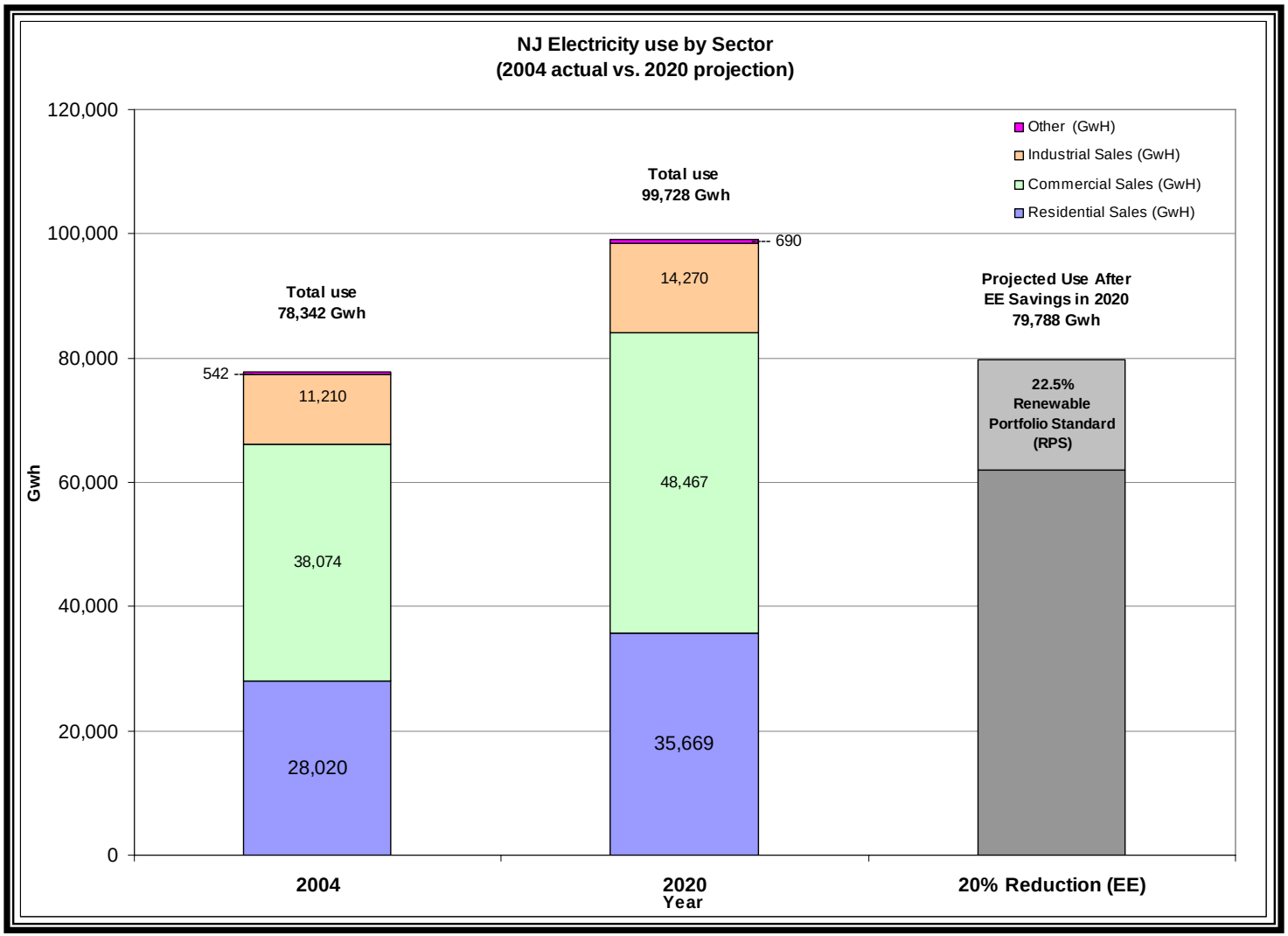
January 16th Agenda

- EMP Conventional Supply Objective
- Review of December 13th Issues
- Overview of Data – Follow-up on December 13th Issues
- Questions for January 16th Discussion
- Review of Scenarios for Modeling

Conventional Supply Objectives

- Decrease projected electric use by 20% in 2020, about 20,000 Gwhs
- Obtain 22.5% of Supply from PV, Wind, Biomass other Class I



Generation Issues

from December 13, 2006 Meeting

- What generation units might potentially be retired?
- Does EMP have a target for the amount of in-state generation? How much?
- What is the fuel source mix? What are the environmental impacts of siting and fuel used?
- Where will new generation be sited? Is existing gas pipeline capacity adequate?
- How will units be dispatched?
- What is the role of distributed generation?

Transmission and PJM

from December 13, 2006 Meeting

- What transmission projects are being considered?
- What congestion points could impinge on outcomes?
- What will be the reliability requirements when the new PJM pricing model kicks in?
- How can we assure that transmission / generation supply is used to meet NJ's electricity demand?

Other Issues

from December 13, 2006 Meeting

- What are the implications of Regional Greenhouse Gas Initiative?
- How will EMP ensure reliability, lower cost, environmental quality, economic development to NJ?
- How will large plants be financed and how will capital be recovered?

NJ Generation

Units >50 Mws Retired or Scheduled for Retirement, via PJM and EIA Data

Name	County	Company	Size	Units	To	Fuel	Age	Date
Hudson	Hudson	PSEG Fossil LLC	129	1	PSEG			2003
Sayreville	Middlesex	Reliant Energy NJ Holding LLC	229	2	JCPL	Oil, Natural Gas	34	2004
Burlington	Burlington	PSEG Fossil LLC	260	5	PSEG	Kerosene	32	2004
Kearny	Hudson	PSEG Fossil LLC	300	2	PSEG			2005
Newark Boxboard	Essex		52	1	PSEG			2005
Gilbert	Hunterdon	Reliant Energy NJ Holding LLC	50	2	JCPL	Oil, Natural Gas	>35	2006
BL England*	Cape May	RC Cape May LLP	447	4	AE	Coal	>40	2007
Hudson**	Hudson	PSEG Fossil LLC	383	1	PSEG	Natural Gas	43	2008
Sewaren	Middlesex	PSEG Fossil LLC	455	4	PSEG	Natural Gas	>50	2008
TOTALS			**2,305**					

Source: PJM Regional Transmission Expansion Plan February 22, 2006 Table 3.1.4-1, Page 30,126
2005 EIA Data referenced to provide Company, Units,,Fuel, Age

BL England* - Plant sale is pending and this could result in plant remaining in operation
Hudson**- PJM notified PSEG on December 1, 2006 that Hudson is needed until 2010. PSEG has 60 days to respond.

NJ Generation

Generators in PJM Queue

Name	County	Company	Capacity	Fuel	Date	PJM Status
Bayonne	Hudson	PSEG	55	Natural Gas	Jun 07	Under Study
Hope Creek	Salem	PSEG	78	Nuclear	Dec 07	Partially in Service
Hope Creek	Salem	PSEG	43	Nuclear	Dec 07	Under Construction
Salem	Salem	PSEG	115	Nuclear	Jun 08	Partially in Service
Cumberland	Cumberland	AE	366	Natural Gas	Dec 08	Under Study
Middle	Cape May	AE	122	Natural Gas	Dec 08	Under Study
Linden	Union	PSEG	600	Natural Gas	Jun 09	Under Study
Mickleton	Gloucester	AE	650	Natural Gas	Dec 09	Under Study
TOTALS			**2,029**			

Source: PJM Regional Transmission Expansion Plan February 22, 2006 Table 4.7.2-1, Page 123 and e-mail from PJM Rep

Transmission

Transmission Expansion Upgrades in Eastern PJM

Name	Type	Date	Cost	To
Bergen - Leonia	Upgrade Line from 138 to 230 kV	2008	$20 M	PSEG
Branchburg Transformer	Upgrade Transformers	2007	$20 M	PSEG
Kittatinny-Newtown	Reconductor 230 KV with 1590 ACSS	2007	$20 M	PSEG
Imports into AE Coastal Area	Upgrade 138kV to 230 kV and other equipment	2007	~$44 M	AE
Imports to Northern PSEG	Build new Essex – Aldene 230kV line	2007	$40 M	PSEG
Flagtown-Somerville-Bridgewater 230 Kv Circuit	Reconductor 230 KV with 1590 ACSS	2008	$12 M	PSEG
Portland – Greystone Circuit	Upgrade the 230 kV Circuit	2008	$20 M	JCPL
Chichester- Mickelton Circuit	Install New 550 / 230 kV Interconnect	2008	$52 M	AE
Imports into East Mid-Atlantic	Install 230 KV Reconductor	2009	$14 M	AE

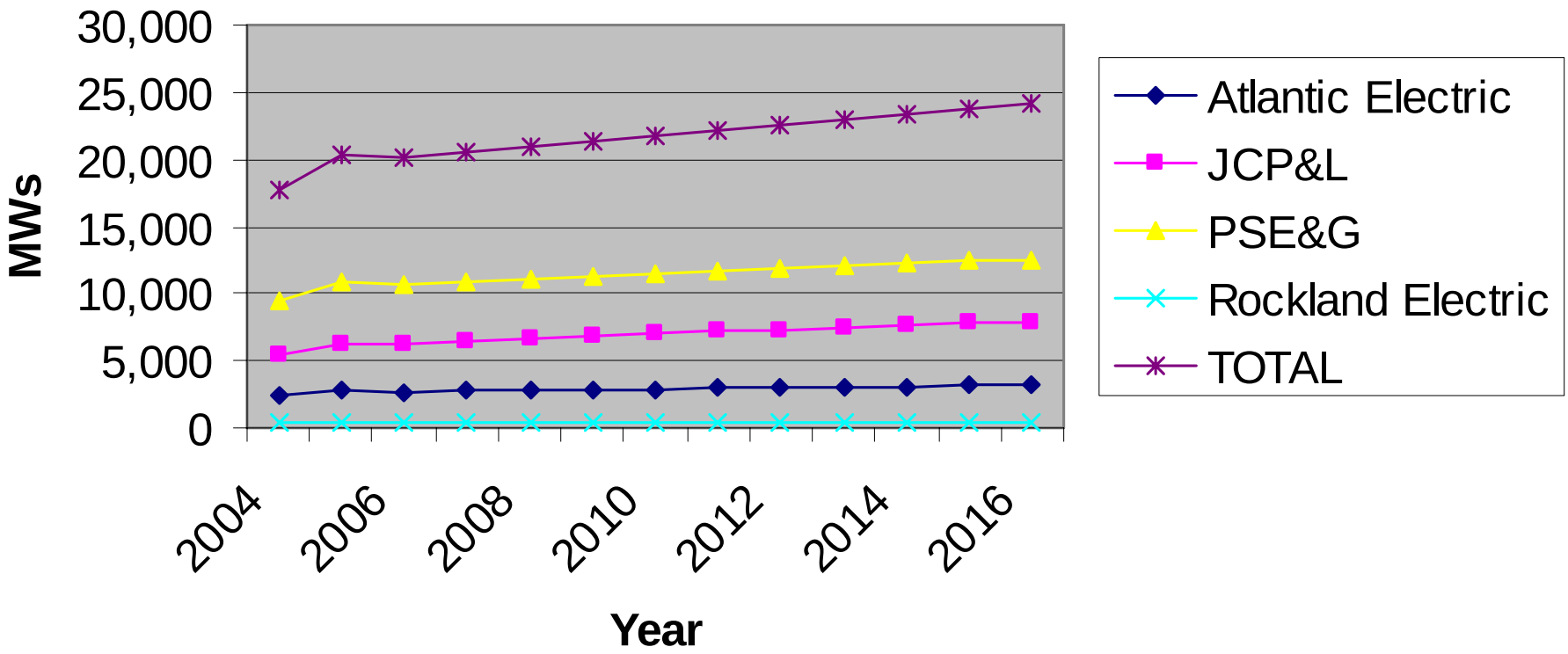
Source: PJM Regional Transmission Expansion Plan February 22, 2006 Table 3.1.6-1, Page 33-34

NJ Counties within DOE's proposed National Interest Electric Transmission Corridors

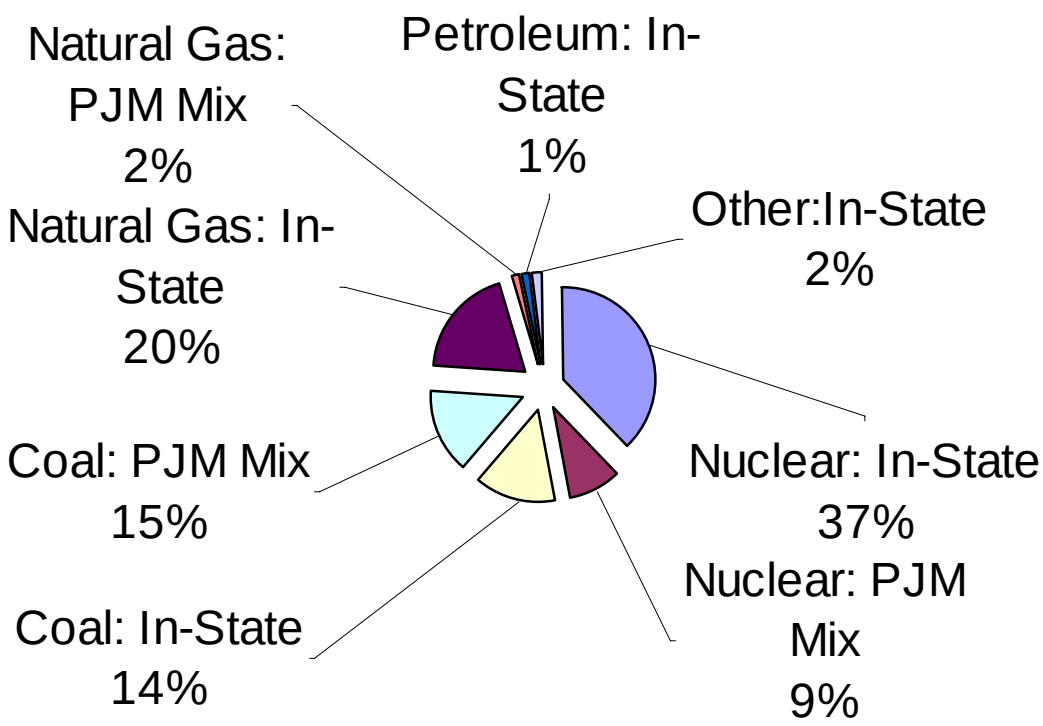
Delaware River Corridor	**Mid-Atlantic Corridor**
Bergen	Burlington
Essex	Camden
Hudson	Cumberland
Hunterdon	Gloucester
Middlesex	***Hunterdon***
Morris	Mercer
Passaic	***Middlesex***
Somerset	Monmouth
Sussex	Salem
Union	***Somerset***
Warren	

NJ Peak Hour Load

from PJM Data



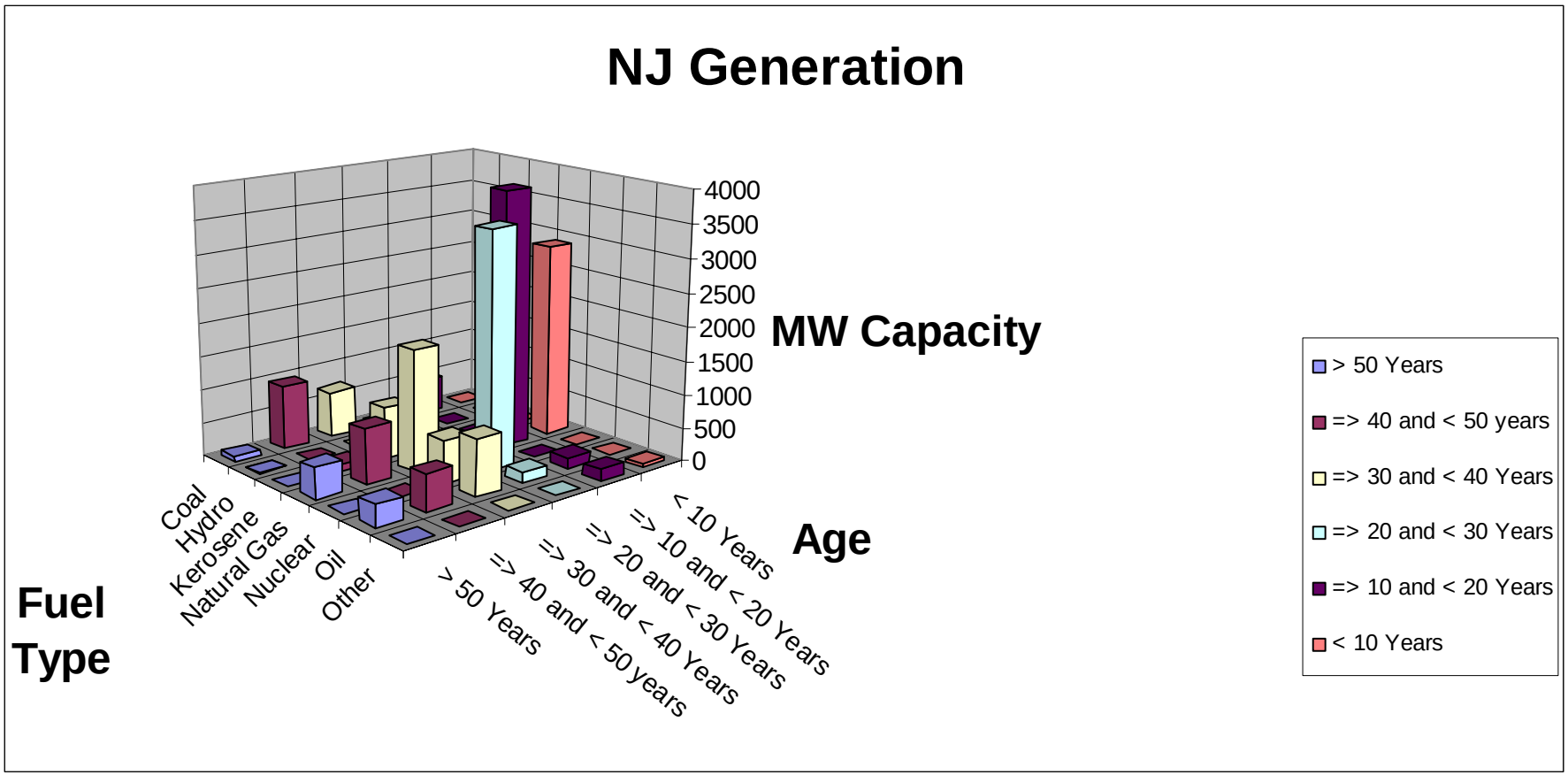
NJ Power Sources in 2005, Gwh



Note: PJM Mix is for entire PJM

Source: In-State Data from EIAs Form 920
PJM Data from 2005 State of the Market Report

NJ Generation



Source: 2004 EIA Data

PJM's West-to-East Flows

"The economics of fuel cost fundamentally drive PJM's RTO merit order generation dispatch. PJM typically sees higher priced generation in its eastern Mid-Atlantic region displaced by lower-priced generation, usually coal-fired, in PJM's Western Region to the extant

transmission capability allows."

Source: PJM Regional Transmission Expansion Plan February 22, 2006,Page 41

Generation Issues Follow-up

Market Feedback – Existing and Upcoming

- Are the markets sufficient to build new generation?
- What feedback are market participants getting from PJM's current Locational Marginal Pricing Market (LMP)?
- What have we learned from LMP that was introduced in 1998?
  - Where are the actual bottlenecks, hubs where the price has increased?
  - What has been done since 1998 to reduce the LMP at these locations?
- How should the Energy Master Plan address the Reliability Pricing Model (RPM), a process being developed by PJM for the spring of 2007?
  - What criteria should the State use to determine if RPM is working?
  - Should the State rely strictly on a specific generation by a date certain, or should other impacts also be considered?
  - Will the RPM be the only market mechanism needed to promote new generating facilities in NJ?

Generation Issues Follow-up

Market Feedback – Barriers to Construction

- What financial obstacles exist to building facilities?
  - Should the State address this issue (if so, by what mechanisms)?
- What regulatory or governmental obstacles exist to building new construction?
  - What Local, State and /or Federal entity is involved?
  - Should the State address this issue (if so, by what mechanisms)?
- Does market power impact the construction of new generating facilities?
  - Should the State address this issue (if so, by what mechanisms)?
- Any other obstacles?

Generation Issues Follow-up

Market Feedback – Price and Structure

- Does a single-market clearing price serve to dispatch the most efficient units?
- Should the State address current market concentration and market power and their effects upon wholesale prices in the near-term?
  - If yes, by what mechanisms?
- Should new or even existing generation capacity be subject to existing market pricing structures?
  - Should the State establish cost-based pricing for this generation (if so, under what conditions)?
- Should the State compel construction (if so, by what mechanisms)?

Generation Issues Follow-up, continued

Equipment and Fuel Mix

- How will NJ ensure a diversified portfolio of generation?
  - What should the fuel mix be?
- How can NJ generators increase their capacity factor?
- Can increased generating capacity be obtained from existing sites or retired sites?
  - What permitting or other work needs to be done here?
  - Can the State address any issues here?
- What barriers exist for building generation at new sites - brownfield sites or other locations?
  - Can the State address any issues here?
- What can be done to upgrade the system's aging infrastructure?
  - How does the State plan for potential retirements, like Oyster Creek?
  - Can the PJM Spare Transformer report be expanded?
  - Can the State address any issues here?

Transmission Issues Follow-up

- Are the markets sufficient to build new transmission in NJ?
- Will EPACT stimulate the building of transmission lines?
- How will the transmission corridor proposals impact NJ?
- Will transmission solutions increase NJ's electricity supply and price problems by encouraging the export of in-state generation?
- How does NJ ensure alternative analysis is included in transmission planning?

Overview of Modeling Process
Parameters – Projections – Assumptions

- Economic
  - Discount Rate
- Energy
  - Annual Electric Demand
  - Peak Hourly Electric Demand
  - Fuel Prices
- Electric Grid Issues
  - Retirements / Repowerings / Reratings
  - Projected Cost of Different Electric Generation Technologies
  - New Transmission Projects
  - PJM Imports
- Environmental
  - RGGI and Potential Carbon Legislation
  - Mercury Rules

Overview of Modeling Scenarios

1. Zero NJ Build – No imports from PJM
2. Natural Gas Business as Usual CC, CT
3. Build One Nuclear Facility - balance NG
4. Build Two Coal IGCC
5. Optimal - least cost
6. Coal Strategy - Build Two Coal Plants over 12 years

Overview

What's Happening?	Today	2010	2015	2020
Generation				
Transmission				
RPM				

NJ Energy Master Plan Information

- http://www.nj.gov/emp/ - Homepage
- https://www.state.nj.us/emp/contact.shtml - Form for feedback