

LSPower GRID NEW YORK

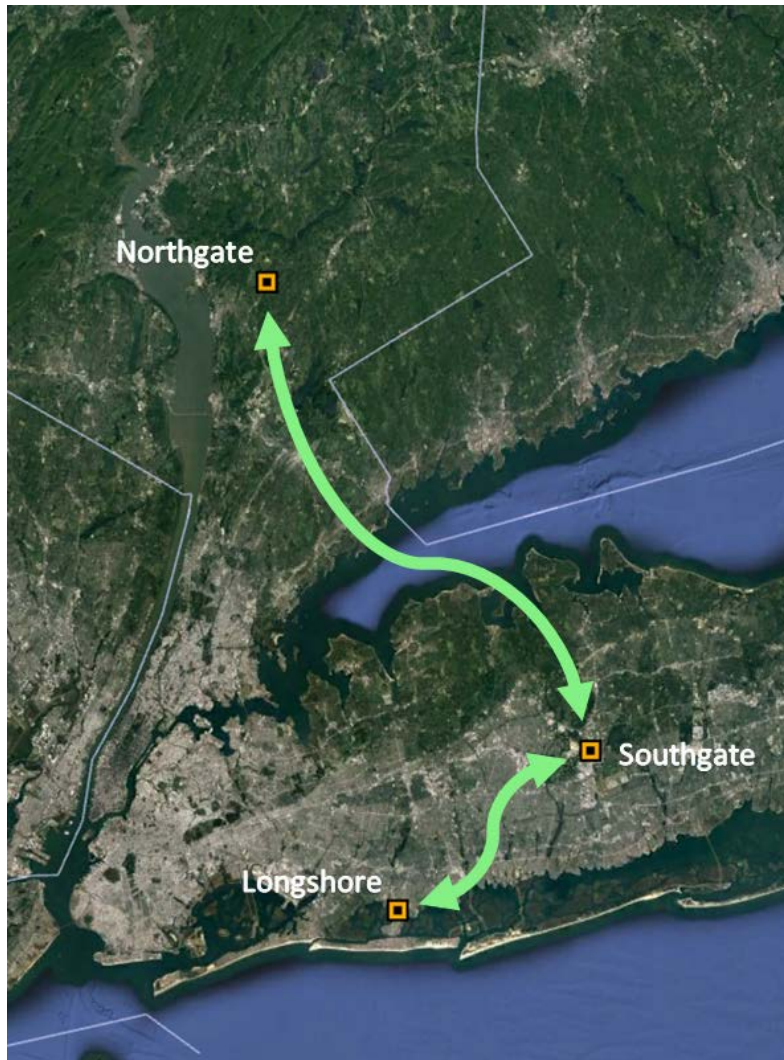
Atlantic Gateway

Proposal Overview for TPAS



October 2022

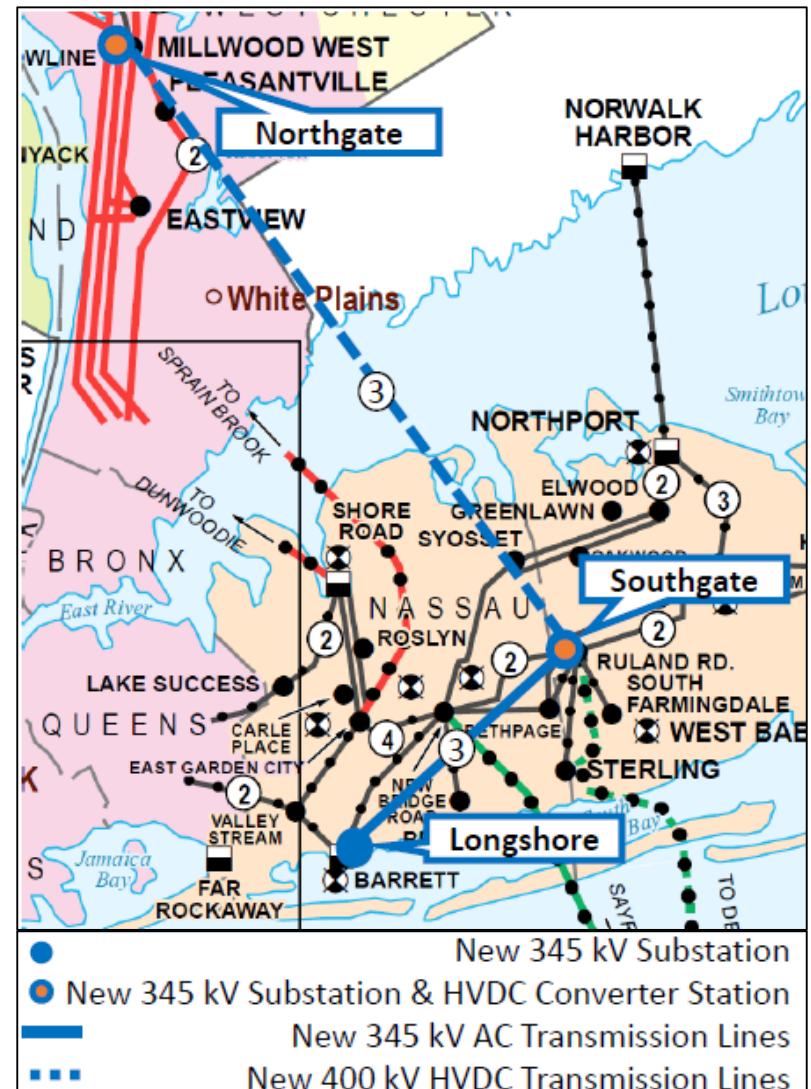
Atlantic Gateway Summary



- 3,600 MW of Long Island Export Capability
- Significant Long Island Import Capability
- Limited Upgrades to Existing System
- Minimized Environmental and Community Impacts
- Significant Expandability
- Exceptional Operability
- Strong Performance
- Low Cost per MW
- Hard Cost Cap

Atlantic Gateway Key Facilities

- 345/138 kV Longshore Substation near Barrett
- 3 x 345 kV Longshore to Southgate AC Circuits
- 400/345/138 kV Southgate Substation and HVDC Converters near Ruland Road
- 3 x 400 kV Southgate to Northgate HVDC Circuits
- 400/345 kV Northgate Substation and HVDC Converters near Millwood
- Relatively small scope of upgrades to existing transmission facilities



Planning Benefits

HVDC provides incremental transfer with additional benefits

- 3,600 MW of transfer capability
 - Expected to Eliminate Zone K Energy and Capacity Premium
- Integrates over 4,000 MW of OSW in Zone K under NYISO “Alternate Scenario” without curtailment or redispatch
- Avoids >\$1.5 billion of internal LIPA system upgrades
 - Barrett – East Garden City 138 kV (Q959)
 - Ruland Road-New Bridge Road-East Garden City-Shore Road 138 kV
- Minimizes construction outages
- HVDC provides superior controllability for all scenarios
- Honors NYISO requirements for PAR loading <75% pre-contingency under N-1-1
- HVDC terminals capable of providing reactive support and black start capability

Reduced Environmental and Community Impacts

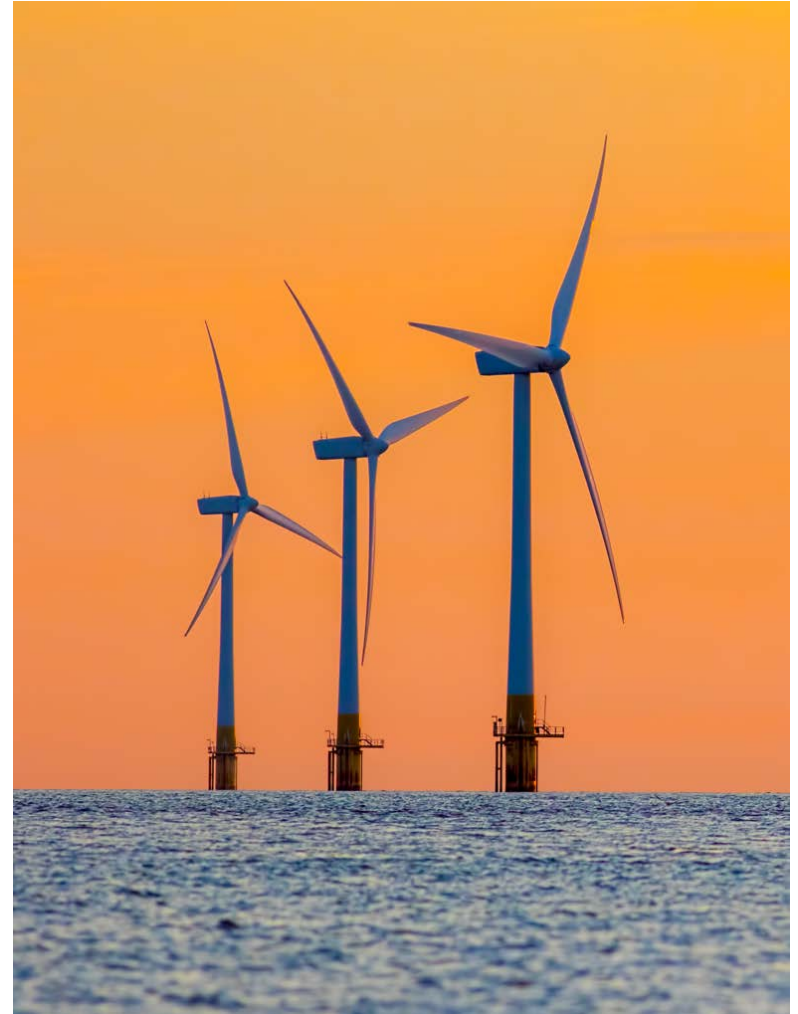


- Shortest corridor mileage minimizes community, environmental and construction impacts
 - Use of existing public roads
 - Longshore to Southgate <22 miles
 - Southgate to Northgate <45 miles
- Avoids the Most Densely Developed Areas
 - Urban construction in Queens/Bronx has greater conflicts with existing infrastructure, tighter working areas, more restrictive working hours
- Only one entry and one exit for submarine cables in Long Island Sound minimize shore impacts
- Minimal upgrade scopes resulting in reduced community impacts

Expandability

Atlantic Gateway Provides Significant Expandability

- Provides integration of over 4,000 MW of OSW to Zone K under NYISO “Alternate Scenario”
- Southgate and Longshore designed to accept direct offshore wind connections
- Southgate capable of multi-terminal HVDC system to accept direct DC connections from OSW
- Southgate and Northgate each designed for one additional HVDC converter station for future expansion
- Longshore to Southgate 345 kV line routes are near Newbridge Road substation to provide for potential future connection



Operability and Performance

HVDC Provides Unmatched Benefits

Superior Operability

- NYISO will have full operational control for 3,600 MW of HVDC capability between Zone H and Zone K
- HVDC converter stations provide fast response system support (reactive, stability, runback, voltage, frequency) in Zone H and Zone K
- Phase Angle Regulators on the connections between Longshore and Barrett control power flow onto the 138 kV system
- Flexible control modes provide value in a rapidly evolving system with increasing intermittent resources



Resilient Performance

- HVDC converter stations can provide black start capability in Zone H and Zone K
- New, geographically diverse path south of Millwood provides maintenance flexibility for the existing path
- New underground circuits provide enhanced system resiliency
- Low curtailment of offshore wind, high production cost savings and ICAP savings

Cost Containment

- Hard Cost Cap for all Included Capital Costs as defined in the NYISO Tariff
 - Total cost of new facilities including contingency, escalation, labor rates, equipment cost, commodity cost
- Central East Energy Connect (Energy Highway Segment A) on budget under soft cap of \$615 million
- All projects completed by LS Power Grid within cost commitments



Conclusion

Most Efficient or Cost Effective Solution

- 3,600 MW of Long Island Export / Import Capability
 - Expected to Eliminate Zone K Energy and Capacity Premium
- Capable of integrating more than 4,000 MW of Offshore Wind without curtailment or redispatch
- Minimizes Environmental and Community Impacts
 - Avoids Construction in the Most Densely Developed Areas
 - Minimizes Impacts to Communities
- Limited Upgrades to Existing System
Provides Savings and Reduces Construction Outages
- HVDC Provides Exceptional Operability, Performance, and Expandability
- Low Cost per MW
- Hard Cost Cap

