Public Interest & Environmental Organizations User Group

PJM Board of Managers
May 17, 2011

Note: These slides cover major concerns shared by PIEOUG members, but they are not intended to represent official positions of individual PIEOUG agencies or organizations.

Topics of Interest

- Transmission System Planning Focus/Environmental Considerations
- Price Responsive Demand/AMI/DR
- Consumer Advocate Organization and Board Membership
- Board Member Topics for PIEOUG Members?

Transmission System Planning Focus

Regional Transmission System Planning

Regional Transmission System Planning

Key Planning Drivers

- Grid reliability & economics
- Penetration of Newer technologies
- Public policies
  - State RE/EE/DR requirements
  - Federal environmental policies
  - FERC rulemaking

Positive System Planning Developments

- EIPC participation
  - Cooperative and collaborative
  - Substantive contributions
- Commitment to improve planning
  - RPPTF process & studies underway
  - PJM Staff straw proposal
- RTEP 2010
  - Important constructive changes

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Regional Transmission System Planning

Key Elements of Regional Planning Process

- Openness, Transparency & Priority Attention
- Critical Substantive provisions
  - Uncertainty analyses
  - Scenario Planning
  - Public policy drivers (Renewable Energy, DSRs, At-Risk Gen)
  - Renewable Generation Sourcing Analysis
  - Sensitivities on a Variety of Clean Energy Futures

Modifications to Consider

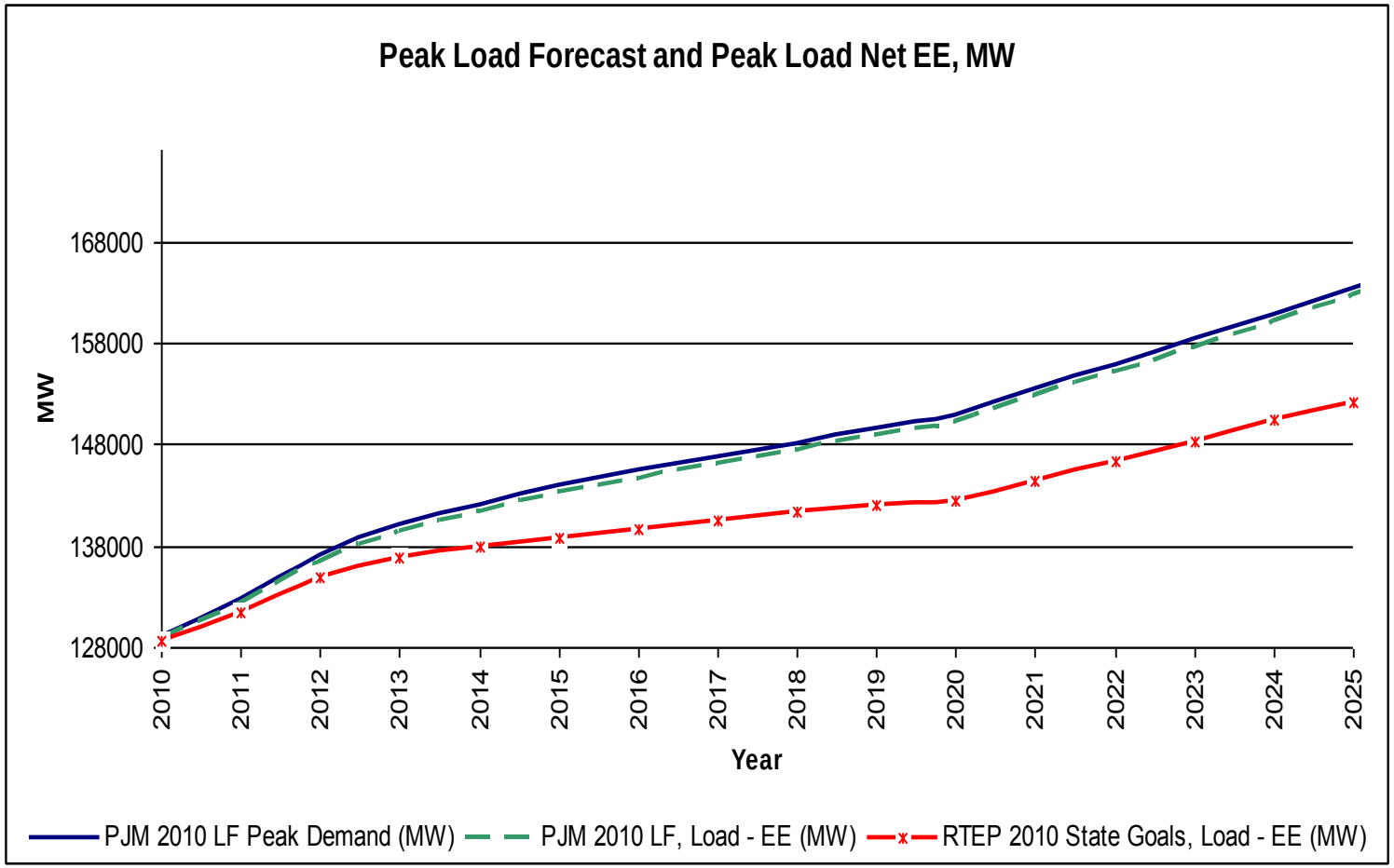
- Improved forecasting
- At-Risk Generation Analysis
- Consideration of Non-Transmission Alternatives
- Integration of sensitive lands & ecological/wildlife issues

Improved Forecasting

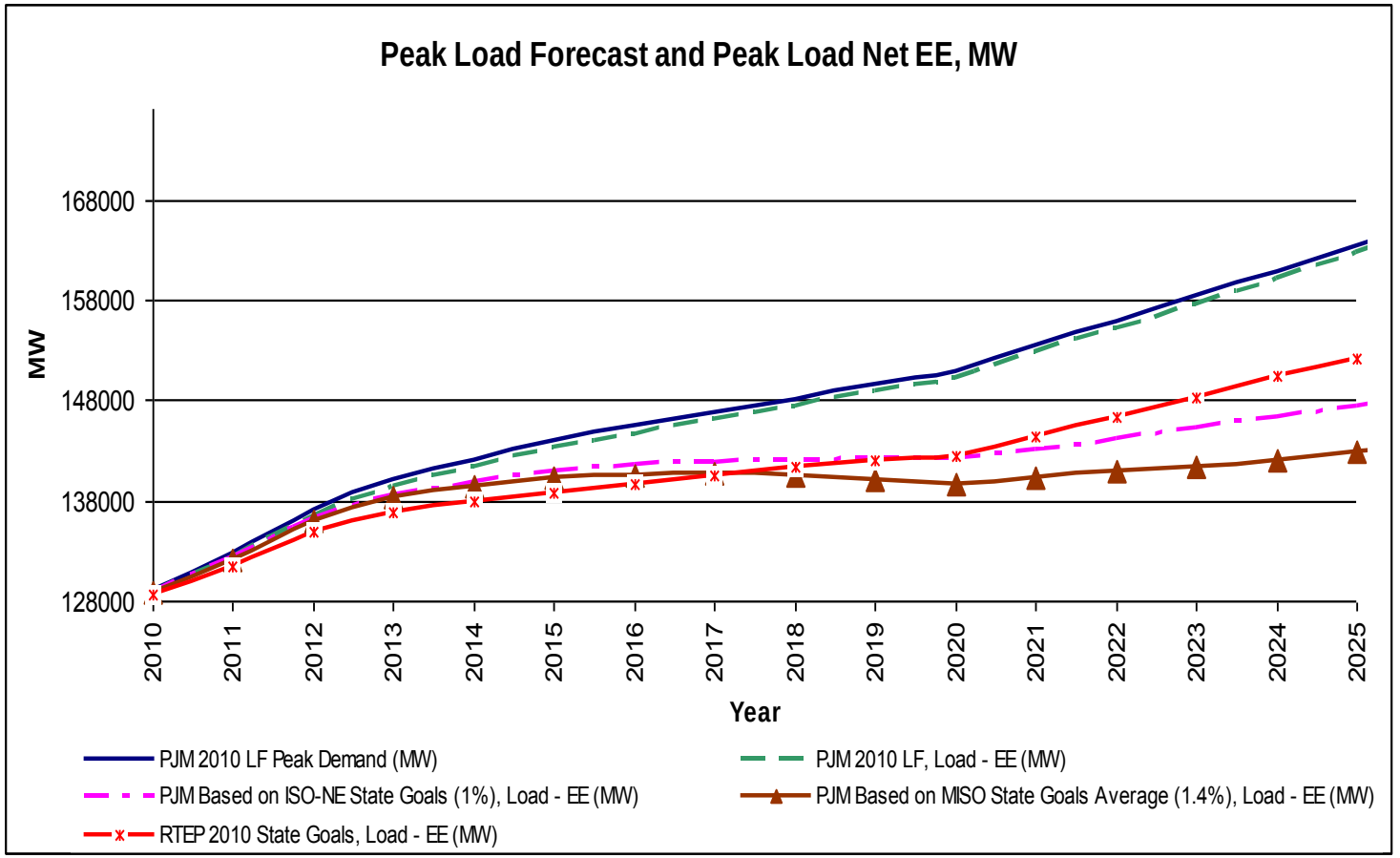
- Forecast range of loads, not a single number
- Incorporate:
  - Multiple economic forecasts
  - EE and DR penetration levels
- Analyze:
  - RPS resources
  - Feed-in-Tariffs
  - DG resources

(Next two slides show only potential EE impacts)

PJM EE in Load Forecast



Comparative EE in Load Forecast

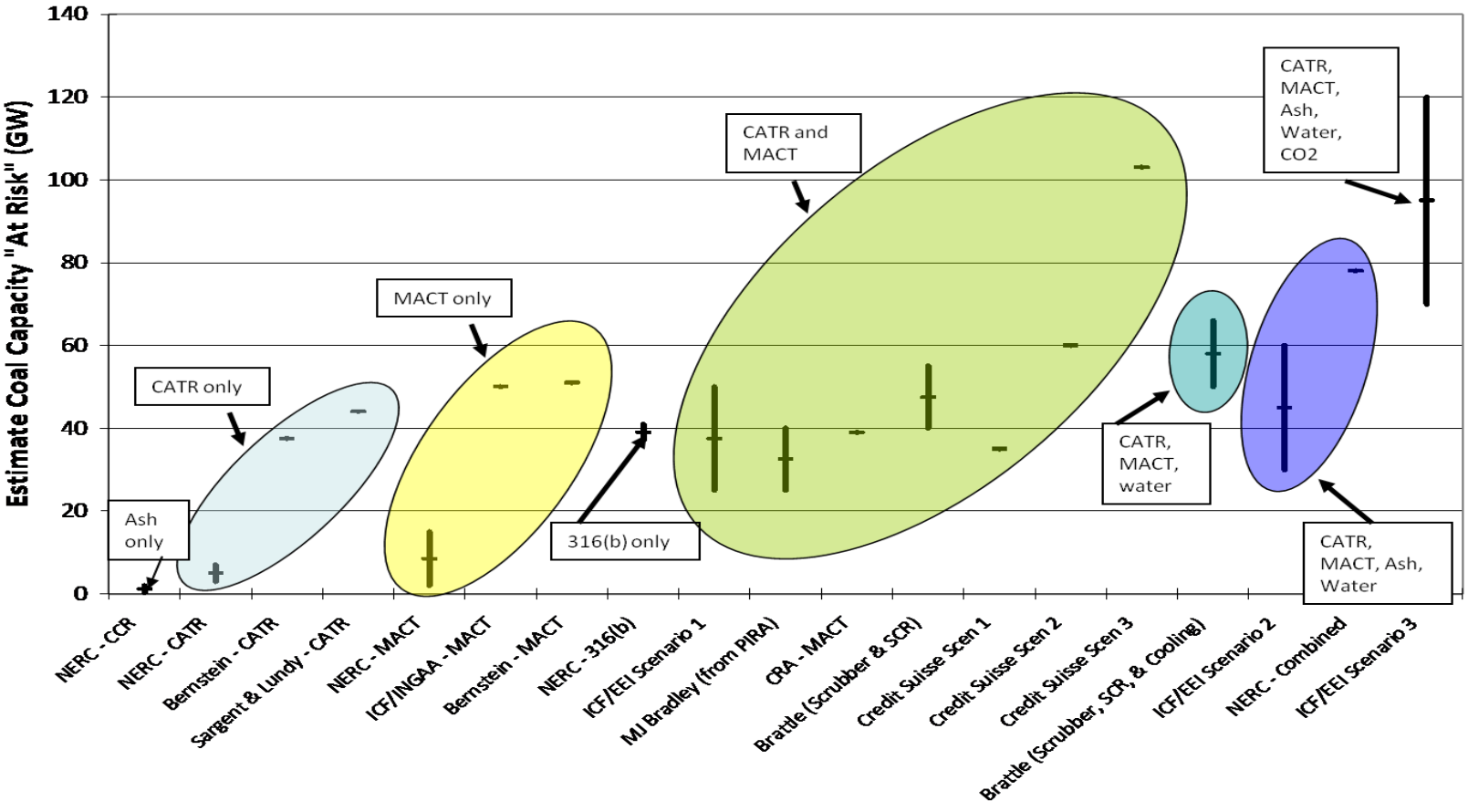


At-Risk Generation Analysis

- Nexus for many policy issues
  - Links between public policy rules, retirements, and reliability
  - Forecasting and reliability modeling will determine whether retirements create reliability issues
  - Upgrades, including transmission upgrades and other resource additions, will influence the speed with which retirements can occur

- ***<u>Goal</u>: Ensure reliability while minimizing rate-payer costs and maximizing environmental benefits***

EPA Rule Impacts – likely to require substantial capital investments – MACT and 316(b) proposals out now, ozone standards, transport rule, carbon rules, in near future, among others. The national average retirement estimate of 17% or Exelon's estimate of 14.6% in PJM may be useful as caps for analysis.



An Approach to At-Risk Generation

Sensing

- How early and how accurately can PJM detect retirements?

Assessment

- How can PJM accurately assess retirements for reliability issues?

Action

- How can PJM best manage uncertainty to ensure that reliability solutions – including non-transmission alternatives (NTAs) – are in place *before* uneconomic must-run agreements are necessary?

An Approach to At-Risk Generation

Sensing

- Key Problem: 90 days' notice with reliability response –[w]ithin 30 days of receipt." (OATT § § 113 *et seq.)* -- clearly inadequate notice and response time, regardless of modeling sophistication; PJM & stakeholders need timely notice
- What PJM should model and when
  - PJM should consider running power flow models with at-risk gen removed, being geographically specific, and sorting by probability of retirement
  - PJM should consider removing generation that fails to clear in two consecutive RPM auctions, and model much larger pools of at-risk generators
- Information PJM could reasonably consider
  - RPM auction clearing results & cumulative retrofit costs for at-risk plants
  - Economic analyses of individual plants (e.g., using heat rates, existing pollution control equipment, and operating costs)

An Approach to At-Risk Generation

Assessment

Reliability modeling should effectively assess generation retirement risk

- Waiting to run load-flow analyses until retirements are announced may create undue risk
- Approach to reliability issues should include consideration of non-transmission alternatives and evaluations of public policy impacts (e.g., EPA rule implementation)

Important interaction here with all forecasting issues

Action

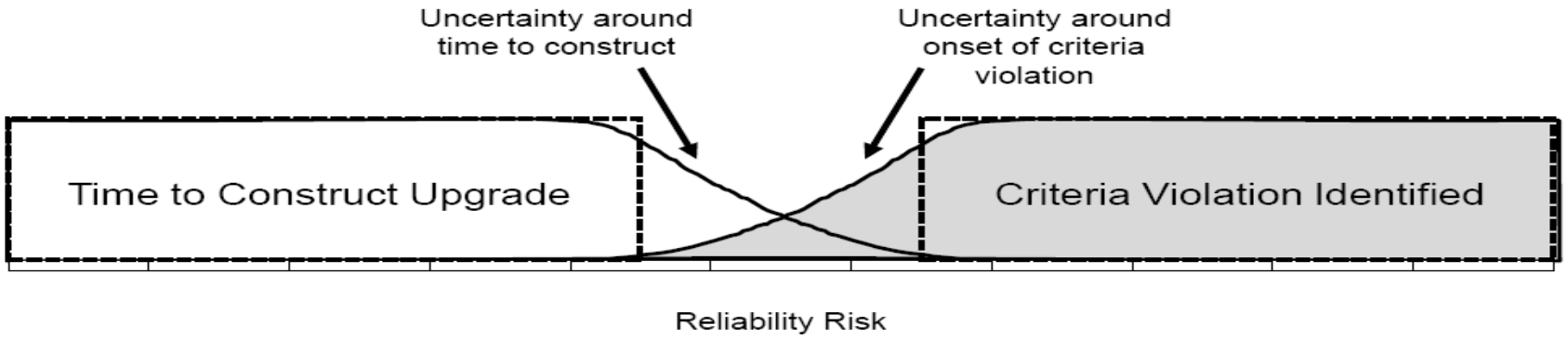
Goal: to have solutions in place in time to prevent uneconomic must-run agreements or reliability problems

Key interaction here with transmission and non-transmission alternatives (the RTEP process should be adapted to address both types of potential reliability solutions)

Action

How can PJM tier required upgrades to facilitate solutions that address the most probable retirement scenarios, and then work downwards in an iterative process?

- Low-cost options should be triggered at lower probabilities of risk.
- Consider other RTO approaches to soliciting and sorting options.



PJM Straw Proposal Elements Supported by PIEOUG

- Better assess at-risk generation
  - Evaluate EPA rules
  - Incorporate IMM assessments
  - Consider an RPM link for retirements
- Value state and federal EE, DR and peak load reduction requirements at 100%, with sensitivities for lesser amounts
- Model renewable energy generation sourcing options & system impacts for meeting state & federal RPS goals
- Consider non-transmission alternatives (NTAs) as solutions for reliability violations
- Complete conceptual study of off-shore wind potential

Integration of Sensitive Lands & Ecological/Wildlife Issues

- PJM should begin a process to consider environmental issues at an early stage of grid infrastructure planning
- Assessing the potential for successful certificate of need applications will better inform system planners and grid planning outcomes
- Using GIS data provides a quantifiable way to identify sensitive lands and wildlife impacts
- Other methods of assessing likely environmental impacts should be considered

Potential Enhancements to PJM Straw

- Adjust Baseline & Long-Term Planning Analyses to include proposed system changes
- Develop an approach to determining potential low-cost, near-term system upgrades as well as longer-term, bright-line based network upgrades
- Require more advance notice of retirements to allow for timely upgrades to avoid uneconomic reliability contracts
- Develop approach to evaluate non-transmission alternatives comparably to transmission options
- Integration of Sensitive Lands and Wildlife/Ecological Info

RTEP 2010 includes important improvements

- Role of public policy drivers in planning
- Off-shore wind conceptual study
- Capacity market treatment of EE/DR
- At-risk generation potential

Recommended Improvements for RTEP 2011

- Build in time for stakeholder response to a ***Draft*** RTEP
- Implement improved forecast approach
- Complete key scenario & uncertainties analyses
- Consider changing name to "Regional System Plan"

State EE/DR Mandates/AMI Price Responsive Demand

Price Responsive Demand

PIEOUG has been supportive over the years of PJM's efforts in increasing the ability of demand to play a role in the PJM markets to reduce costs and create efficiencies

Many of our groups supported PJM's PRD proposal and appreciated the efforts of PJM staff to educate and inform our group, as well as to hear our suggestions

Price Responsive Demand

We recognize the Board's direction to conduct further stakeholder processes on PRD. The schedule is aggressive and beyond the ability of many of our offices to fully participate despite our interest

Today, we thought we would review some developments in the states that may bear on the ability of customers to provide price response

Maryland
AMI

- Baltimore Gas & Electric (BGE) received Commission approval to deploy smart meters in Case No. 9208 in Order No. 83531 on August 13, 2010.
  - Note: In Order No. 83410, the Commission denied BGE's initial proposal to deploy smart meters on June 21, 2010.
- Potomac Electric Power Company (Pepco) received Commission approval to deploy smart meters in Case No. 9207 in Order No. 83532 on August 13, 2010.
  - Note: In Order No. 83571 issued on September 2, 2010, the Commission provided further guidance with respect to Order No. 83532.
- As outlined in these orders, cost recovery will for the most part be determined at a later date.

Maryland AMI

- Beginning in June 2011, Pepco will commence deployment of approximately 548,000 ~~–s~~mart meters" to Maryland residential and business customers. Installations are expected to be completed before year-end 2012.
- Beginning in October 2011, BGE will commence deployment of approximately 2 million ~~–a~~dvanced" electric and gas meters. Installations are expected to be completed in December 2014.
- Rate schedules utilizing the new meters have not been determined.

Maryland EE

- The EmPOWER Maryland Energy Efficiency Act of 2008 set forth the goal of the State of Maryland to achieve the following energy efficiency, conservation, and demand response targets based on 2007 electricity consumption:
  - A 15% reduction in per capita electricity consumption by the end of 2015; and
  - A 15% reduction in per capita peak demand by the end of 2015.

Maryland EE

On or before September 1, 2011, each respective EmPOWER Maryland Utility must submit a plan to the Maryland Public Service Commission (PSC) that details the electric company's proposals for achieving the electricity savings and demand reductions targets referenced above.

Pennsylvania

- Under Act 129 of 2008, each electric utility was required to file with the PA PUC an energy efficiency and conservation plan by July 1, 2009.
- Under the plan, the utility was required to reduce total annual electricity consumption as compared to business as usual by at least 1% by May 31, 2011; and by 3% by May 31, 2013.
- The utility also was required to reduce peak demand during the 100 highest use hours of the year as compared to business as usual by at least 4.5% by May 31, 2013.
- Utilities that do not meet the reduction requirements can be fined up to $20 million.

Pennsylvania, con't.
Mandated Energy Usage Reductions By May 31, 2011 and May 31, 2013

Energy Consumption Forecasts and Act 129 Mandated Consumption Reductions as Measured in Megawatt-Hours			
EDC	Forecast	1% Reduction	3% Reduction
Duquesne	14,085,512	140,855	422,565
Met-Ed	14,865,036	148,650	445,951
Penelec	14,399,289	143,993	431,979
Penn Power	4,772,937	47,729	143,188
PPL	38,214,368	382,144	1,146,431
PECO	39,386,000	393,860	1,181,580
West Penn	20,938,650	209,387	628,160
Total	146,661,792	1,466,618	4,399,854

Pennsylvania, con't.
Smart Meters/Real Time Price

- Under Act 129, each utility also was required to file plans to replace all of its meters over the next 15 years (or sooner upon an individual customer's request and on all new construction).
- The new meters must be capable of allowing utilities to measure customer usage on an hourly basis and to communicate energy price information to consumers in real time.
- Default Service Providers must offer optional time of use and real time rates to all customers on a voluntary basis.

Pennsylvania, con't.
Smart Meters/Real Time Price

- Electric utility Smart Meter Plans were filed in August, 2009 with most plans approved by first quarter of 2010.
- Highlights of progress:
  - PPL had deployed AMI throughout its service territory to its 1.4 million customers prior to Act 129 that was capable of supporting most of the required functionality.
  - PECO received a $200 million DOE stimulus grant and is in the process of preparing to deploy about 600,000 meters in its service territory by 2012.
  - West Penn plans to deploy about 25,000 meters by 2013.
  - Other utility meter deployments through 2013 will be pilot programs with more limited meter deployment.
  - While not required by Act 129, some of the smaller electric utilities have initiated smart meter deployment.

Pennsylvania, con't.
Smart Meters/Real Time Price

- Pricing Plans—Each default service provider is required to have time of use or real time pricing plans for customers with smart meters.
- Rate offerings for residential and commercial customers proposed include critical peak pricing plans, time of use rates, and peak time rebate plans.
- Large customers that remain on default service are on real time price plans or being transitioned to such plans.
  - Large customers have switched to alternative providers and may be served on other types of rate plans.
    - 90% to 95% of the industrial customer load is serviced by alternative suppliers.

Washington, DC

AMI

District Council enacts Advanced Metering Infrastructure Implementation and Cost Recovery Authorization Emergency Act of 2009 to:

- implement AMI
- authorize PEPCO to establish a regulatory asset for the costs, net any federal funding, including depreciation and amortization expense

Washington, DC, con't.

- reserve the authority of the D.C. Public Service Commission to review the prudence of costs accrued by PEPCO associated with AMI implementation, and
- require PEPCO to net any utility cost savings resulting from AMI deployment from the regulatory asset
- PEPCO awarded a $44.6 million grant from DOE's Smart Grid Grant Program

Washington, DC, con't.

- D.C. Public Service Commission authorized PEPCO to proceed with AMI deployment and to establish a regulatory asset to recover its non-grant funded costs

- PEPCO commenced deployment in Fall 2010; full deployment anticipated to be completed by December 2011

Washington, DC, con't.

Energy Efficiency

- District Department of the Environment administers through September 2011: appliance replacement, weatherization and rehabilitation assistance, Home Energy Rating System Audits, Renewable Energy Incentive Program
- District Council enacts Clean and Affordable Energy Act of 2008 to:

Washington, DC, con't.

- authorize Sustainable Energy Utility to administer sustainable energy programs beginning in 2011
- establish Sustainable Energy Trust Fund via a system benefits charge to provide funding for sustainable energy efforts by the Sustainable Energy Utility and existing energy efficiency programs administered by the District Department of the Environment
- increase renewable energy resource requirements-target is 20% by 2020

Illinois
ComEd AMI Pilot

In early 2010, ComEd began installing 120,000 AMI meters in the Chicago and surrounding communities
Most interesting aspect is the test of opt-out dynamic pricing and in home technology

Preliminary results from the first 3 months of data demonstrate that about 5 to 7% of customers responded to CPP and PTR (any response to other rates was not statistically significant). In-home device adoption rate was very low (<10% for the advanced device)

Illinois
Demand Response

Illinois Smart Building Initiative
Collaboration between Korean and Illinois companies to install advanced communication and control devices and strategies, including Building Energy Management Systems (BEMS) in large residential buildings.

Argonne National Labs Smart Building Program
BuildingIQ, an advanced predictive modeling tool, installed in buildings on Argonne's campus. Early results are very positive (up to 30% reductions in usage)
different solutions

Illinois, con't.

Clean Urban Energy
Offers commercial thermal Load shifting solutions that are driving electricity savings of 15 to 30%

Building Owners and Managers Association of Chicago
Developing an RFP for a smart building platform integrating different solutions

Indiana & West Virginia

West Virginia implemented a pilot AMI program; AEP has ongoing EE/DR programs and an FE EE/DR program has been filed with the Commission.

Indiana also has programs that it will discuss.

Delaware

- State target for energy efficiency: 15% reduction in electricity use by 2015. Target applies to all distribution companies in Delaware.

- State target for peak reduction: 15% reduction in coincident peak electric demand by 2015.

- AMI: Delmarva Power, Delaware's largest and only regulated electric distribution utility, has installed AMI meters for 90% of its customers and 54% of the installed meters have been activated (are providing over the air data for billing).

- RPS: 25% by 2025 with a 3.5% carve-out for solar. (Unregulated utilities may submit a comparable plan to the General Assembly by 2013.)

Consumer Advocate Organization Board Membership

Consumer Advocate Organization
The Retail Perspective: Alive and Well at PJM?

Generation and Transmission costs make up more than 70% of a small retail customer's electricity bill in most of the PJM region.

Over the years the Consumer Advocates encouraged the Board to consider the retail customer perspective in their decision-making.

Consumer Advocates are not just another stakeholder group. We have been vested by our respective state legislatures with the legal responsibility to represent the consumers' interests.

Consumer Advocate Organization

Most Consumer Advocate Offices were created when utilities were vertically integrated and advocating for retail customers was primarily a function of state commission proceedings.

Consumer advocates now have the responsibilities of representing customers in state and federal commission proceedings and in the PJM stakeholder process.

Consumer Advocate Organization

While ERCOT has state consumer representatives on its Board, other RTOs/ISOs have struggled with how to involve Advocates in a meaningful way (NYISO and ISO-NE).

The Advocates understand the Board's reluctance to authorize a PJM filing at FERC, but the challenges to the Advocates being able to meaningfully participate in the PJM processes remain

Consumer Advocate Organization

The Advocates encourage PJM to maintain its reputation of being a thought-leader in transmission organizations and help us find solutions to this problem.

The Advocates continue to look to the Board and PJM senior staff to assist in finding a means for the representatives of the 54 million customers who pay the bills to meaningfully and effectively participate in the process

Board Membership

We would all like to thank John Coughlin for his years of service on the PJM Board. We have appreciated having a Board member with retail regulatory experience.

We look forward to meeting and working with the new Board member, as well as all Board members, to continue to develop an understanding of the consumer issues that face PJM.

Board Membership

As new Board members are added, it is our hope that consideration will be given to including a member with specific expertise and experience in consumer representation of retail customers.

Board Member Topics For PIEOUG Members?

Questions/Comments?

Appendix A
Environmental Organizations

Earthjustice

Environmental Law & Policy Center

Maryland Department of Natural Resources

National Audubon Society

Natural Resources Defense Council

Piedmont Environmental Council

Project for Sustainable FERC Energy Policy

Sierra Club

Appendix B
Consumer Advocate Offices

Delaware
Illinois
Indiana
Kentucky
Maryland
Michigan
New Jersey
North Carolina
Ohio
Pennsylvania
Tennessee
Virginia
West Virginia
District of Columbia