

PJM Transmission Owners  
Regional Cost Allocation  
Compliance Filing for Order No. 1000

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FirstEnergy

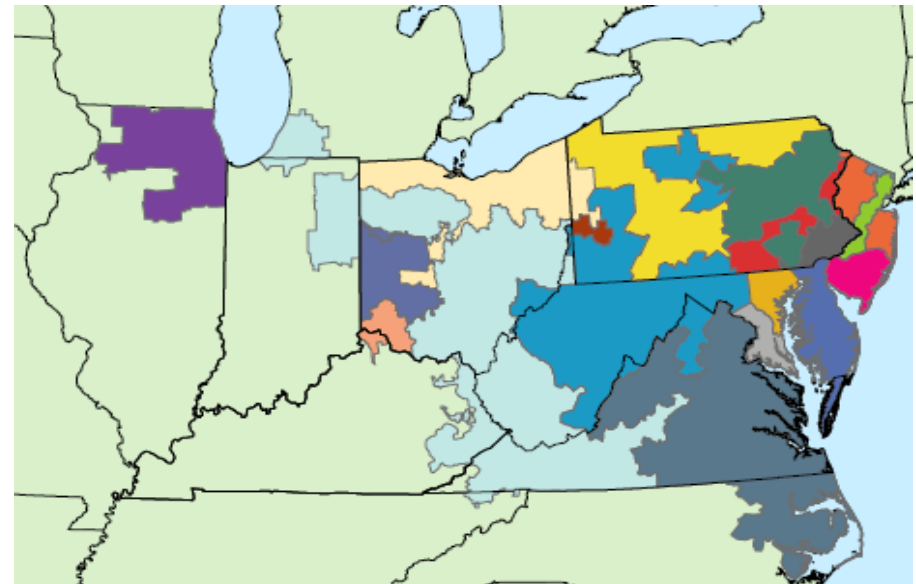
Presentation to  
**Harvard Electricity Policy Group**  
Cambridge, Massachusetts

October 11, 2012



















# PJM Regional Cost Allocation Achievement

- After nearly a decade of controversy within PJM, the Transmission Owners have successfully agreed on a cost allocation methodology
- Complex issue due to size and geographic diversity of PJM
- PJM TOs retain filing rights
- Methodology provides a fair balance for all stakeholders and incents necessary transmission build



## Legend

### ZONE

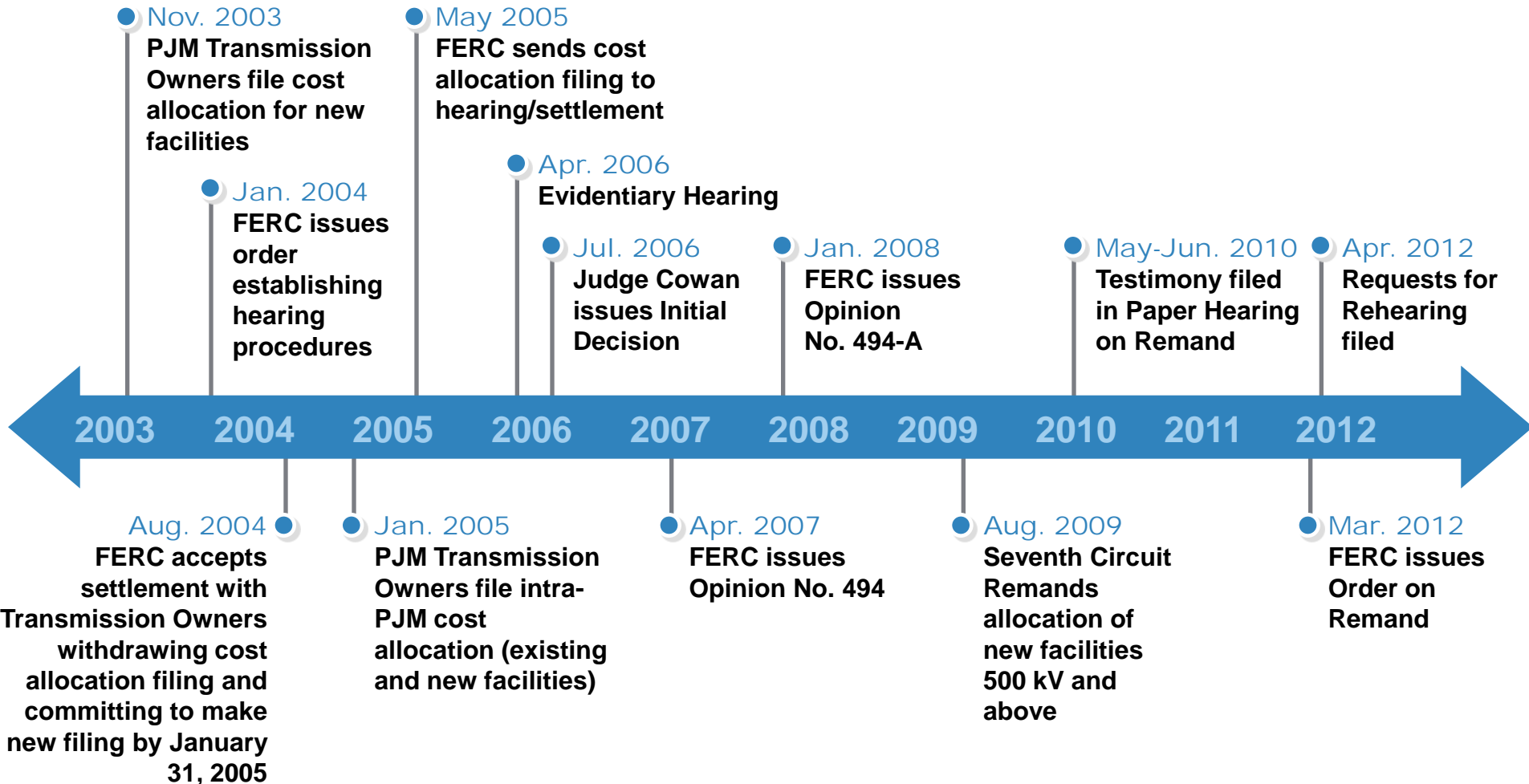
 Allegheny Power Systems	 Jersey Central Power and Light Company
 American Electric Power Co., Inc.	 Metropolitan Edison Company
 American Transmission Systems, Inc.	 PPL Electric Utilities
 Atlantic Electric Company	 PECO Energy
 Baltimore Gas and Electric Company	 Pennsylvania Electric Company
 ComEd	 Potomac Electric Power Company
 Dayton Power and Light Co.	 Public Service Electric and Gas Company
 Delmarva Power and Light Company	 Rockland Electric Company
 Dominion	
 Duke Energy Ohio and Kentucky	
 Duquesne Light	

# The *Atlantic City* Settlement

- ***Atlantic City* litigation determined the PJM TOs' filing rights under the FPA**
- **TOs voluntarily agreed to cede to PJM the right to file tariff terms and conditions, while preserving for TOs the right to file the transmission rates and rate design**
- **TOs must give the Members Committee and PJM at least 30 days' notice of any proposed tariff change**
- **Settlement provides that PJM can file tariff changes prepared by the TOs**

# History of RTEP Cost Allocation Issue

## Timeline



# Key Components of Historic Debate

- **Cost allocation of regional facilities (500 kV and above) has been mostly based on two competing views**
- **Postage Stamp Methodology:**
  - Costs of transmission projects are allocated to each zone in proportion to the zone's non-coincident annual zonal peak
- **Direct Beneficiaries:**
  - DFAX analysis determines cost responsibility based on the contribution of load to power flows across a facility for Reliability Projects, or
  - Cost allocation corresponds with lower energy payments by load for Market Efficiency Projects

# PJM Transmission Owner Process

- **PJM Transmission Owners have responsibility for transmission rate design, including Order No. 1000 compliance**
- **TOs and PJM held 18 meetings and 11 conference calls since August 23, 2011**
- **Candid exchanges of cost allocation views**
- **Negotiations with compromise proposals offered**
- **Cost allocation proposal overwhelmingly supported by Transmission Owners**
- **Two stakeholder meetings and 12 sets of written comments**

# Overview and Applicability of Principles

- **All elements of the principles represent a compromise**
- **Apply only to RTEP projects approved by the PJM Board on or after the effective date of the compliance filing**
  - Precise effective date proposed in a Section 205 filing by the TOs
- **Regional cost allocation key elements**
  - Distinguish between Regional Facility projects and Lower Voltage projects
    - Double circuit 345 kV and 500 kV and above projects treated as Regional Facilities
  - Regional Facility projects allocated using hybrid approach
    - 50% allocated to identified beneficiaries
    - 50% allocated on postage stamp based on non-coincident zonal peak load ratio share
  - Lower Voltage projects allocated 100% to identified beneficiaries

# Summary of Principles by Project

## ■ **Baseline Reliability and Operational Performance Projects**

- 50% postage stamp and 50% Solution-based DFAX for Regional Facility projects
- 100% Solution-based DFAX for all Lower Voltage projects

## ■ **Market Efficiency Projects**

- 50% postage stamp and 50% to zones that benefit through decreased load payments for Regional Facility projects
- 100% to zones that benefit through decreased load payments for Lower Voltage projects

## ■ **Notable changes to current methodology**

- Definition of Regional Facilities includes double circuit 345 kV
- Hybrid model - Regional Facility projects allocated 50% postage stamp and 50% to identified beneficiaries
- Solution-based DFAX replaces Violation-based DFAX for Baseline Reliability and Operational Performance projects
  - DFAX results updated annually
- For Regional Facility projects, 50% of cost of Market Efficiency projects allocated to zones that benefit based on decreased load payments



# Solution-based DFAX

## ■ **Defining Solution-based DFAX**

- Power flow analysis calculating the non-contingency flow on the reinforcement identified to resolve the violation
- Applied to Baseline Reliability and Operational Performance projects

## ■ **Advantages of the Solution-based DFAX calculation method**

- Deals with concerns about Violation-based DFAX as to which violation to be used for DFAX (both largest/smallest issue and different years) and eliminates related complexities
- Solution-based DFAX allocates costs to those who benefit from the new facilities as opposed to only those that cause the violation
- Solution-based DFAX lends itself to periodic recalculation as it uses the current planning model
- Recalculating annually allows for identifying changing beneficiaries over time

# Public Policy

## ■ Public Policy Projects

- PJM tariff (Schedule 6) does not currently identify “Public Policy” as a separate category of PJM Board-approved RTEP projects
  - “Public Policy” will be a consideration for reliability planning scenarios
- Projects resulting from “State Agreement Approach” cost allocated as supplemental or as recommended by sponsoring states
- If a separate “Public Policy” or “Multi-driver” project category is added to Schedule 6, the TOs will propose a cost allocation

# Other Cost Allocation Principles

## ■ Aging Infrastructure

- Typical replacement of existing facilities “in kind” is allocated in same way as replacement facility
- Exception: when replacement of facilities is required as part of a PJM directed project needed for Baseline Reliability, Market Efficiency or Operational Performance, cost will be allocated the same as the PJM directed project

## ■ Generation and Merchant Transmission Interconnections

- No change from the present
- Generator and merchant transmission line interconnections responsible for all “but for” costs
- Continue to receive the benefit of ARRAs when applicable

## ■ Direct Current lines allocated similar to AC using proxy

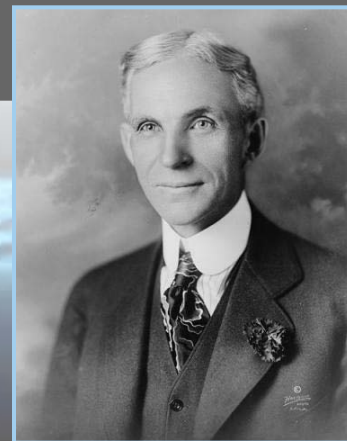
## ■ All Baseline Projects <\$5M allocated to respective zone

# Compliance with FERC Order No. 1000

## ■ **Regional Cost Allocation Principles – Order 1000 and 1000-A**

- Cost allocation should be at least roughly commensurate with distribution of estimated benefits
- Those that do not benefit from transmission facilities, at present or in a likely future scenario, must not be allocated any of the costs
- Any benefit-to-cost threshold must not be set at excessive levels; any threshold above 1.25:1 must be justified
- Costs of a facility in a regional plan must be allocated within a region unless another entity or region volunteers to share the costs
- Cost allocation method and data requirements for identifying benefits and beneficiaries must be transparent and adequately documented
- Different cost allocation methods may be used for different types of facilities, such as facilities included in the plan to meet different types of needs

**Coming together is a beginning; keeping together is progress; working together is success.** – Henry Ford



# Appendix

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# Illustrative Examples

## Cost Allocation - Existing

	AEC	AEP	APS	ATSI	BGE	ComEd	ConEd	Dayton	DEOK	DL	DPL	Dominion	JCPL	ME	NEPTUNE	HTP	PECO	PENELEC	PEPCO	PPL	ECP	PSEG	RE
<b>1. MAPP</b>																							
a. Possum Point - Burches Hill 500 kV	1.76%	14.58%	5.34%	8.34%	4.30%	14.12%	0.54%	2.14%	3.35%	1.79%	2.52%	11.94%	3.93%	1.86%	0.39%	0.19%	5.34%	1.86%	4.17%	4.60%	0.18%	6.50%	0.26%
b. Burches Hill - Chalk Point 500 kV	1.76%	14.58%	5.34%	8.34%	4.30%	14.12%	0.54%	2.14%	3.35%	1.79%	2.52%	11.94%	3.93%	1.86%	0.39%	0.19%	5.34%	1.86%	4.17%	4.60%	0.18%	6.50%	0.26%
c. Chalk Point - Hallowing 500 kV	1.76%	14.58%	5.34%	8.34%	4.30%	14.12%	0.54%	2.14%	3.35%	1.79%	2.52%	11.94%	3.93%	1.86%	0.39%	0.19%	5.34%	1.86%	4.17%	4.60%	0.18%	6.50%	0.26%
d. Hallowing - Mission 500 kV	1.76%	14.58%	5.34%	8.34%	4.30%	14.12%	0.54%	2.14%	3.35%	1.79%	2.52%	11.94%	3.93%	1.86%	0.39%	0.19%	5.34%	1.86%	4.17%	4.60%	0.18%	6.50%	0.26%
e. Hallowing - Gateway 500 kV	1.76%	14.58%	5.34%	8.34%	4.30%	14.12%	0.54%	2.14%	3.35%	1.79%	2.52%	11.94%	3.93%	1.86%	0.39%	0.19%	5.34%	1.86%	4.17%	4.60%	0.18%	6.50%	0.26%
<b>2. PATH</b>																							
a. Amos - Welton Spring 765 kV	1.76%	14.58%	5.34%	8.34%	4.30%	14.12%	0.54%	2.14%	3.35%	1.79%	2.52%	11.94%	3.93%	1.86%	0.39%	0.19%	5.34%	1.86%	4.17%	4.60%	0.18%	6.50%	0.26%
b. Welton Spring 765/500 kV substation + 1 765/500 kV transformer	1.76%	14.58%	5.34%	8.34%	4.30%	14.12%	0.54%	2.14%	3.35%	1.79%	2.52%	11.94%	3.93%	1.86%	0.39%	0.19%	5.34%	1.86%	4.17%	4.60%	0.18%	6.50%	0.26%
c. Welton Spring - Kemptown 765 kV + Kemptown 765 kV substation + 2 Kemptown 765/500 kV transformers	1.76%	14.58%	5.34%	8.34%	4.30%	14.12%	0.54%	2.14%	3.35%	1.79%	2.52%	11.94%	3.93%	1.86%	0.39%	0.19%	5.34%	1.86%	4.17%	4.60%	0.18%	6.50%	0.26%
<b>3. TRAIL</b>																							
a. 502 Junction - Mt. Storm 500 kV	1.76%	14.58%	5.34%	8.34%	4.30%	14.12%	0.54%	2.14%	3.35%	1.79%	2.52%	11.94%	3.93%	1.86%	0.39%	0.19%	5.34%	1.86%	4.17%	4.60%	0.18%	6.50%	0.26%
b. Mt. Storm - Meadowbrook 500 kV	1.76%	14.58%	5.34%	8.34%	4.30%	14.12%	0.54%	2.14%	3.35%	1.79%	2.52%	11.94%	3.93%	1.86%	0.39%	0.19%	5.34%	1.86%	4.17%	4.60%	0.18%	6.50%	0.26%
c. Meadowbrook - Loudoun 500 kV	1.76%	14.58%	5.34%	8.34%	4.30%	14.12%	0.54%	2.14%	3.35%	1.79%	2.52%	11.94%	3.93%	1.86%	0.39%	0.19%	5.34%	1.86%	4.17%	4.60%	0.18%	6.50%	0.26%
<b>4. Susquehanna - Roseland 500 kV</b>																							
a. Susquehanna - Lackawanna 500 kV	1.76%	14.58%	5.34%	8.34%	4.30%	14.12%	0.54%	2.14%	3.35%	1.79%	2.52%	11.94%	3.93%	1.86%	0.39%	0.19%	5.34%	1.86%	4.17%	4.60%	0.18%	6.50%	0.26%
b. Lackawanna - Hopatcong 500 kV	1.76%	14.58%	5.34%	8.34%	4.30%	14.12%	0.54%	2.14%	3.35%	1.79%	2.52%	11.94%	3.93%	1.86%	0.39%	0.19%	5.34%	1.86%	4.17%	4.60%	0.18%	6.50%	0.26%
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## Cost Allocation - Proposed

	AEC	AEP	APS	ATSI	BGE	ComEd	ConEd	Dayton	DEOK	DL	DPL	Dominion	JCPL	ME	NEPTUNE	HTP	PECO	PENELEC	PEPCO	PPL	ECP	PSEG	RE
<b>1. MAPP</b>																							
a. Possum Point - Burches Hill 500 kV	0.88%	7.29%	2.67%	4.17%	2.15%	7.06%	0.27%	1.07%	2.64%	0.90%	17.54%	5.97%	3.08%	1.58%	0.31%	0.17%	2.67%	2.90%	27.09%	3.94%	0.16%	5.29%	0.21%
b. Burches Hill - Chalk Point 500 kV	0.88%	7.29%	2.67%	4.17%	2.15%	7.06%	0.27%	1.07%	5.31%	0.90%	6.56%	5.97%	1.97%	3.42%	0.20%	0.30%	2.67%	8.19%	27.54%	7.95%	0.09%	3.25%	0.13%
c. Chalk Point - Hallowing 500 kV	0.88%	7.29%	2.67%	4.17%	11.35%	7.06%	0.27%	1.07%	1.68%	0.90%	4.45%	5.97%	1.97%	0.93%	0.20%	0.26%	2.67%	4.76%	35.71%	2.30%	0.09%	3.25%	0.13%
d. Hallowing - Mission 500 kV	0.88%	7.29%	2.67%	4.17%	2.15%	7.06%	0.27%	1.07%	1.68%	0.90%	51.26%	5.97%	1.97%	0.93%	0.20%	0.10%	2.67%	0.93%	2.09%	2.30%	0.09%	3.25%	0.13%
e. Hallowing - Gateway 500 kV	0.88%	7.29%	2.67%	4.17%	2.15%	7.06%	0.27%	1.07%	1.68%	0.90%	51.26%	5.97%	1.97%	0.93%	0.20%	0.10%	2.67%	0.93%	2.09%	2.30%	0.09%	3.25%	0.13%
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b. Welton Spring 765/500 kV substation + 1 765/500 kV transformer	0.88%	19.71%	20.82%	13.04%	2.15%	7.06%	0.27%	1.07%	2.53%	4.96%	1.26%	9.75%	1.97%	0.93%	0.20%	0.10%	2.67%	2.79%	2.09%	2.30%	0.09%	3.25%	0.13%
c. Welton Spring - Kemptown 765 kV + Kemptown 765 kV substation + 2 Kemptown 765/500 kV transformers	0.88%	7.29%	13.72%	4.17%	12.62%	7.06%	0.27%	1.07%	1.68%	0.90%	3.65%	25.08%	1.97%	0.93%	0.20%	0.10%	2.67%	0.93%	9.07%	2.30%	0.09%	3.25%	0.13%
<b>3. TRAIL</b>																							
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c. Meadowbrook - Loudoun 500 kV	0.88%	7.29%	2.67%	4.17%	6.02%	7.06%	0.27%	1.07%	1.68%	0.90%	1.26%	44.25%	1.97%	0.93%	0.20%	0.10%	2.67%	0.93%	9.93%	2.30%	0.09%	3.25%	0.13%
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b. Lackawanna - Hopatcong 500 kV	0.88%	7.29%	2.67%	4.17%	2.15%	7.06%	1.00%	1.07%	1.68%	0.90%	1.26%	5.97%	14.77%	0.93%	2.09%	1.40%	2.67%	0.93%	2.09%	2.30%	1.26%	34.12%	1.36%
c. Hopatcong - Roseland 500 kV	0.88%	7.29%	2.67%	4.17%	2.15%	7.06%	0.27%	1.07%	1.68%	0.90%	1.26%	5.97%	18.87%	0.93%	1.55%	1.78%	2.67%	0.93%	2.09%	2.30%	1.41%	30.90%	1.23%