2009 CARIS Potential Generic Solutior
Generation Cost Matrix
Order of Magnitude Unit Costs

(Estimates should not be assumed reflective or predictive of actual project costs)

Item #	Location	Plant Block Size Capacity (MW)	Plant Cost per Block Size ($M)	Electric Unit Transmission Cost ($M/Mile)	Substation Terminal Cost ($M)	System Upgrade Facilities ($M)	Gas Unit Transmission Cost ($M/Mile)	Gas Regulator Station Cost ($M)
G-1 High	Upstate	250	$400.0	$5.0	$9.0	$9.0	$5.0	$3.0
G-1 Mid	Upstate	250	$330.0	$3.5	$6.0	$6.0	$3.5	$2.0
G-1 Low	Upstate	250	$260.0	$2.0	$3.0	$3.0	$2.0	$1.0
G-2 High	Downstate	250	$480.0	$25.0	$40.0	$50.0	$20.0	$3.0
G-2 Mid	Downstate	250	$400.0	$20.0	$25.0	$30.0	$15.0	$2.0
G-2 Low	Downstate	250	$320.0	$15.0	$10.0	$10.0	$10.0	$1.0
G-3 High	Long Island	250	$470.0	$20.0	$20.0	$25.0	$5.0	$3.0
G-3 Mid	Long Island	250	$390.0	$15.0	$12.0	$15.0	$3.5	$2.0
G-3 Low	Long Island	250	$310.0	$10.0	$4.0	$5.0	$2.0	$1.0

Assumptions

1. ***Estimates herein should not be utilized for purposes outside of the CARIS process. Also, these estimates should not be assumed as reflective or predictive of actual projects or imply that facilities can necessarily be built for these generic solution order of magnitude estimates. Estimate ranges were identified after Transmission Owner input, a review of recent proposed generation projects in NY, and reaching consensus at the ESPWG.***

2. It is assumed that the plant will be gas combined cycle type. Configured as a 2 x 1 7EA block with selective catalytic reduction (SCRs), total generation 250MW.

3. The plant cost includes real estate and permitting.

4. The plant cost includes generator step-up transformer and generator substation yard including associated protection and communication equipment.

5. The plant will be interconnected into an existing 345kV substation for Upstate and Downstate and 138kV for Long Island.

6. The generator lead will be rated 345kV, 1673A, 1000MVA for Update and Downstate and 138kV, 2092A, 500MVA for Long Island. The generator lead will be built with overhead construction for Update and underground construction for Downstate and Long Island.

7. It is assumed that the existing substation selected as the interconnection point consists of open-air construction and has sufficient space within the fenced yard for adding a new breaker and a half bay for the new line terminal. If the selected susbtation is gas-insulated, a factor of 4 times will be applied to the base substation terminal costs.

8. It is assumed that the plant will require a 10in dia. gas line extension to bring a 450 psig gas supply to the plant and a single gas regulator station per block along with gas conditioning, startup gas heaters and metering. It is assumed that an adequate gas supply is available.

9. It is assumed that the existing substation selected as the interconnection point and outgoing transmission lines has adequate rating to interconnect new generation.

10. It is assumed that the control house at the existing substation selected as the interconnection point has sufficient space for installing the new protection and communication equipment for the new line terminal.

11. It is assumed that the generator lead and gas line can be permitted and constructed utilizing the shortest distance.

12. It is assumed that the ROW is generally unobstructed and significant relocation of underground interferences is not required and that rock excavation is not required.

13. It is assumed that the ROW does not require mitigation of environmentally sensitive areas.

14. Estimates include costs for material, construction labor, engineering labor, permits, testing and commissioning.

15. The plant cost includes a range to account for the variable land and permitting costs associate a project.

16. The cost per mile includes a range to account for the variable land and permitting costs associated with a project such as utilizing an existing ROW, expanding an existing ROW or obtaining new ROW.

17. The substation line terminal costs include a range to account for necessary protection and communication equipment.

18. System Upgrade Facilities costs include a range to account for line terminal relay upgrades and replacement of overdutied breakers.

19. The transmission and gas transmission unit cost will be applied during the study as necessary dependent on the location of the congestion location to be studied.