Demand Curve Reset Case Assumptions

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Topics

- Locations
- Turbine Technologies
- Environmental Requirements
- Site Characteristics
- Additional Sites for Zone J

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Locations

- Two or three technologies will be evaluated at these five locations:
 - Zone C Syracuse
 - Zone J Albany
 - Zone G Hudson Valley
 - Zone J New York City
 - Zone K Long Island
- Many assumptions vary by location, including:
 - Labor and productivity rates
 - Environmental requirements
 - Characteristics of a "typical" site

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Drivers for Choosing Turbine Technology Options

- Use dry low NOx burner technology if available
- Choose options that use less water in Zones J and K
- Choose the most recent model of the turbine technology that can be delivered in 2011-14 period

- Typically has more environmental controls, greater capacity, improved efficiency, and/or faster response.

 Select models that are commonly proposed and/or are being constructed

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Turbine Models

- 7FA.05 Zones C and F
 - More capacity, 9 ppm NOx
- LMS100PA Zones C, F and G
 - Wet cooling for intercooler and water injected for NOx control
- LMS100PB Zones J and K
 - Dry low NOx burner technology and dry cooling for intercooler
- LM6000 PH Sprint Zones G, J and K
 - Sprint package provides greater capacity in summer temperature conditions
- Rolls Royce Trent 60 WLE Zones G, J and K
 - Selected for Bayonne Energy Center

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Common Assumptions for Turbines

- No inlet air chiller
- EFOR = 3.68% (long term average—to be updated)
- 10% contingency on capital costs
- No black start capability

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Other Environmental Requirements

- NOx and PM2.5 offsets required in Zones J and K
- Zone G requirements:
 - Emissions limits depend on location of unit:
 - Rockland and lower Orange County resemble Zones J and K
 - Ulster County resembles Zones C and F
 - Upper Orange County may require an SCR, NOx and PM2.5 offsets depending on annual NOx and PM2.5 emissions
 - If annual operating hours are restricted to keep emissions below 100 Tons per year, would resemble Zones C and F
 - Dutchess and Putnam Counties are like upper Orange Country, but wouldn't require PM2.5 offsets
 - Current interconnection queue has CC plants in upper Orange and Dutchess County
 - Proposed approach: Evaluate for upper Orange County; accept operating restrictions if at least 50% available; otherwise install SCR and purchase offsets

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Site Related Assumptions

- Two sets of site assumptions:
 - A set of more restricted assumptions applicable to Zone J
 - A set of less restricted assumptions for other zones
- Key characteristics distinguishing the two sites are:
 - Land area
 - Gas pressure available
 - Electrical interconnection voltage
 - Labor productivity
 - Staffing requirements
 - Aesthetic requirements
 - Foundation conditions
 - Environmental justice

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Site Characteristics

- Land area:
 - Zone J 3.5 acres
 - Either 1 or 2 units depending on space needs
 - Restricted area results in use of gas insulated breakers
 - Other zones 4-5 acres
 - Two units
 - Normal separation of breakers in switchyard
- Gas interconnection:
 - -Zone J 250 psig local pressure
 - Other zones 450 psig local pressure
 - Gas provider makes gas available at the site boundary
 - Firm gas unavailable in Zone J, requiring dual fuel capability

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- Electrical interconnection
 - Zone J 138 kV
 - Other zones 345 kV
- Labor Costs
 - Labor rates vary by zone based on labor index
 - Labor productivity is given as a range for each zone
 - Zone J Use highest value in range (poorest productivity)
 - Other zones Use lowest value in range (highest productivity)

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- Staffing
 - Zone J 4 FTEs, assuming that owner has adjacent or nearby facilities
 - Other Zones 7 FTEs, more typical of small standalone facility
- Aesthetics of Facilities
 - Zone J "green" look
 - Other zones normal industrial facility look
- Foundation Conditions
 - Zone J piles required, assuming waterfront location
 - Other zones spread footings

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- Environmental Justice
 - Plan to increase costs used in 2007 reset using an inflation indicator
 - 2007 Reset costs:
 - \$2,000,000 for LMS100 in Zone J
 - \$1,000,000 for LM6000 in Zone J
 - \$375,000 in Zone K
 - \$275,000 in Zones C, F and G

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- Common assumptions to both types:
 - 20 month construction period
 - Admin/control building
 - Rental trailer-mounted water treatment equipment
 - Leased site
 - Potable water from municipal utility
 - Wastewater collected locally for tanker truck disposal

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Additional Sites for Zone J

- A set of Zone J cases could be evaluated for a NJ generation site by combining:
 - Zone J technologies with NJ environmental requirements
 - Site characteristics for other zones
- Add in any additional costs of interconnecting and obtaining transmission to a Zone J substation
- A project like this is underway, and four transmission projects are in the queue with 2011-14 ISDs

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