PJM REGIONAL TRANSMISSION PLANNING PROCESS

Transmission Expansion: Market-Based and Regulated Approaches

L’Auberge Del Mar Resort
January 24-25, 2002
PJM and PJM West

APM Today:
- Generating Units: 54
- Generation Capacity: 9,072 MW
- Peak Load: 8,269 MW
- Annual Energy: 42,554 GWh
- Transmission Miles: 5,000
- Area (Square Miles): 31,000
- Customers: 1.4 Million
- Population Served: 3.1 Million

PJM / PJM West
- Generating Units: 604
- Generation Capacity: 69,072 MW
- Peak Load: 62,445 MW
- Annual Energy: 298,011 GWh
- Transmission Miles: 13,000
- Area (Square Miles): 79,000
- Customers: 11 Million
- Population Served: 25.1 Million
- States (+ D.C.): 8

PJM Today:
- Generating Units: 550
- Generation Capacity: 60,000 MW
- Peak Load: 54,176 MW
- Annual Energy: 255,457 GWh
- Transmission Miles: 8,000
- Area (Square Miles): 48,000
- Customers: 9.6 Million
- Population Served: 22 Million
- States (+ D.C.): 6
PJM’s Role as an ISO

Current Functions

- Regional Transmission Expansion Planning
- Administer Open Access Tariff
- Operate Energy Market
- Operate Control Area
- NERC Security Coordinator

Current Systems

- Installed Capacity Obligations
- Transmission Expansion
- Network Service
- Point-to-Point Service
- Day-ahead Scheduling
- Real Time Operations
- Generation Dispatch
- Transmission Security
- Generation & Transmission Outage Scheduling
- Grid Accounting
- Market Monitoring
- Generation Expansion and Generation Interconnection
- Network Service
- Market Transactions
- EES
- Unit Commitment
- eSchedules
- ISN
- Retail Choice
- eFTR
- EMS
- eGADS
- OASIS
- eDART

PJM INTERCONNECTION, L.L.C.
Regional Planning Process Objectives

• Allow for Open Process with Input from All Interested Parties
• Coordinate Expansion Plans Across Multiple Transmission Owner Systems
• Coordinate Expansion Plans Based on All Needs Identified Through Regional Planning Process
• Identify Most Effective and Efficient Expansion Plan for the Region
Reliable System

Regional Transmission Expansion Planning Process

Coordination of Analysis Support from Transmission Owners

Maintenance of Planning Databases

PJM Manuals

PJM Tariff & Agreements

MAAC Reliability Criteria

NERC Planning & Operating Standards

Evaluation of Texas Service Requests

Evaluation of Operational Performance

Evaluation of Texas System Adequacy & Reliability

Evaluation of Generation Interconnection Service Requests

Capacity Adequacy Planning
Planning Process Drivers

- MAAC Reliability Assessment (forward looking)
- PJM Transmission Adequacy Assessment (forward looking)
- Long Term Firm Transmission Service Requests
- Transmission Owner Projects
- PJM Operational/Economic Performance (historic perspective)
- Generation Provider Projects (Generation Interconnection Process)
- Merchant Transmission Projects
- Transmission Expansion Advisory Committee (TEAC) Input (Stakeholder Input)
Solution Alternatives

- Generation Solutions
  - Strategically Sited Generation Projects
  - Distributed Resources
- Load Solutions
  - Demand-side/Load Management
  - Distributed Resources
- Transmission Solutions
  - Traditional Expansion/Enhancement Alternatives
  - Advanced Technology Options
Planning Process Success Factors

- **Broad Scope**
  - Wide range of stakeholder input
  - Balanced consideration of all potential solutions/drivers

- **Flexibility**
  - New tools/methods for analysis
  - Accommodate rapidly changing needs

- **Results Oriented**
  - Focus on solutions
  - Transparency of process/results
PJ M Board Approval of Plan

• First RTEP Approved by PJM Board August 1, 2000.
  • Currently includes $300 million in transmission infrastructure improvements.
  • Accommodates 39 generation projects (14,000 MW).
  • Plan is very fluid primarily due to changes to generation projects; significant changes have been made since 8/1/00 and reviewed with Board.

• Second RTEP Approved by PJM Board June 5, 2001.
  • Includes an additional $430 million in transmission infrastructure improvements.
  • Accommodates 43 additional generation projects (12,600 MW).
QUESTIONS ??

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