

1.0 INTRODUCTION

1.1 The Project

TransGas Energy Systems LLC (TGE) is proposing to construct and operate the TransGas Energy Facility (the Project or Facility), a 1,100-megawatt (MW) combined-cycle cogeneration facility on the East River between the Greenpoint and Williamsburg's North Side sections of Brooklyn. Prior to construction and operation of the Project, TGE must, pursuant to Article X of the Public Service Law, obtain a Certificate of Environmental Compatibility and Public Need (Certificate) from the New York State Board on Electric Generation Siting and the Environment (Siting Board). A Preliminary Scoping Statement for the Project was filed in September 2000. Review of the Project is proceeding under Siting Board Case No. 01-F-1276.

The TGE Facility is a proposed combined-cycle and cogeneration plant that can generate up to a nominal 1,100 MW of electric power and up to 2 million pounds per hour (mmlbs/hr) of steam. The Project will participate in the new wholesale electricity market, selling at market-determined prices, thereby providing low-cost electrical energy to New York State's consumers. As an independent facility, the Project's construction risk will not be borne by ratepayers.

The Facility will be fueled primarily by natural gas with very low-sulfur distillate as a backup fuel. Natural gas will be delivered by pipeline operated by KeySpan Energy Delivery (KeySpan), operator of the local natural gas system. Backup fuel oil will be delivered to the Project site via an existing on-site petroleum pipeline operated by the Buckeye Pipeline Company and barge deliveries. The Facility will provide electric power to the New York City transmission cable system operated by the New York Independent System Operator (NYISO). Power will be delivered at the highest system voltage, 345 kilovolts (kV), connecting to nearby existing underground cables. Heat recovery and delivery infrastructure for potential steam sales is also included.

The process of utilizing both the power generated from the combustion turbine generator and the steam turbine generator is referred to as "combined-cycle" electric generation. When coupled with steam sendout, it is referred to as "cogeneration." Thus, the Project, as proposed, can be referred to as a combined cycle cogeneration plant.

By using the waste heat from the combustion turbines to produce steam and in turn, to generate additional electricity, the plant will operate with a higher thermal efficiency than most older generating facilities in New York State. As discussed later in this Section and in Attachment D, it is therefore expected to successfully compete in the electric generation marketplace, displacing less efficient generators at any given moment. As an added potential benefit, TGE is applying

for certification to include the necessary infrastructure to deliver steam to the New York City steam distribution system, further increasing overall plant efficiency and reducing environmental impacts.

The proposed Facility will be located on an approximately 8-acre site at the existing Basyside Oil Terminal at North 12th Street and Kent Avenue, in Brooklyn, New York. The Project site is shown in Figure 1-1. The proposed Project site has excellent attributes for a combined-cycle and cogeneration plant. The site is heavily contaminated, and will be remediated as part of Project construction.

Other attributes of the Project site include:

- Deliverability of power into the heart of the New York load pocket;
- Proximity of natural gas and on-site location of oil pipeline terminal;
- Proximity to NYC steam system, with deliverability to the midtown and downtown load centers;
- M3 zoning, the district designated is New York City for siting power plants as of right;
- Ability to deliver major equipment as well as backup fuel by barge;
- Brownfield remediation opportunity; and
- Commercial availability, as the applicant does not have the power of eminent domain.

The Project is being developed to bring a new, efficient electric generating resource to New York City at a time when adding such a resource is in the public interest. The Project will sell low cost wholesale power and will diversify the number of suppliers for the New York City market, thereby promoting price competition. The Project is expected to lower the costs of electricity and steam to New York City ratepayers. The Project will produce significant revenue for the City and contribute to the City's economic development. Finally, through the use of the latest environmental control technology, the Project will minimize environmental impacts within the City.

A strong development team has been assembled to pursue the Project, with each participant bringing a particular area of expertise. The Project has been a collaborative effort that has used the engineering and construction expertise of Siemens Westinghouse, ABB, AEP ProServ, Amec Construction Management, O'Brien & Gere, and Jenny Engineering. Environmental studies have been conducted by TRC. Significant architectural designs have been made as a result of TGE's retaining leading architectural designers. This application is based on a design developed by New York architect Jeff White and Clough Harbor Associates, working with TGE's Jonathan Arnold.

1.2 Public Interest Considerations

TGE hereby summarizes the reasons presented in this Article X Application supporting the public interest finding the Board is required to make in order to issue a certificate under Section 168(2)(e) of the Public Service Law.

1.2.1 Increased Electric System Reliability

As described in Section 14 and the Direct Testimony of Prabu Prabhakara and Mark Younger, the Project will provide numerous benefits to electric system reliability, as follows:

1. Provision of Black Start Capability at 345 kV voltage to help energize NYC in the event of a full system outage;
2. New installed capacity in the New York City Load Pocket, thereby helping the New York Independent System Operator (NYISO) meet its Installed Capacity Requirement, particularly because of the occurrence of unforeseen circumstances (*e.g.*, inclement weather, load increases, outages).
3. Locating new generation in New York City displaces reliance on less reliable transmission imports and enhances NYC ability to survive system upset events;
4. The installation of an indoor, secure Gas Insulated Substation reduces New York City's exposure to system interruptions;
5. Provision of reactive power increases voltage support, thereby enhancing import capability;
6. Location of TGE south of the Rainey substation (Queens) helps relieve day-to-day congestion from areas north of New York City to Rainey.
7. Availability of space on-site for possible Con Edison equipment to serve local growing electrical loads;
8. In-City capacity will reduce transmission losses in New York State, improving efficiency, lowering the cost of transmission and reducing air pollution by the amount of the losses that are required to be made up.

1.2.2 Promotion of Competition In Electric Market

As described in Section 1.3 and the Direct Testimony of Mark Younger, the Project will enhance and promote electric competition through the following means.

1. Addition of TGE generation market reduces New York City market concentration and the potential for the exercise of market power in the wholesale generation market.
2. By selling its output in the competitive electric generation market TGE is estimated to reduce annual wholesale electric payments by \$70 million in NYC and more than \$100 million statewide.
3. By providing capacity in the competitive installed capacity market, TGE is also estimated to reduce annual installed capacity costs by more than \$11 million to \$13 million Statewide.

1.2.3 Reduction in Air Pollution

As described in Section 1.3, Section 1.4, and the Direct Testimony of Mark Younger, the Project will enhance and promote electric competition through the following means.

1. Because it will be highly efficient, TGE is estimated to displace production from other electric power plants leading to reduction in air emissions in SO₂ (3,300 to 4,300 tons), NO_x (3,100 to 3,700 tons) and CO₂ (49,000 to 85,000 tons) in New York.
2. TGE will reduce airborne concentrations from electric and steam plant emissions at receptors throughout the Greenpoint and Williamsburg neighborhoods.
3. TGE will replace a currently operating fuel depot, and with it, approximately 200-400 full truck trips per day, that emit diesel exhaust on the waterfront streets.

1.2.4 Brownfield Cleanup

At a time when the State Superfund lacks sufficient funds, TGE will voluntarily remediate at its own expense, a site that is significantly contaminated and could not, in its present condition, be used for residential or open space purposes.

1.2.5 Water Conservation

By using air cooled condensers and recovering wasted water for production uses, TGE could save NYC's potable water supply on the order of a billion gallons per year.

1.2.6 Funding Open Access to Waterfront

The Bayside Fuel Depot provides no public access to the waterfront and there are not plans by the current owner to do so. TGE proposes to fund new waterfront access. Through its community benefits program, TGE would also contribute funds to enhance access to the waterfront on other lots if the owners were so amendable

1.2.7 Consistency with Local Zoning

TGE is proposing to build the Facility in the zoning district that the City of New York has reserved for the construction of power plants as of right (M3-1).

1.2.8 Catalyst for the Waterfront

The beautiful, innovative, community friendly design of the plant will enliven what is now a drab, industrial looking waterfront area. The 24 hour, 7 day per week presence at the plant, together with its artistically designed front on Kent Avenue, will serve to stimulate new opportunities for public access in this area

1.2.9 New Economic Development

The Project will create 1,000 direct job years during construction and 40 permanent jobs during operation. In addition, 60 secondary jobs will be created through the economic investment and annual expenditures provided by the Project.

The Project will infuse approximately \$250 million into the local economy and spend approximately \$12.5 million annually on payroll and other goods and services.

1.2.10 Local Community Benefits

TGE will contribute significant funds for local community projects such as affordable housing and new waterfront access in coordination with the New York City Economic Development Corporation.

In addition, in a separately funded program, TGE will establish a trust to support community projects. The trustees will be drawn from the community and will review proposals for possible funding.

1.2.11 Reduced Dependence on Foreign Oil

By using North American natural gas for approximately 98% of its electrical output, the plant would reduce crude oil imports by hundreds of million of gallons each year.

1.2.12 Increased Gas Distribution Reliability

TGE will fund KeySpan distribution and lateral lines that will enhance gas reliability to the local community.

1.2.13 Increased Steam Reliability and Lower Steam Costs

By proposing to construct a utility tunnel from TGE to the Con Edison steam system at East 20th St. in Manhattan, TGE will be diversifying Con Edison's steam system with a 100% physically reliable steam supply. TGE is also offering to sell the steam at a cost savings to Con Edison.

1.3 Approved Procurement Process and the Public Interest

1.3.1 Regulatory Applicability

In the Article X process, among the key findings that the Siting Board must make are whether or not the Project complies with state and local laws and whether or not environmental impacts have been adequately mitigated and public health and safety protected. The bulk of this Application addresses those requirements. The Application supports two additional necessary findings: that the Project was selected pursuant to an approved procurement process; and that the Project is in the public interest.

The Article X statute and the Siting Board regulations require that TGE demonstrate the Project is reasonably consistent with the policies and long-range energy planning contained in the most recent New York State Energy Plan *or* that the Project has been “selected pursuant to an approved procurement process.” PSL §168.2(a) and 16 NYCRR 1001.5. If the Project meets the latter standard, TGE will not be required to present certain types of analyses (for example, detailed costs). The Article X statute also requires a demonstration that the Project is “in the public interest.” PSL §168.2(e).

1.3.2 Long-range Energy Planning and Objectives: Consistency with SEP

In June 2002, the New York State Energy Planning Board approved and issued the New York State Energy Plan (“SEP”) and Final Environmental Impact Statement. The SEP states that the findings of the 1998 SEP, relating to promoting competition in the electricity industry, remain valid today, with the events of past four years continuing to support the validity of the 1998 Plan’s findings. (SEP 2-5) In all key areas (price, reliability, economic development, adequacy, and environmental impact), the SEP finds that competition has been beneficial, but greater benefits can be achieved. According to the SEP, “[t]he primary barrier to achieving effective wholesale competition in the energy industries is the lack of adequate resources (electric generation capacity, electricity and natural gas delivery infrastructure, and demand reduction techniques) in certain areas where they are needed.” (SEP 2-13). The TGE facility is consistent with these goals.

The SEP found that, “the State must increase its capacity to generate electricity by siting new, cleaner, state-of-the-art power plants, repowering existing plants, and increasing other alternative sources of electricity generation.” (SEP 1-13). The SEP forecasts that the State must increase its capacity to generate electricity by 5,000 - 7,000 MW during the early years of the planning period. (SEP 1-34).

As such, the SEP sets forth the following policies:

“Plans for new electricity generation that promote or contribute to the development of a competitive market will be consistent with the long-range plans for expansion of the State’s electricity system, as envisioned in the State Energy Plan.” (SEP 1-10)

“The energy policies and long-range planning strategies presented in the SEP are designed to ensure that New York’s energy needs are met by encouraging competition while ensuring fairness and equity, ensuring mobility, ensuring system reliability, and improving the State’s environment” (SEP 1-18) while bringing energy prices “more in-line with other states to compete more effectively for economic opportunities.” (SEP 1-22).

“The pursuit of effective competition, wherever practicable, in the provision of natural gas and electricity services is the policy of the State of New York. Such competition has the potential to reduce energy costs over the long term, increase customer choices and satisfaction, provide economic development advantages,

enhance system reliability, promote technological changes and improvements, and improve environmental quality.” (SEP 2-1). In a competitive market, participants will determine when and where new electric generation or demand reductions are most needed and economically viable. (SEP 1-10).

As discussed in Section 3, the TGE Project proposes to utilize combined heat and power (cogeneration and the sale of steam) (“CHP”) technologies and is intended to position the future owner of the proposed generating facility to compete with other suppliers of electric energy, capacity and ancillary services in the New York City and New York State markets. CHP technologies produce both electricity and steam from a single fuel. These efficient systems recover heat that normally would be wasted in an electric generator, and save the fuel that would otherwise be used to produce heat or steam in a separate unit. CHP offers dramatic advantages in efficiency and much lower air pollution than conventional technologies. By contrast, conventional electric generation throws away much of the heat generated in production, and conventional thermal energy generation often misses an easy opportunity to generate power. CHP can result in system efficiencies of 70 to 95%, compared with the national average of 30% efficiency in conventional electricity plants, and perhaps 50% in conventional thermal applications. The SEP supports the use of CHP technologies and advocates taking all reasonable steps necessary to facilitate such plants focusing primarily on applications that demonstrate reduced energy costs, improved electricity system reliability and reduced emissions. (SEP 1-40). TGE’s facility achieves all of these objectives.

Operated as a merchant plant, the Facility will "contribute to the development of a competitive market" for electricity by competing for the opportunity to sell its output. The Project will be able to bid into the NYISO’s markets or sell bilaterally to wholesale or retail customers, or both. By utilizing state-of-the-art technologies, the plant will be capable of offering lower prices for its output, thus placing pressure on other generators to keep their prices low. The wholesale and retail competitive markets will clearly benefit as a result. By competing in the competitive market, the TGE project will further reduce adverse environmental impacts by displacing older, less efficient generating plants.

The SEP further emphasizes the need to attract new business to New York by increasing the availability of competitive and lower energy costs. Policies promoting greater energy supply certainty will lead to greater private sector investment in New York. (SEP 1-21). Thus far, “[t]he cost of energy... remains an obstacle to overcome in New York’s efforts to retain, expand, and attract businesses.” (SEP 2-23). Businesses need secure and reliable energy supplies that are reasonably priced to expand operations and grow in the State. The SEP predicts that reducing energy costs can have a substantial effect on business making the State’s businesses and industries more competitive with other states and regions of the country. New York’s energy

prices need to be brought more in-line with other states to compete more effectively for economic opportunities. (SEP 2-37). In turn, these lower energy costs will position New York to attract new business and retain and expand existing businesses. (SEP 2-16). However, “[t]his expectation is strongly conditioned on new demand and supply sources being added, especially at critical locations that will serve to reduce transmission congestion.... The siting of additional generation and transmission facilities can reduce price impacts attributed to economic congestion of the transmission system.” (SEP 1–28,29)

The TGE project is consistent with the State’s objective of attracting and retaining business. As a contributor to the competitive market, the TGE project will aid in lowering New York energy and capacity costs thus fostering the SEP’s goals of retaining existing business and attracting new business to New York. Moreover, by locating the TGE project in New York City, the electric output of the facility will help alleviate transmission congestion associated cost disparities between New York City and upstate areas.

According to the SEP, New York “should lead the nation in taking actions to reduce greenhouse gas emissions, stressing the aggressive implementation of existing, and development of new technologies and strategies that would significantly reduce emissions.” (SEP 1-42). Modeling conducted on new generation facilities show expected reductions by thousands of tons in air pollution, including Greenhouse gas emissions, in the State through the displacement of older, more polluting, electricity generation, and the analyses performed for the Electricity Resource assessment in the 2002 SEP support these results. (SEP 2-4). TGE will reduce not only regional air emissions, but also local air pollutant deposition in its own vicinity. (See [Section 5.11](#)).

In conclusion, while Article X does not require the Board to make such a finding for a facility selected pursuant to an APP, it is evident that the TGE facility will be consistent with the policies, long-range energy planning objectives and strategies contained in the 2002 SEP.

1.3.3 Approved Procurement Process

The Article X Regulations require an applicant to demonstrate that a proposed generation facility “...is reasonably consistent with the energy policies and long range energy planning objectives and strategies contained in the most recent state energy plan adopted pursuant to Article 6 of the energy law, or that the proposed facility was selected pursuant to an electric capacity procurement process approved by the Commission as reasonably consistent with the most recent state energy plan.” 16 NYCRR § 1001.5(a). As described below, the TGE project has been selected pursuant to an energy procurement process approved by the Commission as reasonably consistent with the most recent State Energy Plan (SEP), and, therefore, fulfills this requirement. In a separate motion to the presiding examiner, TGE requests a ruling in this regard for purposes

of the Article X application filing. Below, TGE demonstrates that it will promote or contribute to competition, thereby satisfying the Board's test that a finding can be made that TGE has been selected pursuant to an APP. In addition, the following sections demonstrates that the TGE project is consistent with the most recent SEP.

1.3.3.1 Competition as an Approved Procurement Process

On April 16, 1998, in response to a petition filed by Athens Generating Company, the New York State Public Service Commission, after determining it had the legal authority to do so, found and declared "that competition in the electric supply market is an approved procurement process because it is an electric capacity procurement process approved as reasonably consistent with the 1994 SEP."¹ The Commission similarly found that competition in the electric supply market is an approved procurement process because it is an electric capacity procurement process approved as reasonably consistent with the 1998 and 2002 State Energy Plans on August 25, 1999,² and on October 24, 2002, respectively.³

The TGE project will promote and contribute to a competitive market for electricity, as discussed below.

1.3.3.2 Competitive Electricity Markets in New York State

New York has made substantial movement toward the establishment of fully competitive wholesale and retail electricity markets. A brief summary of New York's transition to competition follows.

The Federal Energy Regulatory Commission, on April 24 1996, issued Order 888, requiring utilities to file open access transmission tariffs, providing non-discriminating transmission access to all market participants. Coupled with codes of conduct and Open Access Same-Time Information System ("OASIS") for reserving transmission services, these steps are designed to mitigate the advantages that utilities owning generation might have extracted from their

¹ Case 98-E-0096 – Petition of Athens Generating Company, L.P. for a Declaratory Ruling that the Commission's Competitive Initiatives Constitute an Approved Capacity Procurement Process, that Said Process is Reasonably Consistent with the 1994 State Energy Plan and that the Proposed Athens Generating Facility has been Selected Pursuant to an Approved Procurement Process, *Declaratory Ruling Concerning Approved Procurement Process* (Issued April 16, 1998), at 8.

² Cases 99-E-0084 and 99-E-0089: Petition Of Sithe Energies, Inc. for a Declaratory Ruling That Competition in the Electric Supply Market is an Approved Procurement Process Reasonably Consistent With the 1998 State Energy Plan; Petition of Ramapo Energy Limited Partnership for a Declaratory Ruling That the Competitive Market for Electric Generating Capacity is an Approved Procurement Process Consistent With the 1998 State Energy Plan, *Declaratory Ruling Concerning Approved Procurement Process* (Issued August 25, 1999).

³ Case 02-E-1127: Petition of Independent Power Producers of New York, Inc. for a Declaratory Ruling that Competition in the Electricity Supply Market is an Approved Procurement Process Reasonably Consistent with the 2002 State Energy Plan, *Declaratory Ruling Concerning Approved Procurement Process* (Issued October 24, 2002).

ownership of transmission, and was a major first step in the movement toward competitive wholesale electric markets.

On May 20, 1996, the New York Public Service Commission issued Order 96-12, in which its vision for a competitive electric industry was outlined and its policy direction was established. In addition to identifying the need for independent operation of the transmission system, the order required the State's utilities to prepare restructuring proposals, and strongly encouraged the divestiture of generation. As a subsequent result, most of the investor-owned utility generation in the State has been divested. Under new ownership, these plants are competing with each other in the wholesale electric market.

The next landmark was the filing with FERC on January 31, 1998, of the proposal by the member systems of the New York Power Pool to establish an independent system operator (NYISO) for New York State. After proceedings before FERC on the proposed tariffs, the NYISO began operation in November, 1999 under FERC approved tariffs. The NYISO is charged with ensuring that the transmission system continues to be openly accessible and reliable, while creating new opportunities for participation in the wholesale electric market. The NYISO coordinates the day-ahead energy, regulation and operating reserves market as well as coordinating generator dispatch and the market for installed capacity. Wholesale electricity prices are determined on a locational basis and are established through competitive price bidding. The market clearing price is the highest accepted bid in the State adjusted for the impacts of congestion and losses to the generator's location (Locational Based Marginal Price (LBMP)). Additional opportunities for generators to market ancillary services, installed capacity, and other products are also available. Thus, TGE will operate in a competitive wholesale electricity market predominantly populated by generation that is not owned by the State's investor-owned utilities.

Retail competition has emerged in the State through the utilities' implementation of retail access programs included in their restructuring agreements. Most residents of New York State are able to select the supplier of their electricity. The markets administered by the NYISO allow generators and load-serving entities to enter into bilateral contracts, and/or to schedule their transactions through the NYISO. A generator serving a bilateral contract may also bid its output into the NYISO energy market and serve a bilateral contract by buying energy at the NYISO energy market price. Contracts prices are expected to closely track the prices in the NYISO coordinated markets. Thus, electric competition will prevail in the business environment to be faced by the TGE project.

1.3.3.3 Promoting and Contributing to New York's Competitive Market

The proposed TGE project will promote and contribute to competition in the State's electricity market by adding production capacity that will compete with other generators to serve the load in the region.

The bulk power transmission system in New York is frequently constrained by limitations on the lines between the upstate New York and New York City. New York City is a "load pocket," or, in other words, the load in NYC frequently exceeds the transmission capability into the City. These transmission constraints require the operation of higher-cost generators in the New York City region because cheaper power from other regions is unable to reach the local load. During these periods of high demand, NYC is forced to rely on older, less reliable, uneconomic, more polluting in-city plants. Since the market clearing price is set by the highest bid of the most expensive unit, the result is higher market prices for electricity in New York City. If more generation, especially efficient and economic generation (such as the proposed project) is added to the City, the effects of the constraints and the disparity in prices will be reduced. While the TGE project cannot, by itself, be expected to fully mitigate the price differentials, it will contribute to competition and have a beneficial downward effect on market prices. The projected reductions to wholesale energy prices, production costs and capacity costs are presented in Section 1.3.5.

The TGE facility will also reduce market concentration in NYC. A Herfindahl-Hirschman Index ("HHI") of market concentration was performed for the New York City market with and without the plant. The HHI Index is utilized by the U.S. Department of Justice and Federal Trade Commission when reviewing mergers. The HHI is determined by measuring each market participant's share of the market, squaring that value and adding the squared value of all participants together. Generally an unconcentrated market has an HHI below 1000, a moderately concentrated market has an HHI between 1000 and 1800 and a concentrated market has an HHI above 1800. The HHI without the facility was calculated at 1461. The addition of the TGE facility drops the HHI to 1297, a significant contribution to reducing market concentration and fostering competition.

1.3.4 Dispatch of the Plant by the NYISO

The Project is consistent with the 2002 SEP's policy on the New York Independent System Operator (NYISO) and system reliability. The Project will be offering to sell its electricity in the competitive electric market. Therefore, its economic success will be directly dependent upon how efficiently it can operate and how effectively it can compete. The Project's output will be offered to the New York market and dispatched by the New York Independent System Operator

(NYISO) under tariffs approved by the Federal Energy Regulatory Commission (FERC). The NYISO will ensure that the operating criteria and standards for system reliability will be met. The NYISO is designed to be an independent entity that will coordinate the safe and reliable flow of electricity throughout New York and operate the state's spot markets in an economically efficient manner. It will also ensure that all market participants have open, non-discriminatory access to utility transmission systems. The NYISO will dispatch generating units in New York to assure reliable operation of the transmission system at the lowest total bid cost to the state. The Project will be chosen to run only if it is providing a net economic benefit to New York's power system over the available alternatives. The NYISO will determine the operating schedule for the power plants that provide the most benefit to New York State consumers, consistent with the safe and reliable operation of the transmission system.

In summary, the Project will enhance the supply portfolio from which the NYISO may select competitive energy supplies and services in order to minimize the total cost of electricity generation to New York City and New York State. The Project therefore will expand the choices of load-serving entities to obtain electricity, help minimize system costs, and will operate under rules that will assure system reliability.

1.3.5 Production Costs Savings

Pursuant to Stipulation 13, simulations of the electric markets were performed using the General Electric Power Systems Market Assessment and Portfolio Strategies ("MAPS") MWFLOW model. The MAPS/MWFLOW model provides a reasonable representation of how the NYISO will commit units in the NYISO's actual operation. MAPS also estimates changes in energy production costs and prices based upon adding a unit to a base case. Pursuant to Stipulation No. 13, the 2002 State Energy Plan database was used as a starting point in the simulations with specific changes agreed upon with DPS staff. A synopsis of the results is provided below. Attachment D provides the full MAPS Report and fully addresses the Stipulation 13.

1.3.5.1 Simulations Performed Using MAPS Model

Three simulations were run using MAPS/MWFLOW in addition to the base case: 1) the TGE facility will produce only electricity (or could extract 500,000 pounds per hour of steam)("Electricity Only"), 2) the TGE facility will produce electricity and 1 million pounds per hour of steam for sale to Consolidated Edison (producing this amount of steam reduces overall electric capacity by 180 MW and improves heat rate attributable to electricity by 3.5%) ("Steam and Electricity"), and 3) only other units under construction are assumed to enter service. The results of the first two analyses are presented below in Tables 1-1 through 1-4. The complete analysis from GE is presented in Attachment D.

Table 1-1 presents the estimated reductions in LBMP in NYC, Capital and Western NYISO zones for the year 2008. As seen in the results, there is a reduction in all three zones with the introduction of the TGE facility with a significant reduction in the NYC Load Zone.

Table 1-1: Reduction in LBMP by NYISO Zone		
NYISO Zone	Reduction in LBMP in year 2008	
	Electricity Only	Steam and Electricity
NYC Load Zone (“J”)	3.3%	2.8%
Capital (“F”)	1.9%	1.5%
Western (“A”)	0.9%	0.6%

In addition to decreases in statewide LBMPs, reductions in wholesale power payments are also expected to drop significantly throughout the State with a majority of the savings being recognized in the Consolidated Edison service territory. The MAPS/MWFLOW results for reductions in wholesale power payments in New York State and the Consolidated Edison Service territory are presented in Table 1-2.

Table 1-2: Reduction in Wholesale Power Payments		
Territory	Reduction in Wholesale Power Payments in year 2008	
	Electricity Only	Steam and Electricity
New York State	\$121.3 million	\$101.8 million
Consolidated Edison Service Territory	\$82.7 million	\$70.6 million

The production cost summary for New York State with TGE in service is presented in Table 1-3 for both the Electricity Only analysis and the Steam and Electricity analysis. The total production cost is the sum of fuel, start-up and variable costs. Variable costs include variable operation and maintenance costs and emission trading cost. Table 1-3 clearly demonstrates a significant reduction in production costs as a result of operation of the TGE plant.

Table 1-3: Production Costs Savings for New York State with TGE		
	Electricity Only	Steam and Electricity
Production Cost Savings	\$36 million	\$41 million

1.3.5.2 *Air Pollutions Reductions*

The MAPS simulations also estimate the reduction in air pollutant emissions resulting from TGE displacing other generating units' production. Significant reductions in air emissions (in lbs/MWh) will result with the operation of the TGE plant. Table 1-4 shows the estimated emissions reductions in New York, New England and the PJM and the combined regions, respectively. This table clearly shows the dramatic decreases in the total SO₂, NO_x and CO₂ emissions with the addition of TGE when electricity only is produced as well as higher steam production. While the amount of the reduction decrease slightly under the higher steam production scenario, because the energy production is slightly lower, significant reductions in SO₂, NO_x, and CO₂ are still achieved.

Table 1-4: Summary of State-wide Reductions in Air Emissions						
Territory	<u>Electricity Only</u> Reduction (1000 Tons)			<u>Steam and Electricity</u> Reduction (1000 Tons)		
	SO₂	NO_x	CO₂	SO₂	NO_x	CO₂
New York State	4.32	3.67	48.67	3.31	3.12	84.65
New England and PJM	2.51	0.74	873.31	2.24	0.70	834.28
Combined NY, NE, PJM	6.83	4.41	921.98	5.54	3.83	918.93

Note: Table only accounts for emission reductions from electric competition. Since less electricity is produced by TGE under the “steam and electricity” case, overall regional emissions reductions are not as great for this case.

1.3.5.3 *Projected Reduction in Installed Capacity Costs*

The TGE facility will also promote competition in the installed generation capacity market administered by the NYISO. As new capacity is added by the TGE facility, there will be pressure on the market value of capacity to decrease. As TGE witness Younger testifies, while it is difficult to determine exactly the effect of the TGE facility on capacity prices due to insufficient history in the generation capacity market and supply and demand forces, a reasonable estimate of capacity price reductions can be made. The TGE facility could reduce the market clearing price for NYC capacity by approximately \$1/kW month. This level of reduction in NYC capacity costs, and the addition of 900 to 1100 MWs of electric capacity from the TGE plant, produces annual savings of \$10.8 to more than \$13.2 million.

1.3.5.4 *Conclusion*

In conclusion, it is quite evident that TGE will significantly promote competition by reducing energy prices, wholesale power payments, production costs and installed capacity costs and by reducing market power concentration in New York City and the State.

1.4 Air Quality at Community Receptor Locations

Section 5.0 demonstrates compliance with all applicable health-based air quality standards. Although not required to do so, TGE modeled air quality impacts at a variety of receptors using the MAPS results. The modeling results demonstrate a reduction in air quality concentrations at all receptors analyzed as further described in this section.

In coordination with the Greenpoint-Williamsburg Waterfront Task Force, TGE compiled a list of 237 community receptor points within Community District 1, consisting primarily of schools, open space and recreation locations, waterfront locations, houses of worship, health and nursing care facilities. Predicted changes in air quality as a result of the Project were then modeled for these locations. The no-build scenario included a simulation of the truck traffic along Kent Avenue and Franklin Street that is presently generated by the Bayside Oil site, a simulation of electric system production without the Project, and a simulation of the steam system production without the Project. Electric system production was based on the MAPS study described in [Section 1.3](#), and steam system production was based on information previously published by Con Edison. For the no-build scenario, the expected impact of the Project was modeled alongside the displacement of emissions. All criteria pollutants with annual averaging periods – sulfur dioxide, particulate matter, and nitrogen dioxide – were modeled.

Modeling results show a pronounced net air quality benefit as a result of the Project, as summarized in [Tables 1-5](#) and [1-6](#) below. Comparisons between the no-build and build cases were made with and without accounting for the displacement that occurs from (a) the removal of truck traffic from waterfront streets; (b) the redispach of electric generating units; (c) the redispach of steam generating units. The modeling demonstrates that the Project will bring about not only a reduction in regional air emissions, but also a reduction in air pollutant deposition in Greenpoint and Williamsburg. While the displacement of nearby steam generation (*e.g.*, Hudson Avenue Station) yields the highest net benefit, the Project yields benefits even without its steam export component. The highest modeled benefit is generally along the Greenpoint and Williamsburg East River waterfront.

Modeling Scenario	SO₂-Annual	PM₁₀-Annual	NO₂-Annual
Ignore All Displacement	3	11	18
Count Only Traffic Displacement	3	10	11
Count Only Electric Displacement	- 38	- 5	- 37
Count Displacement	- 346	- 50	- 444

Note: All values in nanograms per cubic meter. Negative values mean net air quality improvement. Net impacts are shown for the median point. Values do not constitute subtotals due to resorting for each modeling scenario. March 2003 adjustments made to fuel mix of competing combined cycle plants; NO_x emissions adjusted due to conversion error (from parts per million to pounds per hour).

Table 1-6: Net Air Quality Impact/Benefit Distribution for all Community Board 1 Receptors			
Modeling Scenario	SO₂	PM₁₀	NO₂
Ignore All Displacement	72% no change 28% increase	30% no change 70% increase	23% no change 77% increase
Credit Only for Traffic Displacement	5% decrease 69% no change 25% increase	6% decrease 27% no change 67% increase	31% decrease 12% no change 57% increase
Credit Only for Electric Displacement	100% decrease 0% no change 0% increase	50% decrease 24% no change 26% increase	90% decrease 10% no change 0% increase
Credit for Steam and Electric Displacement	100% decrease 0% no change 0% increase	100% decrease 0% no change 0% increase	100% decrease 0% no change 0% increase

Note: March 2003 adjustments made to fuel mix of competing combined cycle plants; NO_x emissions adjusted due to conversion error (from parts per million to pounds per hour).

1.5 Site Selection

Under PSL §164 (1)(b), an Article X applicant is required to describe and evaluate reasonable alternative locations for the proposed Facility, if any, provided that the required information about alternatives need not be more extensive than required under the State Environmental Quality Review Act. This requirement was further interpreted by the Siting Board in 16 NYCRR §1001.2(d). There, the Siting Board determined that a private applicant (defined as one without the power of eminent domain, see 16 NYCRR §1000.2(o)), may limit discussion of site alternatives “to parcels owned by, or under option to, such applicant.”

Trans Gas Energy, LLC does not own or, have under option any other parcels in New York. However, the principal of TGE is the developer of one of the largest cogenerators of steam in New York State, Project Orange Associates, LP (POA). Located in Syracuse, NY, the plant has an electric capacity of approximately 85 MW and a total combined output of steam of approximately 1,000,000 (one million) pounds per hour, utilizing the project’s heat recovery steam generators and the facility’s steam boiler plant.

TGE has analyzed the Project Orange Associates Cogeneration Facility in Syracuse. There are two principal factors that render construction of the Project at the POA Cogeneration site not feasible.

First, the site cannot be used to deliver steam to the NYC steam system.

Second, there are significant transmission constraints between western and eastern New York State (with Syracuse being on the west side of the interface), such that it is an inferior location from the standpoint of energy transmission compared to a NYC location. Transmission capacity from upstate into New York City is also limited. In short, locating in Syracuse would be contrary to the goal of providing reliable energy and capacity for New York City. In addition, steam could not physically be delivered to New York City.

Third, POA's site is greatly limited. The site is bounded by Taylor, Almond, Burt and McBride streets, with no room for expansion. Nor is the site entirely owned by POA: the Riley Boiler Building houses the Syracuse University Steam Station, and other ancillary equipment on the site is also owned by Syracuse University.

Attachment Y-4 (March 2003) contains further information regarding siting. Nothing contained therein, however, changes the requirements applicable to TGE with respect to alternative sites, as described on page 1-17 above.

1.6 Stipulations and Article X Requirements

In September 2001, TGE filed a Preliminary Scoping Statement for the proposed Project. Stipulations describing the scope of the studies to be performed were drafted and submitted as an appendix to the Preliminary Scoping Statement. The draft stipulations were then negotiated between TGE and interested parties. A public notice was issued, and public hearings were held, on the proposed stipulations, so that the public at-large could have input into the scoping process. The stipulations finally agreed to are included as Attachment A.

Each stipulation is addressed in a specific section of this Application to facilitate understanding of each respective issue. Technical analyses are provided, as applicable, to respond to the study requirements defined in the stipulations. Where appropriate, technical materials are also appended to support the provided analyses.

The stipulations build upon the more general requirements found in the Article X statute and in the Siting Board regulations. Specifically, PSL §164.1 and 16 NYCRR 1001 outline the requirements for an Application. PSL §168.2 lists findings that must be made by the Siting Board prior to issuance of a Certificate.

1.7 Permits and Approvals Required for the Project

This section addresses the requirements of 16 NYCRR 1001.7(a), which requires TGE to identify any permit, consent, approval or license which will be required for the construction or operation of the facility.

1.7.1 Federal Permits or Approvals

- ***Prevention of Significant Deterioration Permit.*** The primary purpose of the PSD program is to ensure that major new sources of air emissions apply the appropriate, legally required pollution control technologies; and to ensure that such sources are in compliance with ambient air quality standards. NYSDEC is authorized to issue the PSD permit in accordance with the federal PSD program rules and procedures under 40 CFR §52.21 and 52.124. Powers are delegated to NYSDEC and the federal regulations are incorporated by reference into 6 NYCRR 200.9, 200.10. Although this permit program is administered by NYSDEC, the USEPA retains oversight authority. The USEPA also has authority to issue a waiver from pre-construction air quality monitoring, which it has done for the Project. The PSD Application was prefiled on June 12, 2002, in order to permit NYSDEC sufficient review time. The June filing is reproduced as Attachment Y-2, and subsequent comments and changes are shown in Attachment Y-3.
- ***Federal Aviation Administration.*** The Federal Aviation Administration (FAA) issues determinations relative to hazards and obstruction to air navigation, pursuant to Title 14 of the Code of Federal Regulations (CFR) Part 77. A Notice of Proposed Construction (Form 7460-1) was submitted to FAA on December 9, 2002 for the proposed Project, and is shown in Attachment F. In February 2003, FAA issued a Determination of No Hazard for the Project and construction cranes. The determinations are included in Volume 6.
- ***Coordination Regarding Protected Species.*** TGE coordinated with the US Fish and Wildlife Service and the National Marine Fishers Service regarding any potential for impacts to habitat of species protected by the Federal Endangered Species Act and the Magnus-Stevens Fishery Conservation Management Act, with responses received on various dates in early 2002, as documented in Attachment Q-4. The site contains no protected species or habitat, and only transitory species are found in the general vicinity.
- ***US Army Corps of Engineers (USACE) Nationwide Permit Program.*** Section 10 of the Rivers and Harbors Act of 1899 requires a permit for work in navigable waterways. No federally jurisdictional wetlands are located at the Project site, but limited work is proposed under and in navigable waterways. The limited proposed work is within the contemplated scope of the USACE nationwide permit program. TGE expects to send a pre-construction notification to the USACE in January 2003. Note that because no discharge of fill or dredged material in the waters of the United States is proposed, no state certification is

expected from the Siting Board is expected to be necessary under Section 401 of the Clean Water Act. A conditional request for the 401 Certification is hereby being made because the USACE may determine that a 401 Certification is needed. A waiver of the deadline to issue the Certification is hereby requested for these procedural reasons.

- ***FERC Exempt Wholesale Generator.*** An Exempt Wholesale Generator (EWG) filing will be made to the Federal Energy Regulatory Commission pursuant to 18 CFR 365. EWG status will permit TGE to participate in the competitive wholesale electric generation marketplace. TGE expects to file this filing prior to operation.
- ***Fuel Use Act.*** Thermal electric generating facilities are required to self-certify their fuel capability pursuant to Section 201 of the Powerplant and Industrial Fuel Use Act (42 USC §8311). TGE expects to file this self-certification prior to operation.

1.7.2 New York State Permits or Approvals

Pursuant to PSL §172, a Certificate of Environmental Compatibility and Public Need for the Project will include approval for the following consents, permits, certificates or other conditions (except as noted for permits issued by NYSDEC and the NYSDEC Voluntary Cleanup Agreement, which will be coordinated with but not made part of the Certificate):

- ***NYSDEC Air Permit for a New Major Stationary Source.*** This permit application was pre-filed on June 12, 2002, pursuant to 6 NYCRR 201-5 and is being filed presently in Attachment Y-2 (with NYSDEC comments and TGE's December 2002 responses/revision in Attachment Y-3 and supplementary alternatives analysis in Attachment Y-4). Subsequent to construction, a Clean Air Act Title V operating permit will be obtained under 6 NYCRR 201-6. An Acid Rain permit form was submitted in the prefiled application, which is included in Attachment Y-2.
- ***NYSDEC SPDES Permit Modification.*** An application to NYSDEC is included presently as Attachment Z. The site is presently the subject of a storm water discharge permit under the SPDES program. In its application to NYSDEC, TGE is requesting to discharge up to 3.5 mgd of demineralization system reject water, thereby preventing significant additional loading on the sewer system. Storm Water Pollution Prevention Plans (SWPPPs) for both the construction and operation periods are also included in Attachment Z.
- ***NYSDEC Voluntary Cleanup Agreement.*** TGE and NYSDEC signed a voluntary cleanup agreement on November 27, 2002, under which NYSDEC, working with TGE and the New York State Department of Health (NYSDOH) will approve a Remedial Action Work Plan (RAW) governing the cleanup of soil and groundwater on the contaminated site.
- ***NYSDEC Petroleum and Chemical Bulk Storage Registrations*** (to be submitted as part of a compliance filing). In addition to rebuilding a portion of the oil storage on the site, the

- Project's petroleum and chemical storage will include tanks and vessels that must meet the applicable requirements 6 NYCRR 598, 599, 613 and 614. Fuel and chemical storage is addressed in Sections 3.2.10 and 15.2. Such registrations will be made prior to the operations period. TGE is prepared to stipulate with the parties to have the Board delegate the approval authority to NYSDEC.
- ***New York State Public Service Commission.*** Authorization from the NYSPSC to make steam sales, pursuant to PSL §81 will be subsumed within the Article X certificate. A petition for lightened regulation as an electric corporation and a steam corporation will be filed post-certification, pursuant to Board precedent.
- ***New York State Office of General Services.*** Easement for occupancy of land under water pursuant to Public Lands Law §3(2) and 9 NYCRR §271.
- ***State / National Historic Preservation Act.*** TGE has corresponded and consulted with OPRHP during the pre-application process. Cultural resource evaluations are being submitted presently in Section 9 and Attachments H and I.
- ***ECL §9 and §11 Compliance.*** This is the state corollary to the Federal Endangered Species Act compliance process. TGE corresponded with NYSDEC's Natural Heritage Inventory program, receiving a response on March 4, 2002, as documented in Attachment Q-4. No known occurrences of state-listed species and likely habitats are found on-site.

1.7.3 New York City Approvals

A detailed review of the local legal provisions applicable to the Project has been conducted as described in Section 4.6. A complete list of New York City permits, within the Article X regulatory requirements as established in other Article X cases, anticipated for the Project is provided in that section.

Except with respect to certain air and water discharge permits, which NYSDEC may issue, state and local agencies may not issue permits for projects being licensed under Article X of the Public Service Law, but the Siting Board may delegate these responsibilities back to the agencies that typically approve them. TGE hereby requests that the Siting Board authorize the City agencies that regularly issue these permits be allowed to do so, subject to the Board's continuing and overarching jurisdiction and consistent with prior decisions of the Board. These agencies are, primarily: the Department of Buildings (DOB), Fire Department (FDNY), Department of Environmental Protection (DEP), Department of Transportation (DOT) and Department of Business Services (DBS).⁴ Of the approximately 300 provisions of local law presented in the memorandum, about 50 carry explicit

⁴ In addition to City agencies with direct permitting responsibilities, other City agencies that have been involved in pre-application consultations for the TGE Facility, or that have regulatory authority that generally relates to the TGE Facility, include the Economic Development Corporation, the Law Department, the Office of Environmental Coordination, the Landmarks Preservation Commission, the Board of Standards and Appeals and the Department of Sanitation.

permitting requirements. The list of permits anticipated to be necessary is grouped by activity in the table below. For some activities, multiple City agencies exercise complementary or joint authority under separate permitting programs. For ease of comprehension, table entries are made for each type of activity, rather than for each permitting program or each individual regulation.

Table 1-7: TransGas Energy, Expected New York City Permits		
Activity	Regulatory citation(s)	Agency(ies)
Permit for New Buildings	Ad. Code §27-156, §26-605	DOB
Material and equipment approvals	1 RCNY §1-01	DOB
Building Alteration	Ad. Code §27-161	DOB
Demolition & Removal	Ad. Code §27-167; 1 RCNY §8-01	DOB
Asbestos Management	Ad. Code §24-146.1; 15 RCNY 1	DEP
Foundation & Earthwork	Ad. Code §27-163	DOB
Construction in flood hazard areas	Ad. Code §27-316	DOB
Protection of adjacent areas during construction	Ad. Code §26-252; 34 RCNY §2-05	DOB, DOT
Use of cranes	1 RCNY §6-01; 34 RCNY §2-05	DOB, DOT
Oversize vehicles	34 RCNY §4-15	DOT
Plumbing; closing and opening taps	Ad. Code §27-172; §24-310	DOB, DEP
Signs	Ad. Code §27-177	DOB
Projections beyond street line, canopies	Ad. Code §27-307; 34 RCNY §2-04	DOB, DOT
Cooling towers	1 RCNY §39-01	DOB
Welding permit	2 RCNY §25-01	FDNY
Transportation and delivery of combustible or flammable materials	Ad. Code §27-4057	FDNY
Combustible/flammable materials and paints	Ad. Code §27-4066, §27-4070, §27-4093	FDNY
Bulk oil storage; miscellaneous limited oil storage	Ad. Code §27-4053, §27-4055	FDNY
Bulk chemical storage	3 RCNY §1-01	FDNY
Work on oil burning equipment	Ad. Code §24-120, §27-180	DOB, DEP
Use of oil burning equipment	Ad. Code §27-185; 2 RCNY §16-01	DOB, FDNY
Lubricating and cable oils, pumps	Ad. Code §27-4060; 3 RCNY §3-01	FDNY
Air-conditioning/refrigeration systems	Ad. Code §27-4190; 3 RCNY §33-01	FDNY
Compression of air and compressed gases (e.g. acetylene, CO ₂)	Ad. Code §27-4099, §27-4100; 3 RCNY §3-01, §23-11	FDNY
Certificate of Occupancy	Ad. Code §26-222	DOB
Tunneling; noise-producing activities	Ad. Code §24-245; 15 RCNY §7-01	DEP
Water connection	15 RCNY §20-01	DEP
Wastewater force main, street opening and construction	Ad. Code §19-102, §19-146, §24-507, §24-508, §24-509; 15 RCNY §23-01; 34 RCNY §2-11, Charter §220	DOT, DEP
Wastewater connection for permanent industrial and temporary remediation-related use.	Ad. Code §24-523; 15 RCNY §19-05	DEP
Land contour work, if affecting streets	Ad. Code §19-137; 34 RCNY §2-06	DOT
Manhole cover openings	34 RCNY §2-07	DOT
Disturbance to street pavement	Ad. Code §19-121, §19-146; 34 RCNY §2-05	DOT
Occupancy or closure of street, sidewalk	34 RCNY §2-05	DOT
Improvements on waterfront property	Ad. Code §22-116; 66 RCNY §2-03	DBS