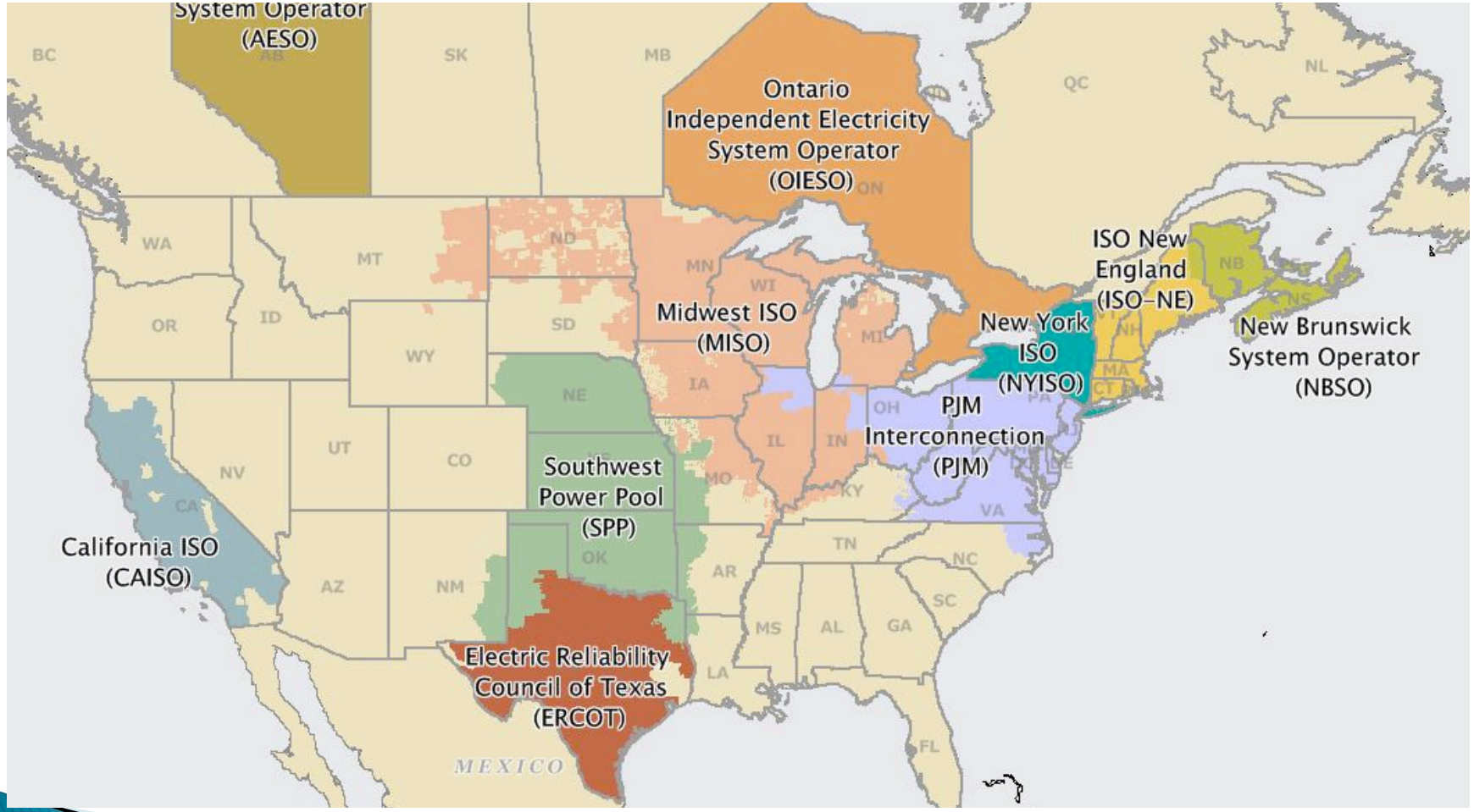
RTO Obligations

- Administer:
  - Energy service markets
  - Ancillary markets
  - Capacity markets
  - Financial transmission rights
  - Uniform transmission tariffs
- Deregulated regions who do not join an RTO are required to engage an independent entity to administer their system

RTOs Today

- North America: 10
- United States: 7
  - PJM Interconnection (PJM)
  - Midwest ISO (MISO)
  - Electric Reliability Council of Texas (ERCOT)
  - Southwest Power Pool (SPP)
  - New York ISO (NYISO)
  - ISO New England (ISO-NE)
  - California ISO (CAISO)

North American ISO/RTOs

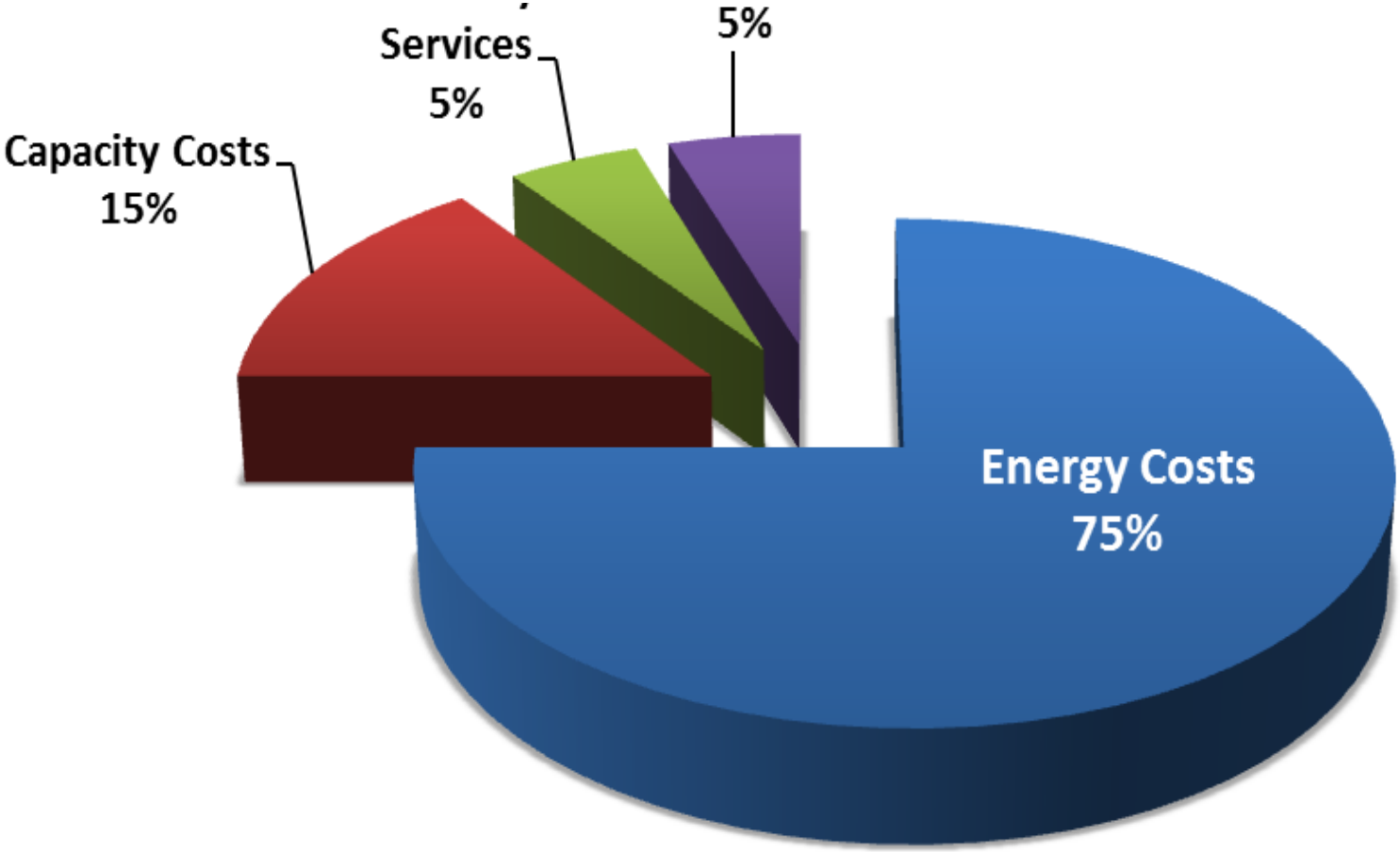


PJM Interconnection

- Coordinates and manages for 13 states:
  - High voltage grid
  - Wholesale markets
- 214,000 square miles
- Population over 60 million
- Peak Demand 164,000 MW
  - Largest RTO in world – in terms of demand

PJM Map

PJM Cost Components



PJM Customer Guide

- 50 Different cost line items
  - Many have multiple sub-charge line items
- Transmission, scheduling, capacity reserve, frequency/phase control, overhead and other charges

Energy Service Charges

- Load serving entities can acquire power from:
  - Own generation
  - Purchase power
  - Wholesale market
- Wholesale market is operated as a “single clearing price market”
  - Day ahead markets – for “known shortages”
    - PJM takes all bids in order of merit, last incremental order (clearing price) sets amount paid for all successful bids
  - Real time markets – for unanticipated shortages
    - Weather, load, supply variations

Changes to the Clearing Price

- PJM has “market monitor” oversight
  - But rarely make changes to wholesale pricing – less than 1% of offers made
- Use “locational marginal pricing”
  - Prices may vary depending upon presence of transmission congestion
    - Congested areas pay more than the clearing price
  - Administered as a “congestion charge”

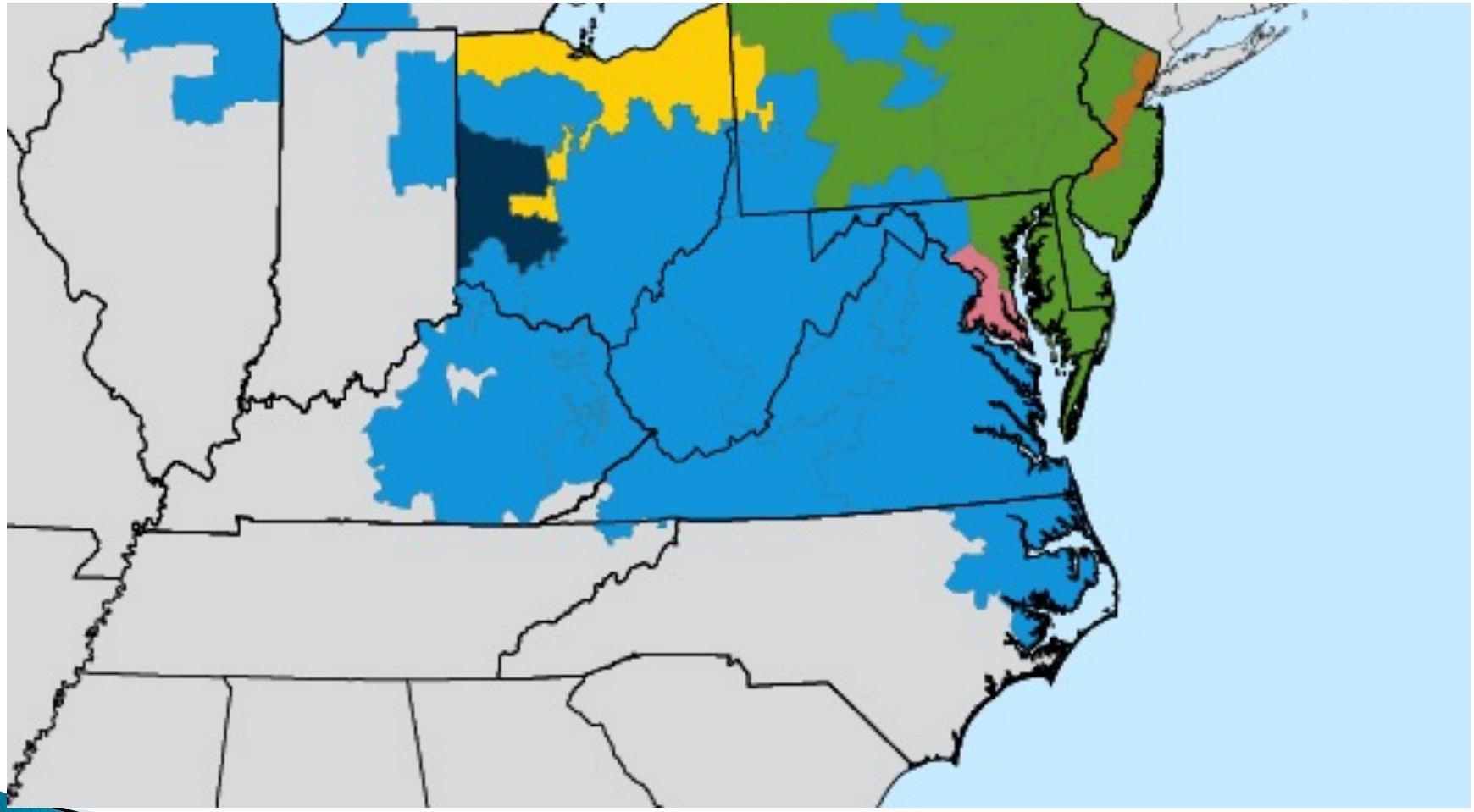
Capacity Charges

- Represents the cost associated with maintaining generation reserves for peak load
  - Pass through of fixed costs for pooled generation capacity
- Purpose of charge: encourage investment into regional generating capacity
  - But 1999 to 2005 net revenues from system sales was insufficient to encourage new generation
- 2005 – PJM created Reliability Pricing Model
  - Auction held for generation capacity
  - Designed to encourage more generation

Reliability Pricing Model

- Key elements
  - Yearly centralized auctions in May
  - Forward looking (3 years)
  - Locational valuation (congested areas pay more)
  - Demand curve that triggers bids
- Locational capacity prices are based upon different zones within PJM
  - ATSI – Toledo Edison, CEI, Ohio Edison
  - Duke
  - Dayton
  - AEP

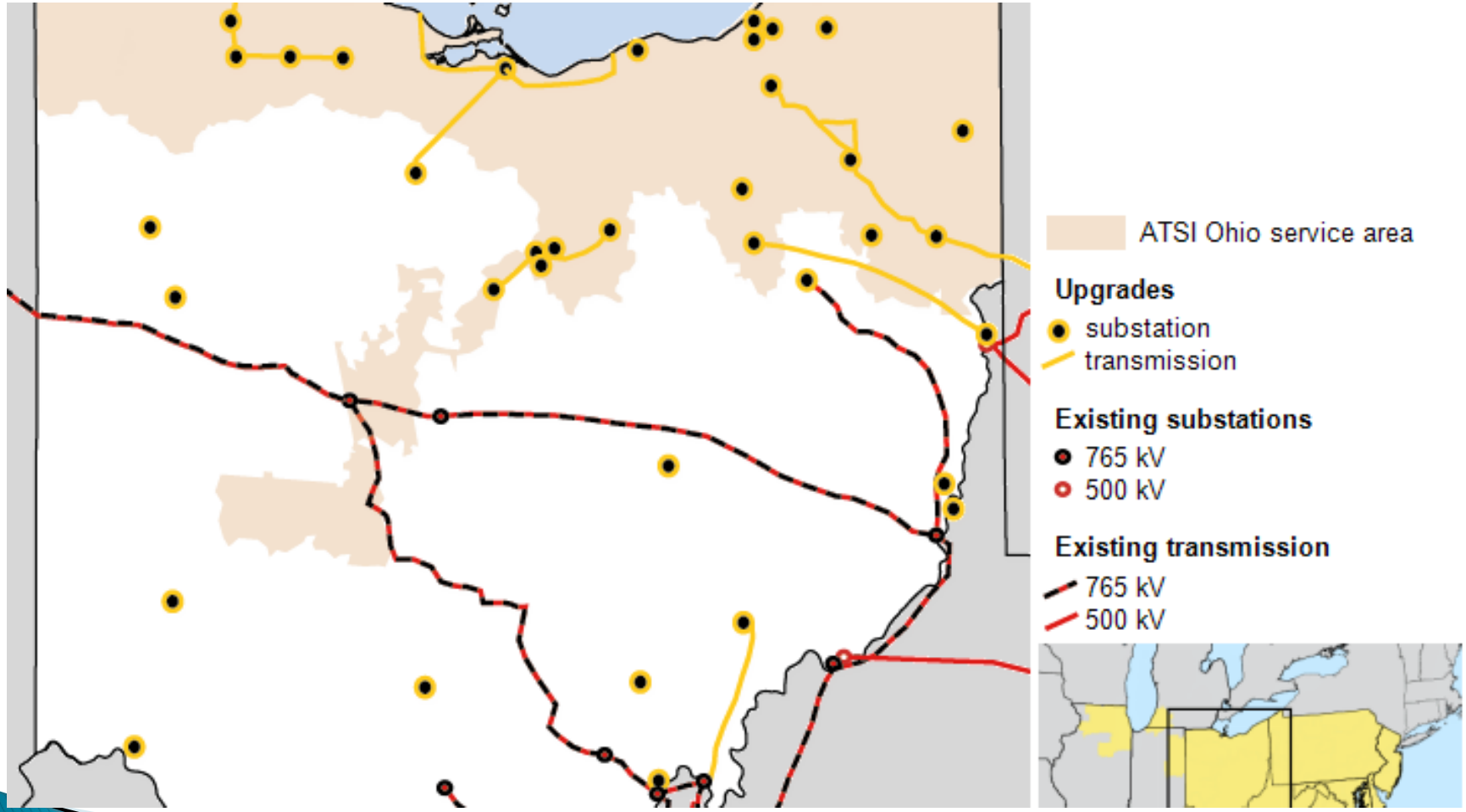
Capacity Zones in PJM



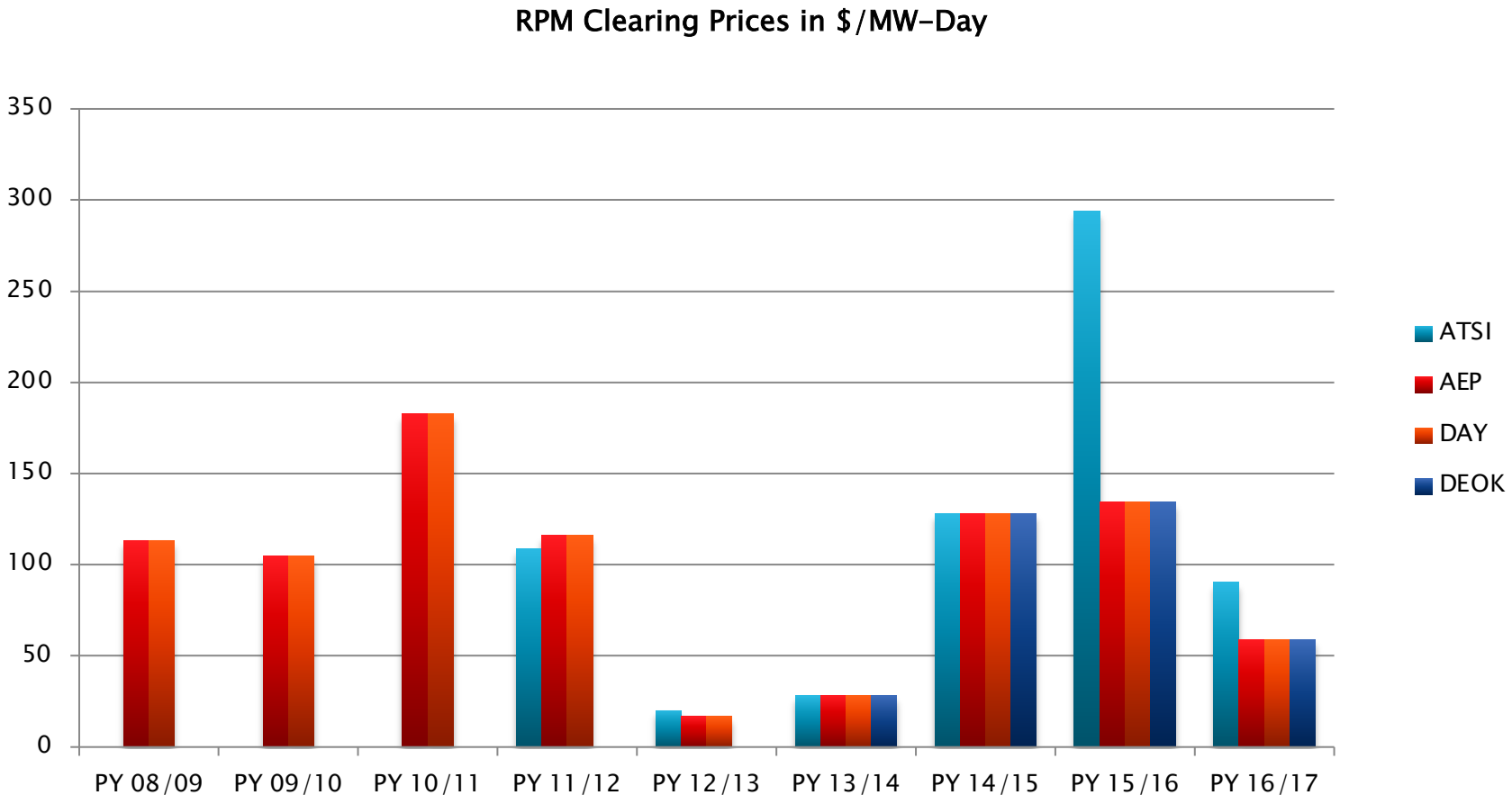
Recent Capacity Charges

- Currently almost no charge in PJM for capacity
- But 2012 auction came in very high
  - ATSI zone over twice rest of PJM
  - Beginning in 2015 capacity charges up over 1000%
  - Retiring coal plants blamed
- 2013 auction came back down
  - Response from high 2012 auction
  - Generation capacity from outside region
  - *But still high in ATSI zone*

Northern Ohio Grid Constraint



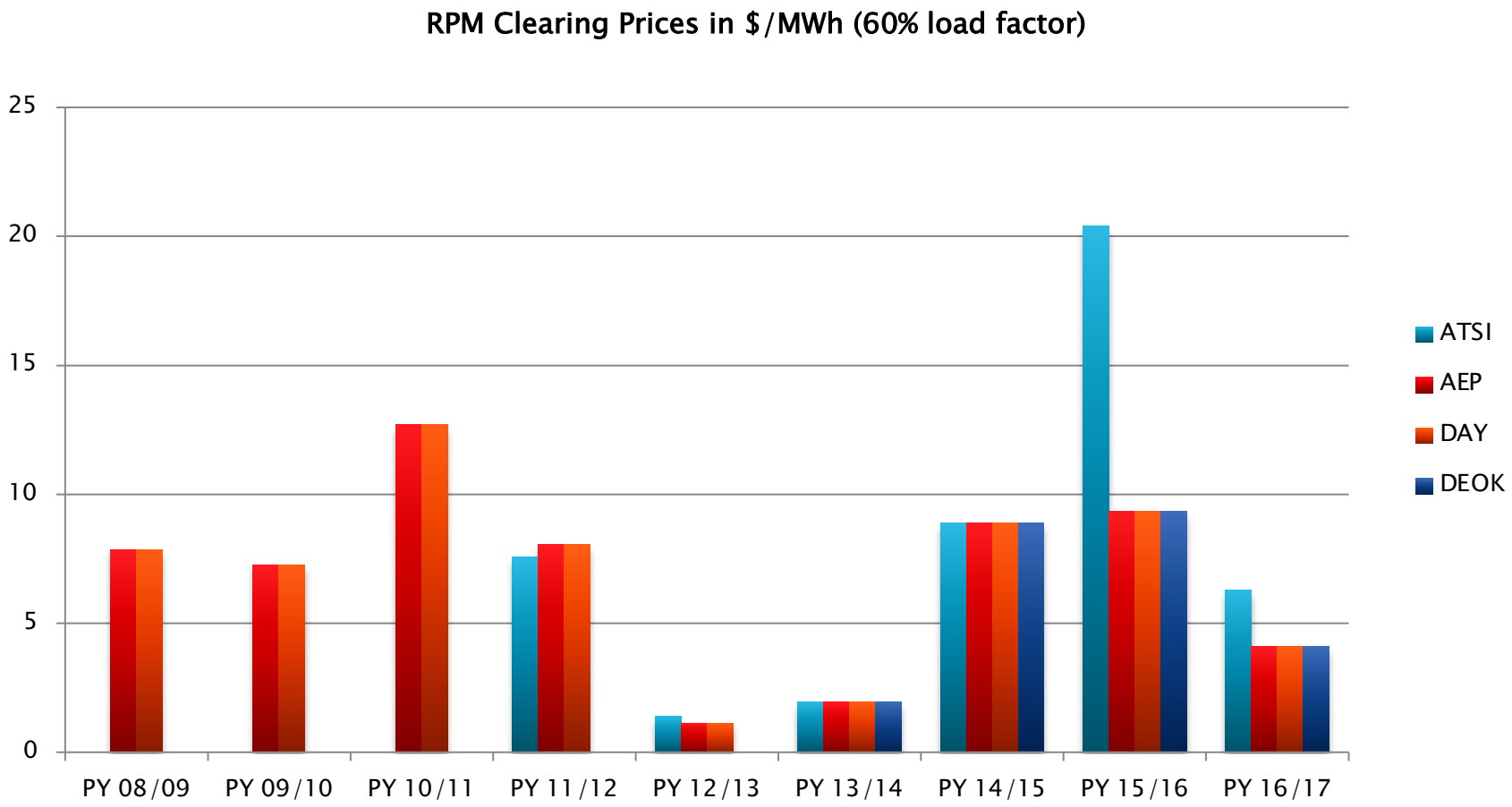
PJM Capacity Auction Prices



Capacity Formula

- Capacity Charge based upon Peak Loading Contribution Tag
  - Coincident Peak – look at customer's five highest use summer hours.
    - Compare to five hours of highest use on PJM
  - Cost can be several cents per kw-hr if customer peak loads track PJM peak loads.
  - Can control for coincident peak costs by reducing load during hottest days in summer

Clearing price with 60% load



Meeting Capacity Auction Requirements

- Generation
- Demand Response Programs
- Energy Efficiency Programs

PUCO Comments on Capacity Markets

- FERC Docket on Centralized Capacity Markets in RTOs
- Filed 9/25 by Todd Snitchler, chairman of the PUCO
- Filed in response to FERC question on the effectiveness of PJM's Reliability Pricing Model in meeting needs for capacity
  - "auction results have lacked consistent outcomes from year to year"
  - "now is time for FERC to initiate a proceeding to review the policies affecting RPM auctions"

Snitchler on Demand Response

- Payments for Demand Response and Energy Efficiency are too high
  - Demand Response has an “important and valuable role” in ensuring reliability through RPM auction.
  - But DR is not the same as producing electrons
    - Limited summer DR programs are oversaturating the DR market
    - DR not subject to same availability as generation should not be allowed to participate.
      - No penalties for nonperformance.
      - Shorter periods of time
  - Recommends 70% discount of DR sources

Snitchler on Energy Efficiency

- Same concerns for those bidding energy efficiency into the capacity auctions.
  - Energy efficiency should pay for itself – that should be sufficient incentive to undertake the work.
  - Offering a secondary source of value for energy efficiency distorts the electricity generation market.
  - Recommends a 70% reduction in value associated with energy efficiency offered into the capacity markets

Snitchler on Generation

- Concerns over “replacement capacity”: fear that offerings into capacity auction are not legitimate.
  - Bidders use auction to generate cash flow through “financial arbitrage” rather than actually providing physical resources.
- FERC should ensure all bids are legitimate and not just a ruse to take advantage of the price differential.
- Recommends 10% cap on replacement generation.

Snitchler on Minimum Offer Price Rule

- Under PJM's rules, vertically integrated utilities and municipal utilities receive exemptions from the minimum offer price rule. But merchant generators must qualify.
- Under current rules, generation that receives state or ratepayer subsidies is allowed to be bid into the capacity markets.
- Last auction allowed the importation of power generated by vertically integrated participants from outside the region.

Snitchler: Capacity Markets and Transmission

- Capacity charges have spurred investment in transmission – but at the expense of retiring coal plants
  - New generation does not respond to one year capacity price signals
  - Transmission expansion offers guaranteed rate of return
- Result: utilities rely more on transmission upgrades than new generation
- Recommends making the auction price good for 3 years instead of 1 year

Transmission and Ancillary Charges

- Transmission costs – 5%
  - Covers PJM costs for transporting power over the grid
- Ancillary costs – 5%
  - Regulation services
    - Short term adjustments to grid
    - Frequency, phase, and other controls
  - Operating Reserve services
    - Emergency back up capacity
    - Scheduling
    - Black start capability

Distribution Charges

- Tariff based upon "cost of service"
  - Fundamental goal of regulation: to "mimic a competitive market outcome, even when the underlying market is uncompetitive"
    - J. Lesser, "Fundamentals of Energy Regulation"
  - Problem is in application and practice.
  - Problem of promoting social policies.
- Role of "riders"
  - DSE2 Rider
  - Economic development rider

DSE-2 Rider

- Energy Efficiency pass through cost
- Paid by EDU
- Can avoid if “Mercantile Customer” under SB 221
  - Consume more than 750 MW-hrs/year
  - Requires demonstration of adopting energy efficiency program
- Costs:
- Under current scrutiny by State Assembly

Economic Development Rider

- Enables EDU to pass through to ratepayers a subsidized rate to special customers.
- PUCO has to approve.
- Designed to attract/keep energy intensive manufacturers with high Ohio employment.
- Case study: Ormet Corporation
  - Aluminum manufacturer in southeast Ohio – coming out of bankruptcy – negotiates 50% distribution rate reduction
  - Average cost of rider: $2.58/month per household

AEP Economic Development

- Four companies in AEP territory get economic development subsidies through the rider
- $78 mm in 2011 from the rider -- $54 for Ormet
- Questions:
  - What do other manufacturers think of subsidy?
  - Commercial and residential?
  - Is this an end run on the legislative role in setting taxation?
  - Why only AEP territory?

Regulation of Distribution

- Historically utilities have had little opposition in their rate cases
- Began to change in 1970s in response to energy crisis
  - Industrial trade associations
  - Creation of Ohio Consumer Counsel
    - Regulatory watchdog group – water, energy, telecom
- Today utilities still have tremendous resources available to them that advocacy groups do not
  - Pass through legal costs to ratepayers

Office of Consumer Counsel

"OCC wins at Supreme Court on AEP electric security plan, protects customers from unlawful and unreasonable rate increases approved by the PUCO"

- Supreme Court ruled that PUCO unlawfully allowed AEP to collect costs to cover utility's perceived risk to provide default service.
- No evidence that $456 mm in costs were actually incurred.
  - 2011 OCC web posting

Aggregation: Residential and Commercial Response to Deregulation

- Problem:
  - As industrial users get off the grid, it leaves behind increasing shares of bad contracts to customers captured in the “default market.”
  - Small residential and commercial users have no leverage to negotiate a better rate
- Resolution:
  - Aggregation

Thought Problem

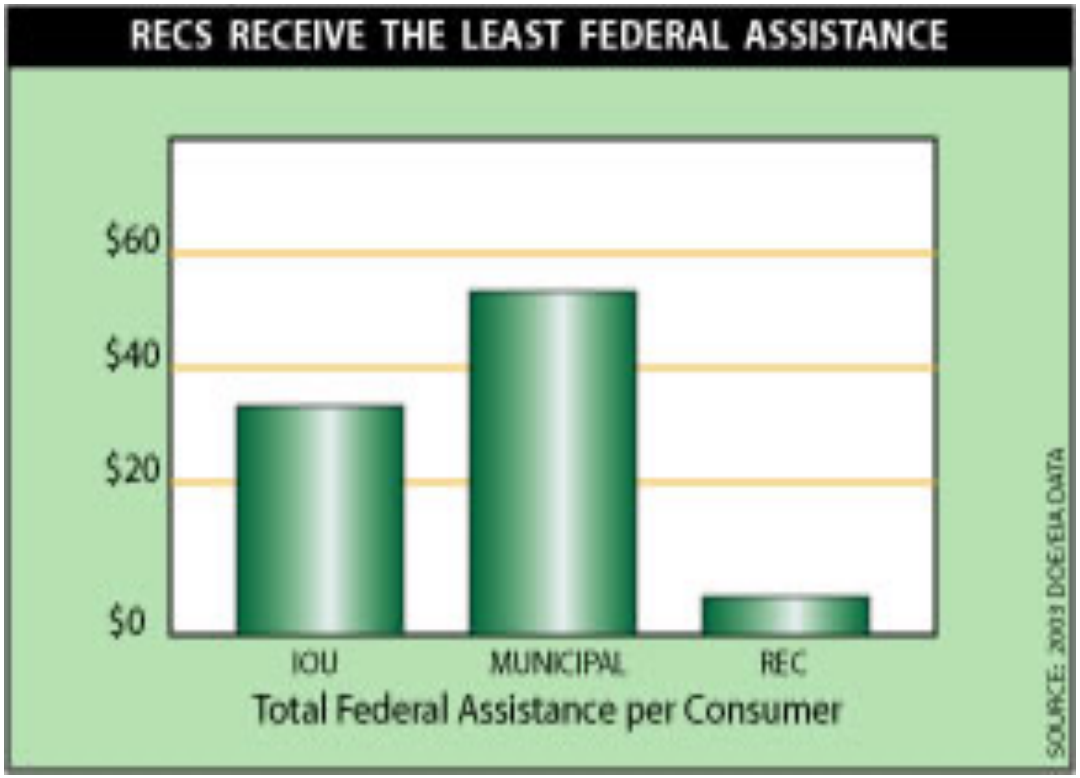
- What will be the consequence of industrial users and aggregators leaving the grid?
- Who will be left on the grid?
- Are we headed back to the 1920's, when rural electrification was unaffordable?
  - As late as the mid-1930s, nine out of ten rural homes were without electric service
- But: what role for Rural Electric Cooperatives?

Rural Electric Cooperatives – According to the Rural Coop Trade Association

- *All electric utilities receive federal subsidies in one form or another.*
- *Calculations based on federal government financial reports show that rural electric cooperatives receive the least federal amount of subsidy per consumer.*
- *This is in spite of the fact that RECs serve only 7 consumers per mile of line compared to 35 for IOUs and 47 for city-owned utilities.*

Federal Utility Subsidies

(According to National Rural Electric Cooperative Association)



But are the Cooperatives Spinning the Truth? Federal Subsidy to Cooperatives

- An important part of the history of electric cooperatives has been the development of power marketing agencies (PMAs).
- The federal law that governs PMAs gives preference in the sale of power at-cost to electric cooperatives.
- The availability of low-cost power to electric cooperatives has promoted economic development and has offset the cost of serving sparsely populated areas.
  - *But it has done so at the expense of urban ratepayers who have for 60 plus years subsidized rural electricity!*

CSU Energy Policy Center

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Thank you!