

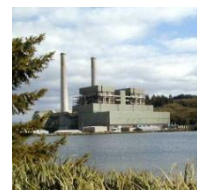
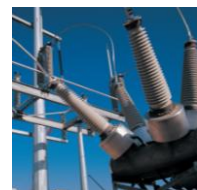
# Stakeholder Meeting Installed Capacity Demand Curves

Debra Richert  
William Frazier

October 19, 2015  
New York Independent System Operator



1. Introduction
2. Lummus Consultants – Who we are
3. Scope of Work
4. Considerations for Peaking Unit
5. Technology Options
6. Key Environmental Regulatory Actions Since Last Demand Curve Reset (DCR)



- Lummus Consultants is a highly respected international consulting firm that delivers a unique combination of technical expertise and business knowledge in the energy and infrastructure industry sectors
- We have six offices in major metropolitan areas worldwide
  - Domestic offices: Houston – Boston – Denver
  - International offices: London – Dubai – Singapore
- Staff of experienced personnel
- Our principal clients are financial institutions, investors, project developers, utilities and energy companies in the U.S. and overseas
- Original consulting firm (Stone & Webster Management Association) established in 1907

***Long-term Reputation and Recognition for Excellence and Integrity***



1907



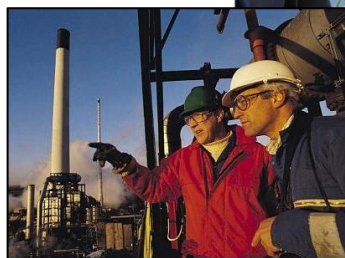
Stone & Webster Management Association



1968



Stone & Webster Management Consultants, Inc.



2000



Shaw® Stone & Webster Management Consultants, Inc.

2009



Shaw® Shaw Consultants International, Inc.

2013



Lummus Consultants International, Inc.

- Develop the localized levelized embedded cost as of May 2017 for the peaking unit in each Locality (the G-J Locality, New York City and Long Island), the Rest of State and any New Capacity Zone proposed by the NYISO in the filing to FERC required by the NCZ Study process:
  - Peaking unit defined as “the unit with technology that results in the lowest fixed costs and highest variable costs among all other units’ technology that are economically viable”
  - Combined cycle plant, defined as “the unit with technology that results in the lowest cost net of EAS revenues under current conditions, accounting for the amount of capacity excess associated with the technology,” will also be assessed for informational purposes

- Technology options for:
  - Peaking unit
  - Combined cycle plant
- Air emissions and New Source Review (NSR) permitting requirement by region
- Carbon pollution standards for new power plants
- Water use
  - Dry low NOx combustors
  - Air cooled condensers vs cooling towers

- Peaking unit technology options:
  - Frame combustion turbines
  - Aeroderivative combustion turbines
  - Reciprocating engines
- Combined cycle plant options:
  - Consider representative designs most likely to be built for the combined cycle plant



- October 1, 2015 Revision of the National Ambient Air Quality Standards (NAAQS) for Ground-Level Ozone:
  - NAAQS lowered from 75 to 70 parts per billion (ppb)
  - Potential impacts on permitting of peaking unit
- June 23, 2014 Supreme Court Decision in *Utility Air Regulatory Group (UARG) v Environmental Protection Agency*:
  - EPA may not treat greenhouse gases (GHGs) as an air pollutant to determine whether a source is a major source required to obtain a Prevention of Significant Deterioration (PSD) permit
  - EPA can require PSD permits otherwise required, to contain limitations on GHG emissions based on the application of best available control technology (BACT)
  - May impact “major source” thresholds used in last DCR; the EPA “Tailoring Rule” was in affect at that time



- Carbon Pollution Standards for New Power Plants
  - Final rule issued August 3, 2015
  - Separate standards for “base-load” and “non-base load” combustion turbines
  - NSPS is starting point for BACT analysis required for units subject to PSD permitting
- Clean Power Plan (CPP) for Existing Units
  - Final Rule issued August 3, 2015
  - State plans due September 2016 with up to 2-year extension
  - Potential indirect impacts on new units
    - New units can be included in state plans if the new unit complement approach is adopted by the state or region
    - Potential impacts on CO<sub>2</sub> allowance costs

**Debra Richert**

Director

Lummus Consultants International, Inc.

Phone: 617-589-1191

Fax: 617-589-1372

email: [debra.richert@lummusconsultants.com](mailto:debra.richert@lummusconsultants.com)

**William Frazier**

Principal Consultant

Lummus Consultants International, Inc.

Phone: 617-589-1703

Fax: 617-589-1372

email: [william.frazier@lummusconsultants.com](mailto:william.frazier@lummusconsultants.com)

