



# PJM Wholesale Markets and PA Retail Markets Presentation to Kosovo Delegation

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## Vertically integrated utilities unbundled into:

- Local Distribution - Delivery of electricity from transmission voltages to customers
- Transmission - Delivery of electricity from large generation plants to local distribution systems
- Generation – Production of electricity – kwh, kw [utility generation plants were sold at cost to unregulated affiliates, or sold to highest bidder]

## Federal Jurisdiction

- RTOs/ISOs – example - PJM
- Regional Transmission Operations
- Regional Transmission reliability and Planning
- Interstate commerce related to electric wholesale markets [wholesale energy, capacity and other ancillary service markets]

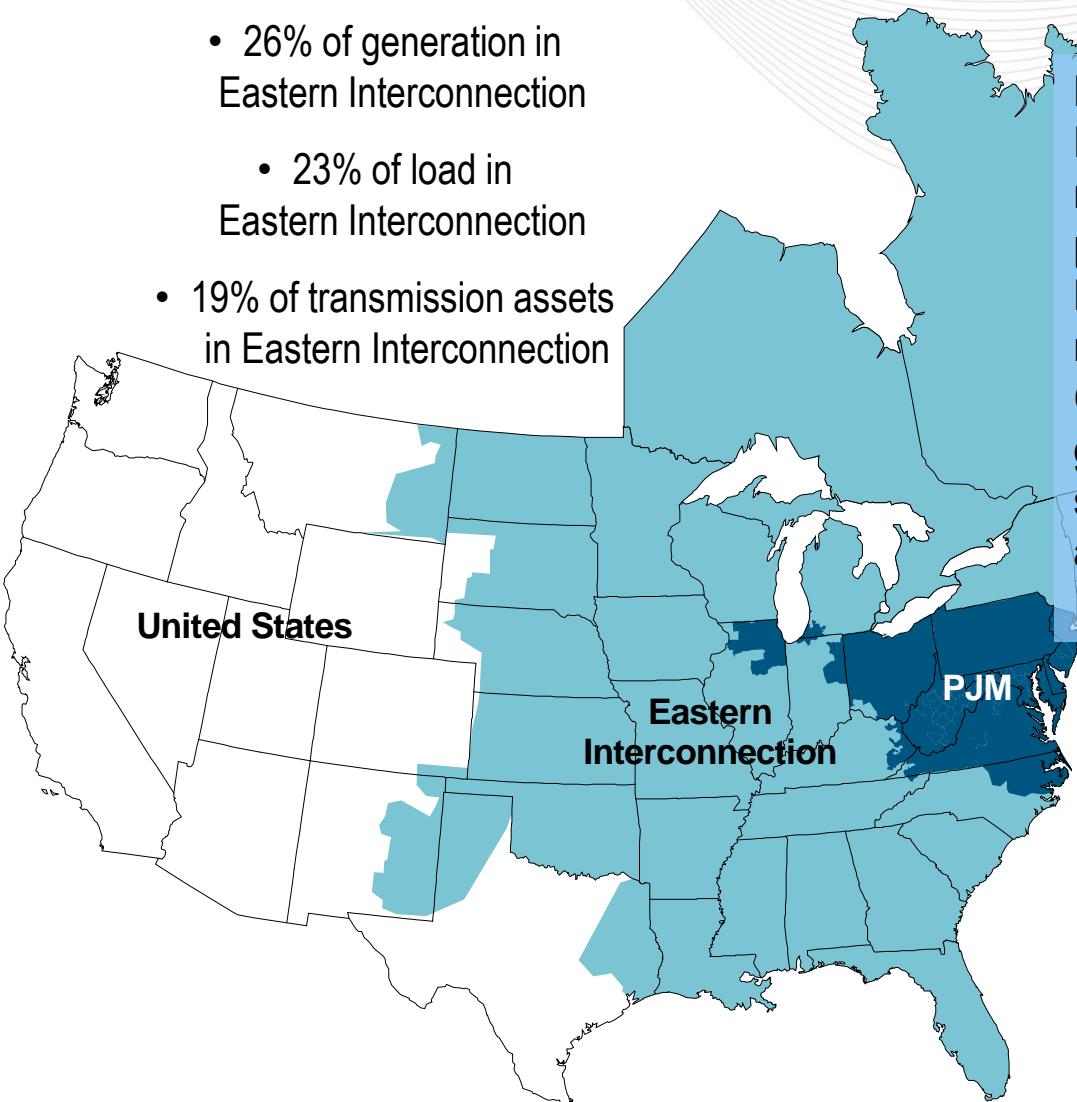
## State Jurisdiction

- Retail prices for distribution, transmission and default supply service
- Distribution operations and planning (Smart Meters)
- Transmission project approval and siting
- EGS and EDC consumer protection regulations
- Licensing of EGSs
- Safety and reliability regulations

- 26% of generation in Eastern Interconnection
  - 23% of load in Eastern Interconnection
- 19% of transmission assets in Eastern Interconnection

## KEY STATISTICS

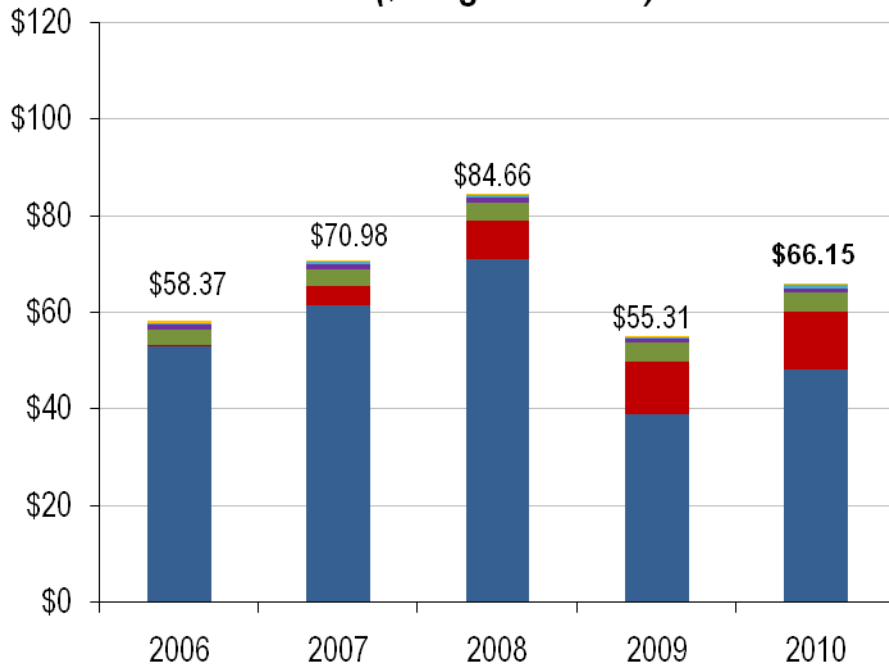
PJM member companies	710+
millions of people served	58
peak load in megawatts	158,450
MWs of generating capacity	180,400
miles of transmission lines	61,200
GWh of annual energy generation	794,335
generation sources	1,365
square miles of territory area served	211,000
Internal/external tie lines	13 states + DC
	142



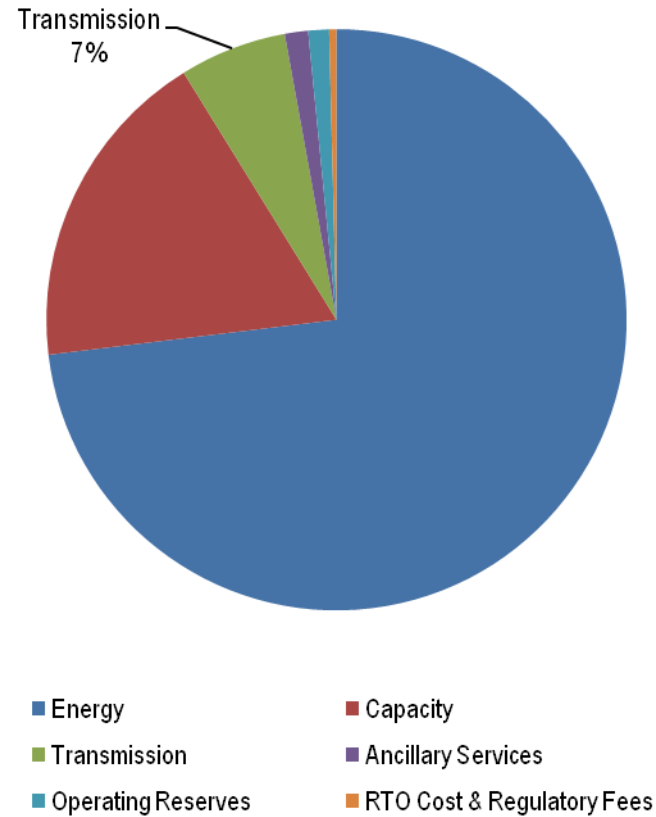
**20% of U.S. GDP produced in PJM**

- Day Ahead Hourly Market
- Real Time Hourly Market
- Reliability Pricing Model [RPM] Capacity Market
- Regulation Market
- Synchronized Reserve Market
- Day Ahead Scheduling Reserve Market
- Long term, annual, monthly and balance of planning period Firm Transmission Rights [FTR] Market

**PJM Wholesale Power Cost Breakdown**  
(\$/megawatt hour)



**2010 Total Cost = \$66.15**





# Cost Components of Wholesale Supply to Retail Customer

- ❖ **Load Weighted Energy:** the real time load weighted average PJM locational marginal price (LMP).
- ❖ **Capacity:** the average price per MWh of Reliability Pricing Model (RPM) payments.
- ❖ **Transmission Service Charge :** the average price per MWh of network integration charges and firm and non firm point to point transmission service
- ❖ **Operating Reserve (uplift):** the average price per MWh of day ahead and real time operating reserve charges.
- ❖ **Reactive:** the average cost per MWh of reactive supply and voltage control from generation and other sources.
- ❖ **Regulation:** the average cost per MWh of regulation procured through the Regulation Market.
- ❖ **PJM Administrative Fees:** the average cost per MWh of PJM's monthly expenses for a number of administrative services, including Advanced Control Center (AC2) and OATT Schedule 9 funding of FERC, OPSI and the MMU.
- ❖ **Transmission Enhancement Cost Recovery:** the average cost per MWh of PJM billed (and not otherwise collected through utility rates) costs for transmission upgrades and projects, including annual recovery for the TrAIL and PATH projects.
- ❖ **Day-Ahead Scheduling Reserve :** the average cost per MWh of Day-Ahead scheduling reserves procured through the Day-Ahead Scheduling Reserve Market.
- ❖ **Transmission Owner (Schedule 1A):** the average cost per MWh of transmission owner scheduling, system control and dispatch services charged to transmission customers.
- ❖ **Synchronized Reserve :** the average cost per MWh of synchronized reserve procured through the Synchronized Reserve Market.
- ❖ **Black Start :** the average cost per MWh of black start service.
- ❖ **RTO Startup and Expansion:** the average cost per MWh of charges to recover AEP, ComEd and DAY's integration expenses.
- ❖ **NERC/RFC:** the average cost per MWh of NERC and RFC charges, plus any reconciliation charges.
- ❖ **Load Response:** the average cost per MWh of day ahead and real time load response program charges to LSEs.

- Day ahead
- Real Time
- Bilateral Contracting
  - Time of Day – on-peak, off-peak, 24\*7
  - Location - @generation plant; @EDC node or zonal delivery hub; @trading hub (Western PJM Hub)
  - Duration - hourly, daily, monthly, or multi-monthly purchases
  - Market liquidity - function of contract length – most trading is 1-2 years, some 3 years out.
  - Hedging –physical or financial bilateral contracting, or hedging on centrally cleared financial market [NYMEX]



- Generators: Utility Generation Affiliates and Independent Power Producers
- Transmission Providers
- Electric Distribution Companies (“EDCs”), cooperatives and municipalities
- Wholesale marketers/traders
- Electric Generation Suppliers (EGSs)
- Aggregators
- Curtailment Service Providers (CSPs)
- Consultants

- ❑ Approve distribution (delivery) rates in base rate cases.
- ❑ Approve default service procurement plans and approve default service rates, including transmission service retail rates for default service customers.
- ❑ License competitive supply companies [EGSs] – don't set rates! (review and monitor financial and technical fitness to provide service, ensure compliance with consumer protection regulations)
- ❑ Approve mergers of PA utilities
- ❑ Intervene in FERC/PJM proceedings to promote competitive markets
- ❑ Remove barriers to retail and wholesale market competition

- Access to customer lists and customer data [with customer authorization]
- Consolidated Billing – one bill for the customer
- Purchase of Receivables (POR)
- Standardized EDC/EGS informational exchange protocols (Electronic Data Interchange – EDC)
- Standardized Supplier Coordination Tariffs
- Customer Choice Website – [www.papowerswitch.com](http://www.papowerswitch.com) – one stop shopping!
- Customer Choice Education