• RTEP reliability baseline update
  – 2013 retool results
  – Initial 2013 N-1-1 results overview
  – Initial 15-Year analysis results
  – Supplemental projects

• Market efficiency update
• Completed a retool of 2013 to include Bergen generation and correct a modeling error
  – Resulting changes in PS, PS-North and EMAAC
• Completed initial 15-Year analysis for MAAC
• Completed initial N-1-1 testing
• Rock Springs – Keeney 500 kV line / basecase
• Rock Springs – Keeney 500 kV line for the loss of Peach Bottom to Limerick 500 kV line
• Peach Bottom to Cochranville 230 kV line for the loss of Keeney to Rock Springs 500 kV line
Potential Load Deliverability Violation - PSEG North

- Athenia - Saddle Brook 230 kV line / loss of Athenia - Bergen 230 kV line
- Roseland - Cedar Grove B 230 kV line / loss of Roseland – Cedar Grove F – Clifton K – Athenia 230 kV line
- Roseland - Cedar Grove F 230 kV line / loss of Roseland – Cedar Grove B – Clifton B – Athenia 230 kV line
Potential Load Deliverability Violation - PSEG North

- Cedar Grove F - Clifton K 230 kV line / loss of Roseland-Cedar Grove B - Clifton B - Athenia 230 kV line
- Cedar Grove B - Clifton B 230 kV line / loss of Roseland-Cedar Grove F - Clifton K - Athenia 230 kV line
- Clifton K - Athenia 230 kV line / loss of Roseland-Cedar Grove B - Clifton B - Athenia 230 kV line
Potential Solutions to PS North Deliverability Violations

• 230 kV Option
  – Convert several lines from 138 kV operation to 230 kV operation
    • Athenia – Fairlawn
    • Athenia - Kuller Rd
    • Kuller Rd – Fairlawn
    • Athenia – East Rutherford
    • East Rutherford to Bergen
    • Fairlawn to Bergen
  – Build a new 230 kV line from Bergen to Hudson along the existing E-1305 / F-1306 circuits
  – Loop the converted Roseland to Kearney 230 kV into Athenia

• Further analysis required to determine viability of this option
Potential Solutions to PS North Deliverability Violations

- 500 kV Option
  - Build new 500 kV line from Branchburg to Roseland to Hudson
  - Build a new 230 kV line from Bergen to Hudson along the existing E-1305 / F-1306 circuits
Potential Solutions to PS North Deliverability Violations

• 230 kV Option
  – Convert several lines from 138 kV operation to 230 kV operation
    • Athenia – Fairlawn
    • Athenia - Kuller Rd
    • Kuller Rd – Fairlawn
    • Athenia – East Rutherford
    • East Rutherford to Bergen
    • Fairlawn to Bergen
  – Build a new 230 kV line from Bergen to Hudson along the existing E-1305 / F-1306 circuits
  – Loop the converted Roseland to Kearney 230 kV into Athenia

• Potential Issues
  – Outages required to implement
  – Real estate requirements
  – Limited capability

• Further analysis required to determine the viability of this option
Potential Solutions to PS North Deliverability Violations

• 500 kV Option
  – Build new 500 kV line from Branchburg to Roseland to Hudson
  – Build a new 230 kV line from Bergen to Hudson along the existing E-1305 / F-1306 circuits

• Robust solution

• Potential Challenges
  – ROW congestion
  – Real estate at Hudson
Potential Load Deliverability Violation - Atlantic Electric

- Mickleton 230/69 kV transformer #4 / loss of the Mickleton 230/69kV transformer #1
- Possible Solution: Move the Monroe 230/69 kV transformer to Mickleton
- Estimated cost: $1.24 M
Potential Load Deliverability Violation - Delmarva

- Reybold – Lums Pond 138 kV line for the loss of Glasgow – Keeney 138 kV line
- Potential Solution: Replace two circuit breakers to bring the emergency rating up to 348 MVA
- Estimated cost: $1.0M
Potential Load Deliverability Violation - Delmarva

- Glasgow – Mt. Pleasant 138 kV line for the loss of Lums Pond – Reybold 138 kV line
- Potential Solution: Rebuild 10 miles of Glasgow to Mt. Pleasant 138 kV line to bring the normal rating to 298 MVA and the emergency rating to 333 MVA
- Estimated cost: $5.7 M
Potential Load Deliverability Violation - Delmarva

- Voltage collapse / loss of Indian River unit 3
- Voltage collapse / loss of Cedar Creek - Red Lion 230 kV line
- Voltage collapse / loss of Keeney - Steele 230 kV line
- Potential Solution: Convert the 138 kV network path from Vienna to Loretto to Piney Grove to 230 kV and add 230/138 kV transformer at Loretto 230 kV station
Potential Load Deliverability Violation - Delmarva South

- Glasgow - Mt. Pleasant 138 kV line / loss of Lums Pond - Reybold 138 kV line
- See potential solution for the same line on Delmarva load deliverability violation slide
Potential Load Deliverability Violation - Mid-Atlantic

- Burtonsville – Sandy Spring 230 kV line CKT 2334 / loss of the other circuit
- Burtonsville – Sandy Spring 230 kV line CKT 2314 / loss of the other circuit
- Potential Solution: Rebuild each line (0.2 miles each) to increase the normal rating to 968 MVA and the emergency rating to 1227 MVA
- Estimated cost: $0.27 M per line
Potential Generation Deliverability Violation - PECO

- Bradford – Planebrook 230 kV line CKT 220-02 / Loss of the other 230 kV line (Single)

- Potential Solution: Reconductor the line to a normal rating of 677 MVA and an emergency rating of 827 MVA

- Estimated cost: $7.0 M
Potential Generation Deliverability Violation - PECO

- Bradford – Planebrook 230 kV line CKT 220-31 / Loss of Bradford – Planebrook 230 kV line + Bradford CB 220 failed (Line_FB)
- Potential Solution: Reconductor the line to a normal rating of 677 MVA and an emergency rating of 827 MVA
- Estimated cost: $7.5 M
Potential Generation Deliverability Violation – BG&E

- Brandon Shores – Hawkins Point Terminal 230 kV line / Loss of Brandon Shores – Hawkins Point Terminal – Sollers Point Terminal (#2344) 230 kV line and Brandon Shores 5T Breaker failed (Line_FB)
- Sollers Point Terminal – Riverside 230 kV line CKT 2345 / Loss of Brandon Shores – Hawkins Point Terminal – Sollers Point Terminal (#2344) 230 kV line and Brandon Shores 5T Breaker failed (Line_FB)
- Potential Solution: Replace 230 kV breaker and associated CTs at Riverside on 2345 line. Replace all dead-end structures at Brandon Shores, Hawkins Point, Sollers Point and Riverside. Install a second conductor per phase on the spans entering each station. Brandon Shores – Hawkins Point N/E = 1243/1386 MVA. Sollers Pt. – Brandon Shores N/E = 1174/1386 MVA
- Estimated Cost $1.5 M
Potential Generation Deliverability Violation – BG&E

- Conastone 500/230 kV transformer CKT 1 / Loss of Conastone – Peach Bottom 500 kV line + Conastone 500/230 kV transformer CKT 1 (Line_FB)
- The limitation on the transformer is associated bus
- The bus will be replaced as part of the transformer replacement (B0298)
Potential Generation Deliverability Violation – BG&E

- Burtonsville – Sandy Spring 230 kV line CKT #2314 / Loss of High Ridge – Sandy Springs – Burtonsville CKT # 2334 (Single)
- Burtonsville – Sandy Spring 230 kV line CKT #2334 / Loss of High Ridge – Sandy Springs – Burtonsville CKT # 2314 (Single)
- Potential Solution: Rebuild each line (0.2 miles each) to increase the normal rating to 968 MVA and the emergency rating to 1227 MVA
- Estimated cost: $0.27 M per line
Potential Generation Deliverability Violation – Delmarva

- Keeney 500/230 kV transformer CKT 1 / Loss of Keeney – Red Lion + Keeney 500/230 kV transformer CKT 2 (Line_FB)
- Keeney 500/230 kV transformer CKT 2 / Loss of Keeney – Red Lion + Keeney 500/230 kV transformer CKT1 (Line_FB)
Potential Generation Deliverability Violation – Dominion

- North Anna – Ladysmith 500 kV / Loss of North Anna – Morrisville 500 kV line (Single)
Initial Results 15-Year Planning
Initial Results – 15-Year Analysis

- Analysis done on 2013 basecase without any 2008 RTEP upgrades
- MAPP line not included
- Results compiled for generation deliverability violations and load deliverability violations for MAAC and all LDAs in MAAC
- Monitored 230 kV and above lines in MAAC
- Results are summarized on the following pages
2013

- Roseland – Cedar Grove B 230 kV line (Rate B 873 MVA) / loss of Roseland – Cedar Grove F – Clifton K – Athenia 230 kV line [PS North]
- Roseland – Cedar Grove F 230 kV line (Rate B 873 MVA) / loss of Roseland – Cedar Grove B – Clifton B – Athenia 230 kV line [PS North]
- Burtonsville – Sandy Spring CKT 2314 230 kV line (Rate B 923 MVA) / loss of the other circuit [MAAC]
- Burtonsville – Sandy Spring CKT 2334 230 kV line (Rate B 923 MVA) / loss of the other circuit [MAAC]
- Cedar Grove B – Clifton B 230 kV line (Rate B 873 MVA) / loss of Roseland - Cedar Grove F - Clifton K - Athenia 230 kV line [PS North]
- Cedar Grove F – Clifton K 230 kV line (Rate B 873 MVA) / loss of Roseland - Cedar Grove B - Clifton B - Athenia 230 kV line [PS North]
- Clifton K – Athenia 230 kV line (Rate B 865 MVA) / loss of Roseland - Cedar Grove B - Clifton B - Athenia 230 kV line [PS North]
- Athenia – Saddlebrook 230 kV line (Rate B: 589 MVA) / basecase [PS North]
- Bradford – Planebrook ckt 220-02 230 kV line (Rate B 621 MVA) / loss of the other circuit [PJM GD]
Initial 15-Year Overloads by Year

• 2014
  – Roseland 500/230 kV transformer 1 (Rate B 1078 MVA) / loss of the other transformer [PS North]
  – Roseland 500/230 kV transformer 2 (Rate B 1078 MVA) / loss of the other transformer [PS North]
  – Manor – Millwood 230 kV line (Rate B 617 MVA) / loss of Brunner Island – South Manheim 230 kV line [PLGRP]
• 2015
  ▪ Clifton B – Athenia 230 kV line (Rate B 865 MVA) / loss of Roseland - Cedar Grove F - Clifton K - Athenia 230 kV line [PS North]
Initial 15-Year Overloads by Year

• 2016
  – Rock Spring – Keeney 500 kV line (Rate B: 2922 MVA) / basecase (EMAAC)
  – Indian River - Omar – Bethany 138 kV line (Rate B 333 MVA) / loss of Indian River – Frankford – Bishop 138 kV line [DPL South]

• 2017
  – Cedar Creek – Red Lion 230 kV line (Rate B: 679 MVA) / loss of Cartanza – Milford 230 kV line [DPL South]
  – Lewis Town – Juniata 230 kV line (Rate B 617 MVA) / loss of Juniata – Keystone 500 kV line [EMAAC]
  – Roseland – West Caldwell 138 kV line (Rate B 271 MVA) / loss of Roseland – Hudson 230 kV line [PS North]
  – Millwood – South Akron 230 kV line (Rate B 588 MVA) / loss of Brunner Island – South Manheim 230 kV line [PLGRP]
• 2018
  – Peach Bottom 500/230 kV transformer (Rate B 1117 MVA) / loss of Newlinville – Cochranville 230 kV line [EMAAC]
  – Waneeta – Richmond 230 kV line (Rate B 874 MVA) / loss of Keeney – Rock Spring 500 kV line [EMAAC]
  – Sandy Spring – High Ridge CKT 2334 230 kV line (Rate B 948 MVA) / loss of the other circuit [MAAC]
  – Sandy Spring – High Ridge CKT 2314 230 kV line (Rate B 941 MVA) / loss of the other circuit [MAAC]
  – Altoona – Johnstown 230 kV line (Rate B 488 MVA) / basecase [PJM GD]
  – Peach Bottom – Nottingham 230 kV line (Rate B 627 MVA) / loss of Conastone – Peach Bottom 500 kV line [MAAC]
2019

- Graceton – Manor 230 kV line (Rate B 531 MVA) / loss of Conastone – Peach Bottom 500 kV line [MAAC]
- Conowingo – Nottingham 230 kV line (Rate B 570 MVA) / loss of Colora – Conowingo 230 kV line [PJM GD]
- Conastone – Ottercreek 230 kV line (Rate B 531 MVA) / loss of Conastone – Peach Bottom 500 kV line [MAAC]
- East Windsor – Smithburg 230 kV line (Rate B 1610 MVA) / loss of Deans – Smithburg 500 kV line [JCPL]
- Airydale – Juniata 500 kV line (Rate B 3733 MVA) / loss of the other 500 kV circuit [MAAC]
- Brunner Island – South Manheim 230 kV line (Rate B 716 MVA) / loss of Millwood – South Akron 230 kV line [PLGRP]
Initial 15-Year Overloads by Year

• 2020
  – Johnstown – Altoona 230 kV line (Rate A 488 MVA) / basecase [PJM GD]
  – Brandon Shores – Hawkins Point Terminal 230 kV line CKT 2344 (Rate B: 1153 MVA) / loss of the other circuit [MAAC]
  – Sollers Point Terminal – Riverside 230 kV line CKT 2344 (Rate B 1153 MVA) / loss of the other circuit [MAAC]

• 2021
  – Kemptown - Conastone 500 kV line (Rate A 2078 MVA) / basecase [MAAC]
  – Brandon Shores – Hawkins Point Terminal 230 kV line CKT 2345 (Rate B: 1153 MVA) / loss of the other circuit [MAAC]
  – Graceton – Peach Bottom 230 kV line (Rate B 659 MVA) / loss of Conastone – Peach Bottom 500 kV line [MAAC]
Initial 15-Year Overloads by Year

• 2022
  – Keystone - Airydale 500 kV line (Rate B 3733 MVA) / loss of Conemaugh - Airydale 500 kV line [MAAC]
  – Somerville – Bridgewater 230 kV line (Rate A 850 MVA) / basecase [JCPL]
  – High Ridge – Howard CKT 2332 230 kV line (Rate B 923 MVA) / loss of Conastone – Kemptown 500 kV line [MAAC]
  – Sollers Point Terminal – Riverside 230 kV line CKT 2345 (Rate B 1153 MVA) / loss of the other circuit [MAAC]
  – Palmers Corner – Alabama Ave 230 kV line (Rate B 394 MVA) / loss of the other circuit [PJM GD]

• 2023
  – MT. Storm – Doubs 500 kV line (Rate B 2598 MVA) / loss of AMOS – Bedington 765 kV line [MAAC]
  – Parrish – Master 230 kV line (Rate A 736 MVA) / basecase [PJM GD]
  – Juniata – Dauphin 230 kV line (Rate B 616.7 MVA) / loss of Cumberland – Juniata 230 kV line [METED]
Initial N-1-1 Analysis Results
• Initial N-1-1 screening for entire PJM footprint completed
• All market facilities and BES facilities monitored
• Over 6,000 single contingencies
• Approximately 18,000,000 combinations of facility outages evaluated
• Several hundred potential violations identified
• Majority of the potential violations are on lower voltage BES facilities
PSE&G Supplemental Projects
• Install a 230-69 kV transformer and equipment at Bridgewater
• In service date: 2008
• Install a 230-69-kV transformer and associated equipment at Bennetts Lane
• Extend Bennetts Lane 69-kV circuits to tie to the Bridgewater-Lake Nelson 69-kV network
• In service date: 2011
• Install a 230-69 kV transformer and associated equipment at Belleville and at Cook Road
• Install three 69-4-kV transformers & two 69-13-kV transformers and associated equipment at Branch Brook
• In service date: 2013
Supplemental Project – PS - Southern

- Install a 69 kV circuit from Lawrence to Penns Neck
- Install a 230-69 kV transformer and equipment at Lumberton
- Install a 69-13 kV transformer and equipment at Southampton
- Install a 69 kV line from Medford to Southampton
- In service date: 2010
Supplemental Project – PS - Palisades

- Install a 230-69-kV transformer and associated equipment at Bergenfield
- Install 69 kV lines and terminals from Bergen and Bergenfield to Englewood
- Install three 69-4-kV transformers and associated equipment at Englewood
- Remove existing 26 kV equipment at Englewood
- In service date: 2013
Supplemental Project – PS - Palisades

- Install a 230-69-kV transformer and equipment at Bergen and at River Road
- Install 69 kV lines and terminals from Englewood to Bergen, River Road to Bergen, and River Road to East Rutherford
- In service date: 2012
• Install a 138-69 kV transformer and equipment at East Rutherford
• In service date: 2012
Next Steps

• Develop upgrades for violations identified to date
• Continue with analysis of 2013
  – Consolidate and evaluate results of the NERC TPL-003 testing
  – Complete PJM West deliverability analysis
• Consolidate and post BES upgrades
• Retool Work – 2012 and 2011
  – Updated generation assumptions
  – Updated load model
  – Validate timing of previously identified upgrades
• Subregional RTEP
Transmission Expansion Advisory Committee Meeting

2008 Market Efficiency Analysis Input Assumptions

May 21, 2008
Market Simulation Input Data

- PROMOD IV model from New Energy Associates (NEA)
- Underlying input data contained in NEA’s Powerbase (November 2007 update) including generating units and unit characteristics, fuel costs and emissions costs
- NEA Powerbase data based on a variety of sources including Platts, EIA, NYMEX, Evomarkets.com, EPA, FERC, NERC, etc.
- Powerflow Cases
  - 2008 power flow case to represent today’s “as-is” system
  - 2012 RTEP power flow case to represent future system
Key Input Parameters

- Fuel prices
- Load and energy
- Future generation scenario
- Emissions prices
- Transmission topology
- Discount rate
- Upgrade Revenue Requirement
- RPM
Figure 1 - Fuel Price Assumptions

Powerbase fuel prices based on NYMEX futures prices and long-run forecasts from Platts and the Energy Information Administration (EIA)
Load & Energy Input Data

- PJM zonal peak and zonal energy forecast from PJM 2008 Load Forecast Report
- Historical zonal hourly loads used to develop zonal hourly load shape

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2011</th>
<th>2014</th>
<th>2017</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak (MW)</td>
<td>137,948</td>
<td>145,061</td>
<td>151,675</td>
<td>158,176</td>
<td>168,258</td>
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<tr>
<td>Energy (GWh)</td>
<td>729,819</td>
<td>764,785</td>
<td>798,307</td>
<td>831,606</td>
<td>883,531</td>
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Demand Response Input Data

• Demand response values are sum of ILR forecast and DR (cleared and FRR) and from RPM auctions for 2008/09 and 2010/2011

• Zonal distribution of demand response MWs based on distribution shown in posted RPM planning period parameters

<table>
<thead>
<tr>
<th>Demand Response (MW)</th>
<th>2008</th>
<th>2011</th>
<th>2014</th>
<th>2017</th>
<th>2022</th>
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<td>3014</td>
<td>3417</td>
<td>3417</td>
<td>3417</td>
<td>3417</td>
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</tbody>
</table>
Future Generation Scenarios

- Generation model includes all existing in-service generation plus active queue generation with executed ISA minus expected future deactivations.
- Installed reserve requirement is met through 2012.
- To meet installed reserve requirement for study years 2014, 2017 and 2022, 3,500 MW, 11,000 MW and 22,600 MW of new generation will be added to model, respectively.
- New generation will be added to PJM regions in proportion to the regional location and regional generation type of future generation projects in Generation Interconnection Queues through Queue T.
Figure 2 - PJM Market Efficiency Reserve Margin

- Forecasted Summer Peak Net Internal Demand
- Reserve Requirement
- Existing + Queue with Signed ISA - Retirement

Year:
- 2008
- 2009
- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017
- 2018
- 2019
- 2020
- 2021
- 2022

MW:
- 120,000
- 130,000
- 140,000
- 150,000
- 160,000
- 170,000
- 180,000
- 190,000
- 200,000

22,600 MW
## Table 2 - Location and Type of Generation Additions to Maintain Reserve Margin

<table>
<thead>
<tr>
<th>Region</th>
<th>Nuclear</th>
<th>Coal</th>
<th>Gas</th>
<th>Oil</th>
<th>Wind</th>
<th>Other Renewable</th>
<th>Total Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>AECO/DPL/JCPL/PECO/PSEG</td>
<td>0.3%</td>
<td>2.7%</td>
<td>20.6%</td>
<td>1.5%</td>
<td>1.2%</td>
<td>0.1%</td>
<td>26.4%</td>
</tr>
<tr>
<td>AEP/APS/COM/DAY/DUQ</td>
<td>0.6%</td>
<td>20.4%</td>
<td>6.3%</td>
<td>0.0%</td>
<td>12.0%</td>
<td>0.8%</td>
<td>40.1%</td>
</tr>
<tr>
<td>BGE/PEP</td>
<td>3.4%</td>
<td>0.0%</td>
<td>8.3%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>11.6%</td>
</tr>
<tr>
<td>DOM</td>
<td>4.0%</td>
<td>0.4%</td>
<td>4.6%</td>
<td>0.1%</td>
<td>0.0%</td>
<td>0.5%</td>
<td>9.5%</td>
</tr>
<tr>
<td>ME/PNPPL</td>
<td>3.3%</td>
<td>4.5%</td>
<td>2.8%</td>
<td>0.0%</td>
<td>1.5%</td>
<td>0.4%</td>
<td>12.4%</td>
</tr>
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</table>
Emissions Prices

• Powerbase emissions allowance prices from variety of sources including Platt’s BASECASE, Evomarkets.com, and EPA studies

• Powerbase emissions release rates from a variety of sources including Platt’s BASECASE, EPA CEMS data and EPA studies

• Powerbase includes emission release rates but no prices for CO2

• CO2 assumption will be for national program by study year 2011 with allowance prices based on Synapse study
**Figure 3 - SO2 Emission Allowance Price Assumptions**

*Note:* The CAIR legislation requires the generators in 22 states in the East surrender 2 Title IV SO2 allowances beginning in 2010 and 2.86 Title IV SO2 allowances beginning in 2015 for every ton emitted. This is modeled in the Powerbase database by assigning these units with a separate CAIR SO2 allowance price which is twice the price shown from 2010 to 2014 and 2.86 times the price shown beyond 2015.
Figure 4 - NOx Emission Price Assumptions

Note: Beginning in 2009, the SIP Call program is replaced by CAIR NOx programs that are split into seasonal and annual trading programs. Figure 4 shows the addition of these programs for generators covered by both programs (during ozone season only).
Figure 5 - Mercury Price Assumptions

Note: Mercury regulation begins in 2010 with the CAMR legislation.
Figure 6 - CO2 Emission Assumptions

Note: It is assumed that a national CO2 program will be in place by study year 2011.
Transmission Topology and Constraints

- **Powerflow Cases**
  - 2008 power flow case to represent today’s “as-is” system
  - 2012 RTEP power flow case to represent future system

- **Thermal Constraints**
  - monitor/contingency pairs – will post when complete
  - NERC Book of Flowgates
  - Historical PJM congestion events

- **Voltage Constraints**
  - PJM reactive interface limits
  - MW limits based on historical values for “as-is” case adjusted for future upgrade impacts in 2012 case
Reactive Interface Limit Values

- Values used for as-is 2008 system model based on historical averages with Bed-BO(Post) adjusted upward for SVC impact
- Historical averages increased by anticipated effect of RTEP reactive reinforcements to develop future 2012 system values

<table>
<thead>
<tr>
<th></th>
<th>WESTERN</th>
<th>CENTRAL</th>
<th>EASTERN</th>
<th>BO-BED (POST)</th>
<th>APS (PRE)</th>
<th>APS (POST)</th>
<th>500</th>
<th>4500</th>
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<tr>
<td>As-is 2008 System</td>
<td>6000</td>
<td>4000</td>
<td>6200</td>
<td>2600</td>
<td>3200</td>
<td>3900</td>
<td>4000</td>
<td></td>
</tr>
<tr>
<td>Future 2012 System</td>
<td>6500</td>
<td>4500</td>
<td>6700</td>
<td>2600</td>
<td>3200</td>
<td>3900</td>
<td>4500</td>
<td></td>
</tr>
</tbody>
</table>
Discount Rate

- Federal Office of Management and Budget guidance is to use 7% rate with sensitivity analysis at 5% and 9%
- Bright line test dictates use of a single value with no sensitivity analysis
- Discount rate of 9% recommended for cost-benefit analysis conducted as part of 2008 market efficiency analysis
Revenue Requirement

- Use information from recent TrAIL proceedings to develop a revenue requirement to project cost ratio to apply to study projects
- First year revenue requirement = $154M
- Total plant cost at time = $877M
- RR/Cost ratio = 17.6%
- Annual cost of study project for the 15-year study period will be assumed to be 17.6% of project cost
RPM Benefits

- 2010/2011 RPM results show a single clearing price across majority of RTO footprint
- 2011/2012 RPM results show a single clearing price across entire RTO footprint
- Single RPM clearing price anticipated over time horizon of market efficiency analysis due to future major RTEP upgrades
- RPM-related benefits of study upgrades are assumed to be zero in 2008 market efficiency analysis
Next Steps

- PJM Board approval of input assumptions in June
- Complete base case setup
- Determine areas of interest on which to focus congestion analysis
  - Historical congestion
  - Future congestion from base case results
- Begin analysis with regular updates to TEAC