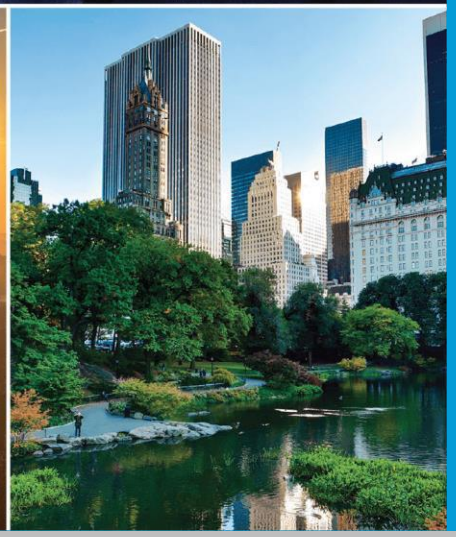


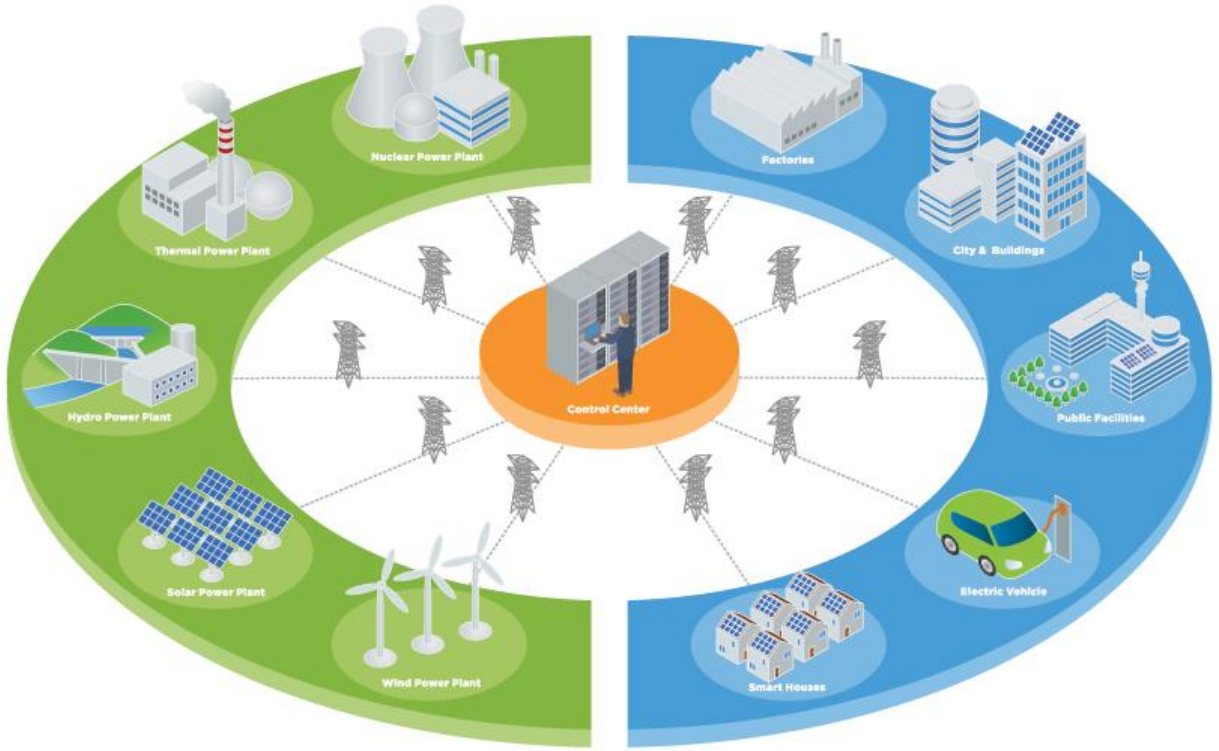
Consolidated Edison Company of New York

NYC PPTN Technical Conference

October 23, 2023

Agenda

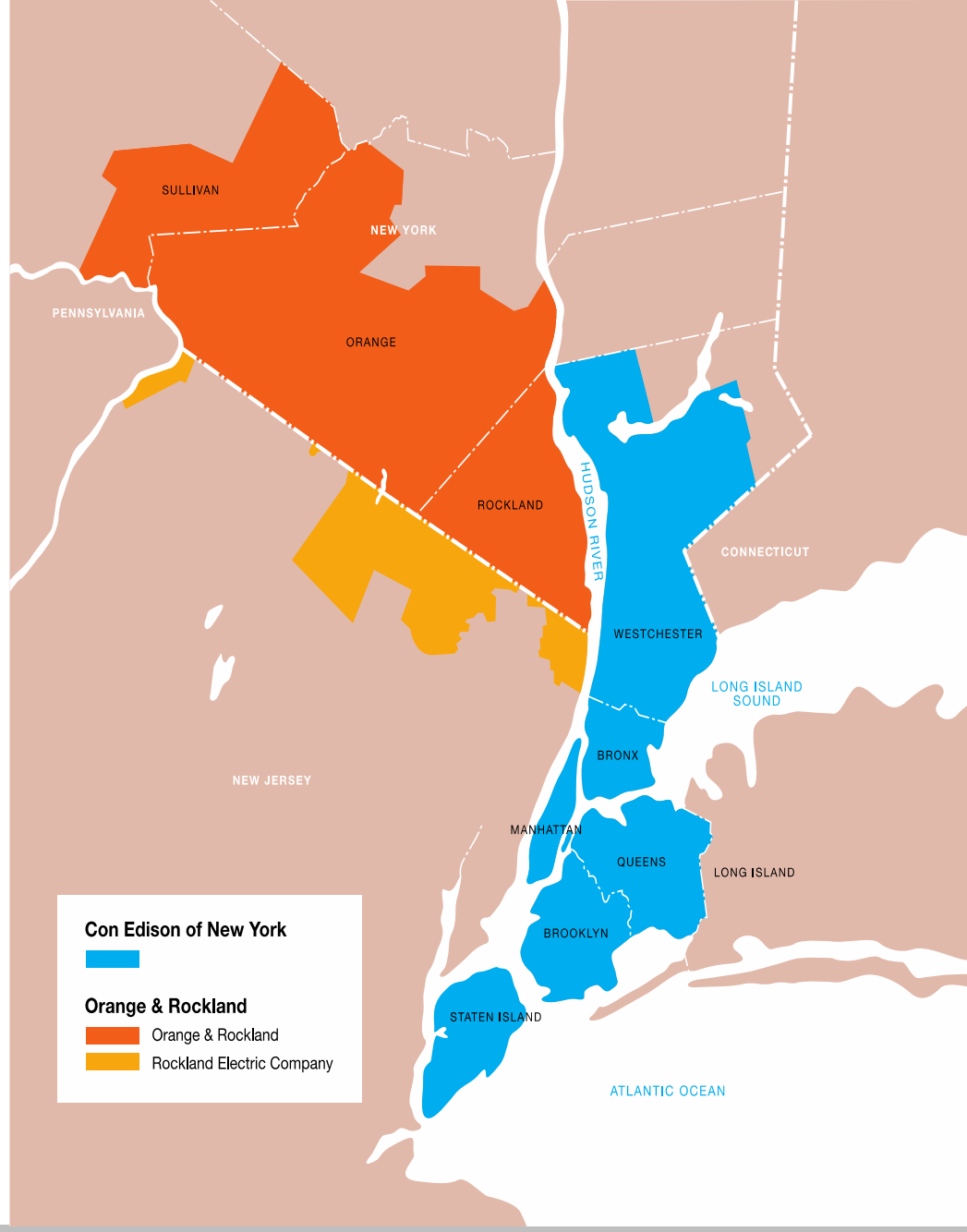
- Con Edison and our Clean Energy Commitment
- Con Edison Electric Transmission Overview
- Transmission Integration
- Clean Energy Hubs
- Con Edison NYC PPTN Process
- Benefits of the Collaborative PPTN Process
- Questions & Answers



Con Edison and our Clean Energy Commitment

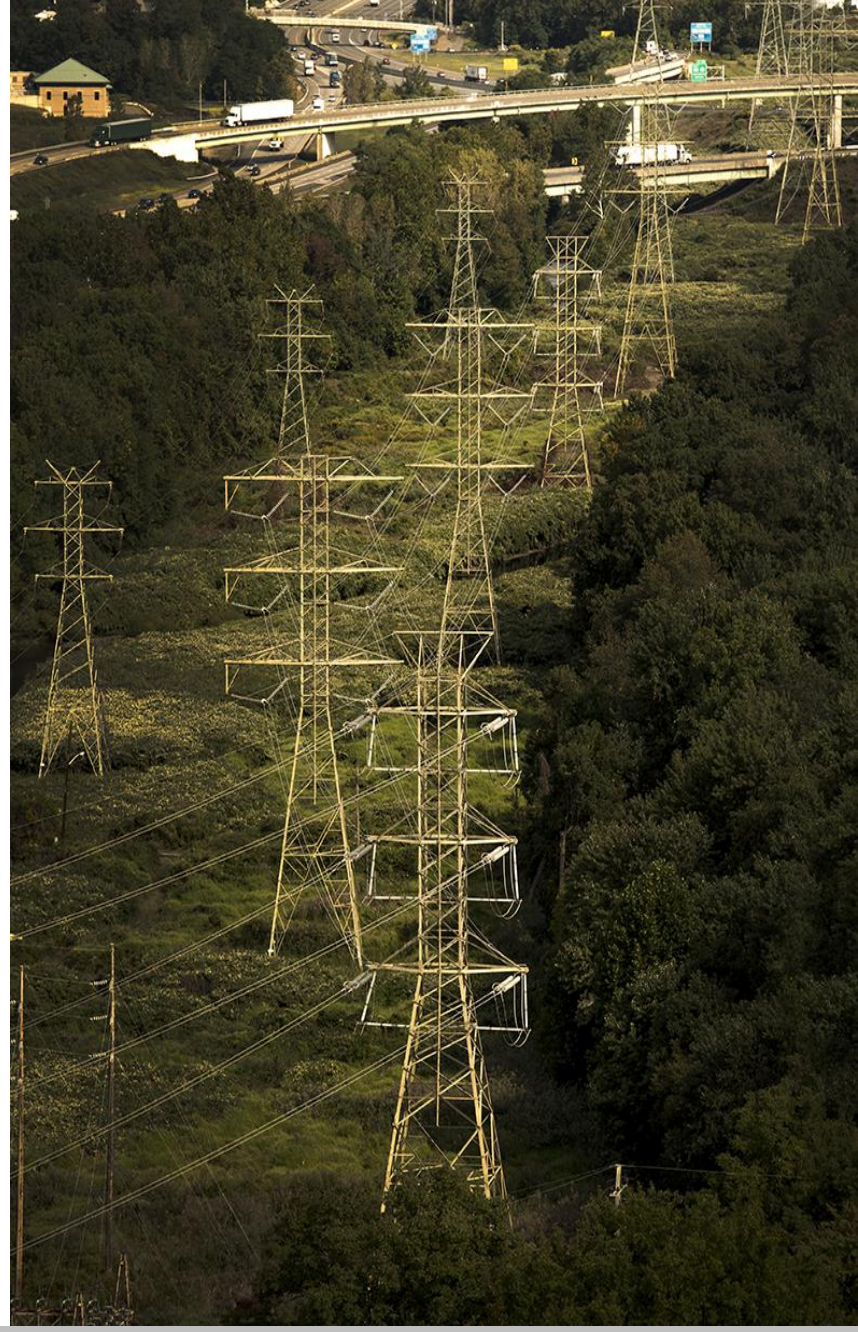
We Deliver Electricity, Gas, and Steam to 10 Million People

- That's about 44% of New York State's electricity needs
- Our electric system is the most reliable in the U.S.
- We provide natural gas to 1.2 million customers
- We operate the largest steam distribution system in the U.S.



Electric Power Industry in New York

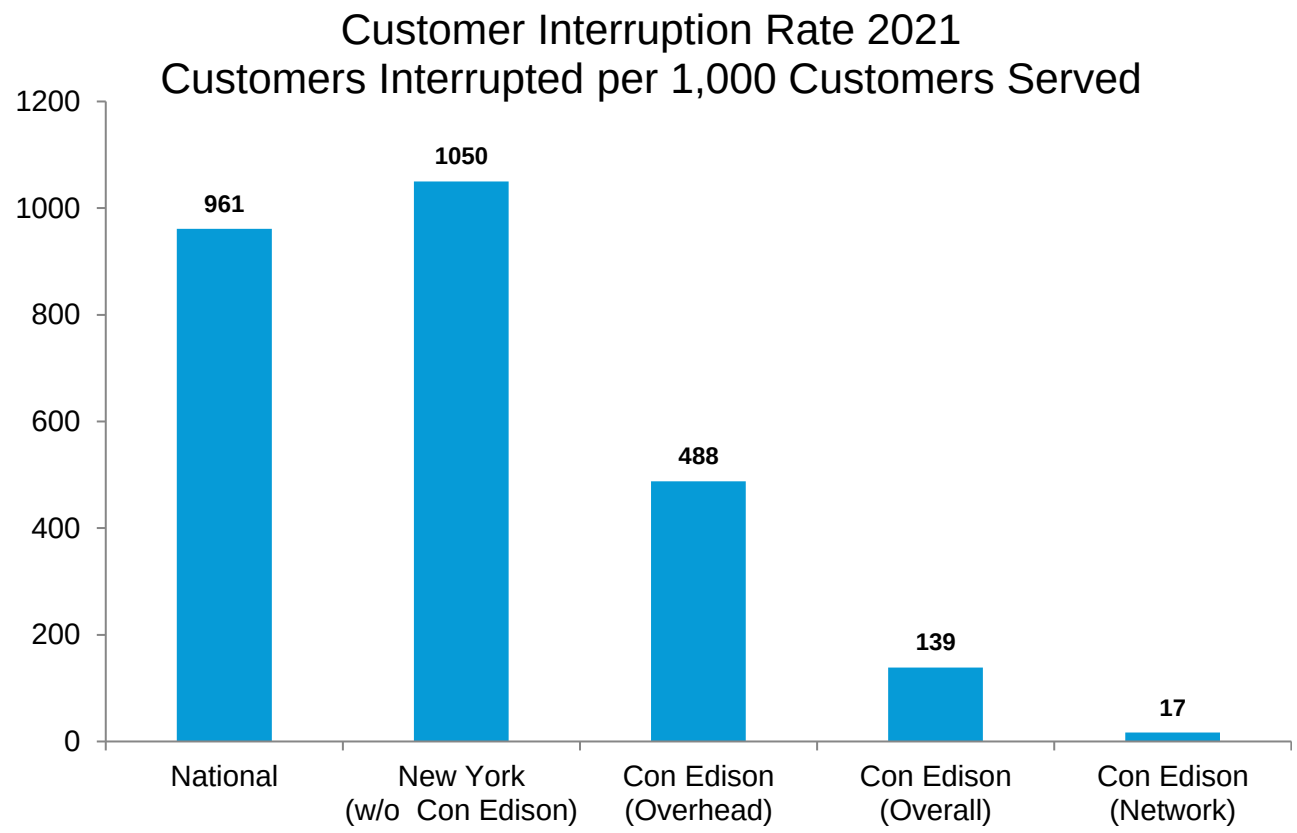
- In 1994, the New York Public Service Commission (NYPSC) deregulated the public energy sector to promote competitive opportunities in the electric supply industry
- Today, Con Edison procures power for its customers from the NYISO energy markets
- Transmission lines that cross service territories are planned by the NYISO and solutions are competitively solicited
- Con Edison's distribution business is regulated by the NYPSC, who sets reasonable rates and ensures adequate and safe service



We Provide the Most Reliable Electric Service in the U.S.

Our customers have significantly fewer service interruptions:

- Our electric delivery systems are seven times more reliable than the national average.
- That world-class reliability is critical today for a region dominated by high rise buildings and electric public transport. Maintaining reliability is crucial as we move to electrifying vehicular transportation and heating.



National and New York (without Con Edison) numbers from 2020
CECONY's electric system is comprised of an overhead system as well as the largest underground network in the U.S.

New York State's Climate Leadership & Community Protection Act Leads the Country in Clean Energy Policy

2025 6 GW of distributed solar deployment

2030 70% renewable electricity, 40% carbon emissions reductions, 6 GW of energy storage

2035 9 GW of offshore wind

2040 100% carbon-free power

2050 85% carbon emissions reductions

Summer & Winter System Peaks Will Shift

- The summer peak demand for 2023 was forecasted around 13,000 MW
- The winter peak demand for 2022/2023 was forecasted around 8,700 MW
- We expect the summer and winter electric peaks to both grow due to electrification of heat, hot water, stove tops/ovens, dryers, and vehicles
- We expect to be a winter-peaking electric utility by 2040

Our Clean Energy Commitment: 5 Pillars

Build the grid of the future

Empower all our customers to meet their climate goals

Reimagine the gas system

Lead by reducing our company’s carbon footprint

Partner with our stakeholders

Con Edison Electric Transmission Overview

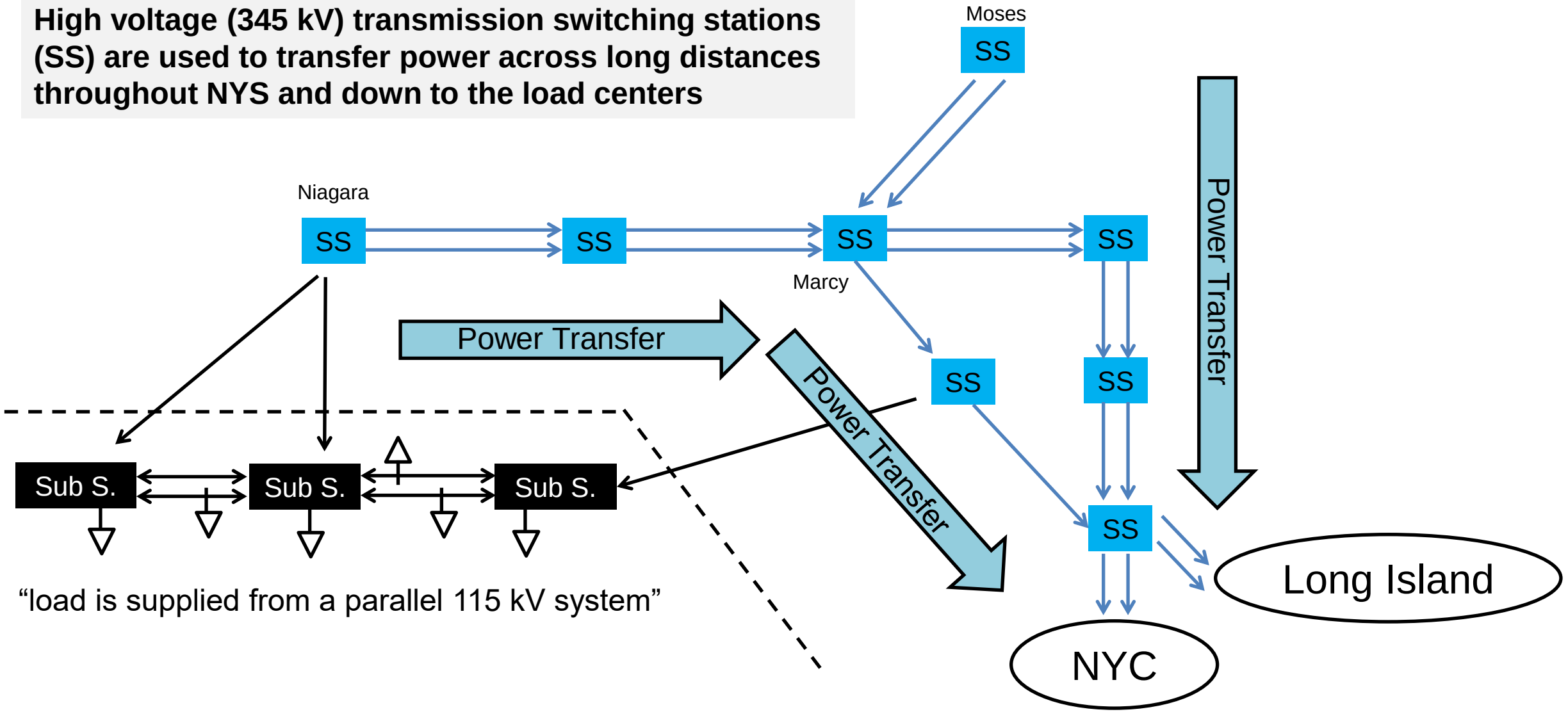
Con Edison Transmission System

Transmission projects in New York City face several distinct challenges:

- **Expandability:** For large OSW injections there are no open / deliverable Points of Interconnections (POIs) available
  - Exception: Brooklyn Clean Energy Hub
- **Geographic Constraints:** Developing new substations / transmission in New York City poses construction challenges due to space constraints, cable routing challenges, and high costs of construction
- **Population Density:** Due to high population density in a small geographic area with congested underground space 345 kV facilities are the most efficient way to serve local load
- **Grid Reliability:** Con Edison also plans its electric system to stricter reliability criteria than anywhere else in the state

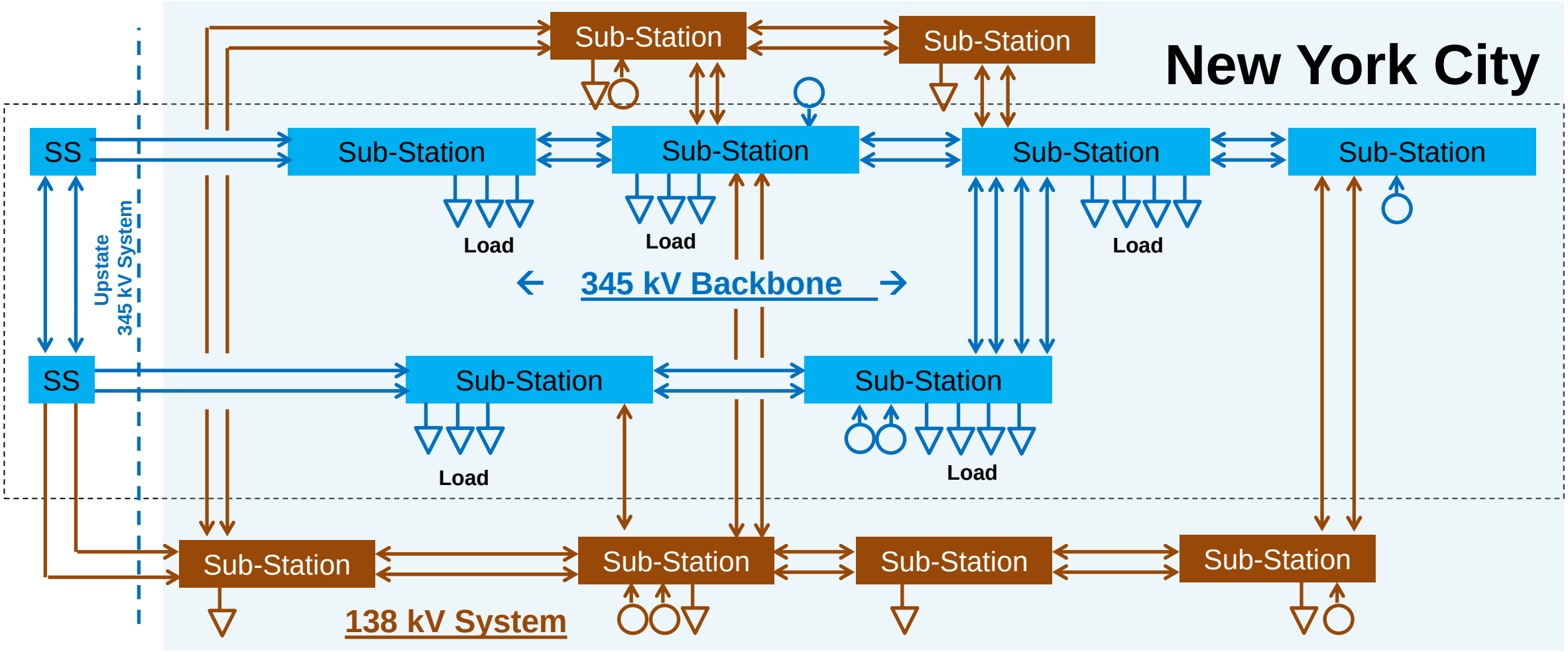
Upstate 345 kV Collects and Transfers Energy to Load

High voltage (345 kV) transmission switching stations (SS) are used to transfer power across long distances throughout NYS and down to the load centers



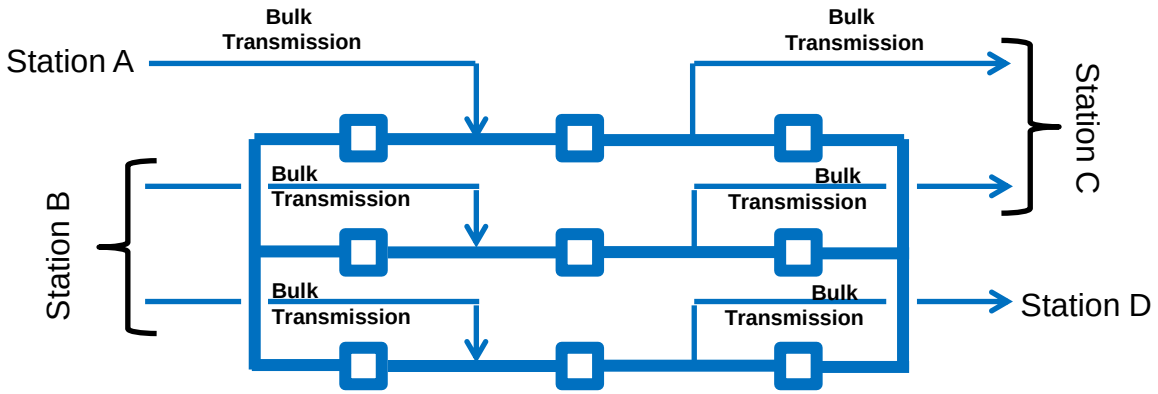
NYC 345 kV Supplies Load

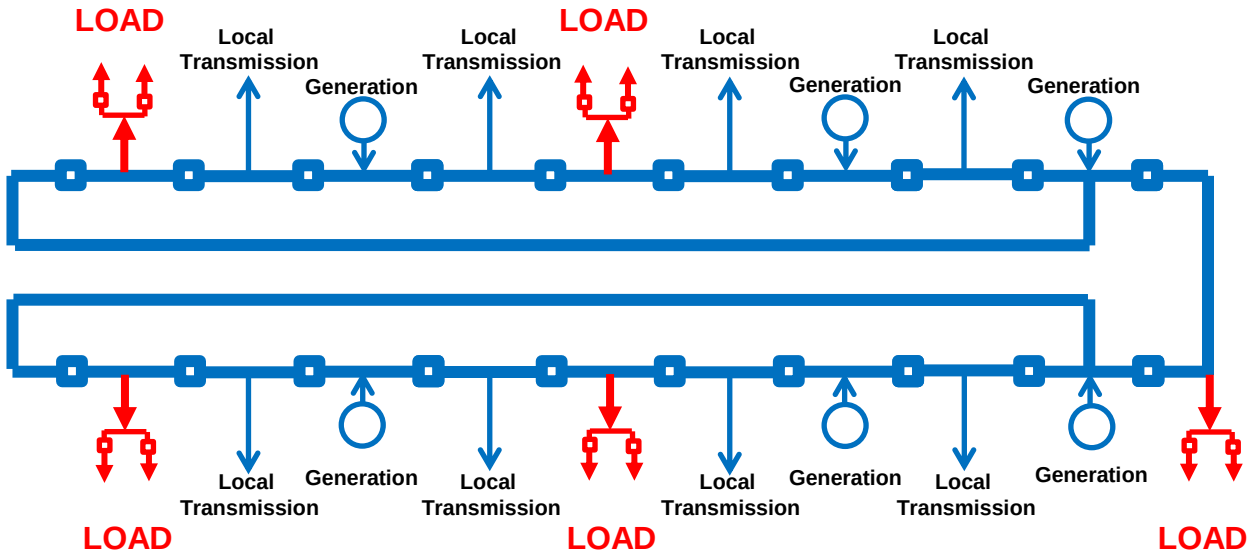
In contrast, High voltage (345 kV) transmission sub-stations are multi-purpose in the densely populated / small geographic area of NYC



Switching Station vs. Substation

Upstate 345 kV Switching Stations serve different purposes than NYC 345 kV Substations





- "Upstate 345 kV system"
  - Typical 345 kV switching station ties together two or more electric circuits through switches for the purpose of power transfer

- "NYC 345 kV System"
  - Typical 345 kV substation supplies load, ties in generation, and connects to other local load-serving substations

Con Edison Transmission System

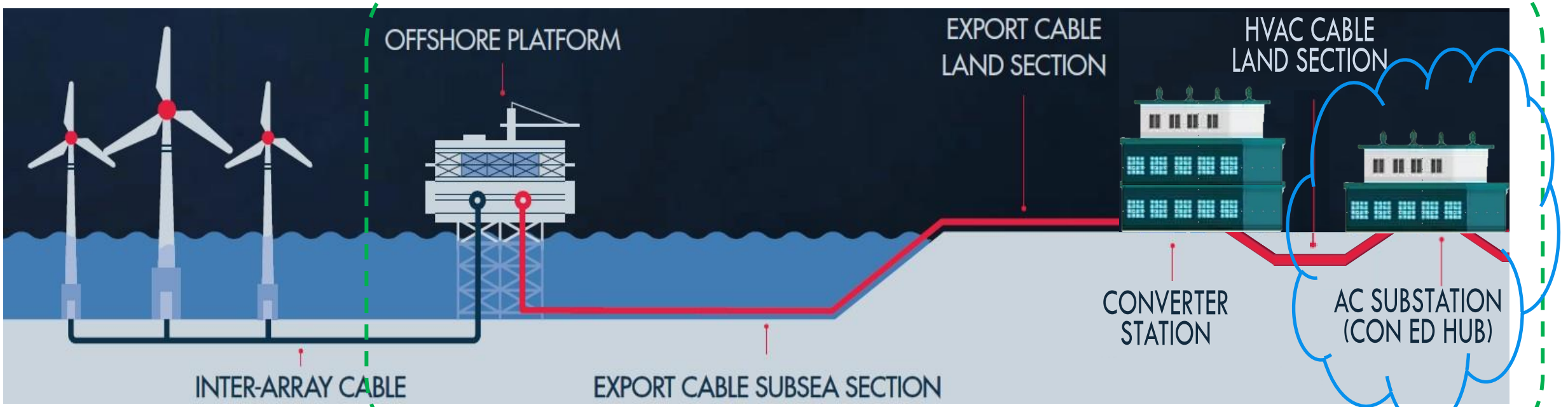
- The backbone of the Con Edison Electric Transmission System is a free-flowing underground 345 kV system
  - Well integrated with NYCA Transmission System (for energy imports/exports)
  - Highly reliable
    - Designed above Continent-wide (NERC), Regional (NPCC), and State (NYSRC) reliability criteria (ex. N-1/-1/-0)
  - Composed of high-capacity substations / transmission feeders
    - Almost ½ of Con Edison's load is supplied by the 345 kV transmission system
    - 345 kV feeder capacity: ~750 MW
- Local 138 kV Local Transmission Load Areas (TLAs)
    - Well integrated with the 345 kV System
- Load offsets the need for transmission / improves the deliverability of a resource

Transmission Integration

NYC PPTN PSC Order: 22-E-0633
Technical Requirements

- Accommodate the full output of at least **4,770 MW and expandable to 8,000 MW** of incremental offshore wind generation injected into New York City (Zone J)…**without reducing** the overall output of other renewable resources interconnected in Zones J and K.
- Consist of complete end-to-end proposals comprised of both **offshore** and **onshore** components to enable power injection into Zone J.
- Identify one or more offshore interconnection point(s);
  - Offshore transmission (i.e., submarine cables);
  - Sites for cable landing points;
    - Onshore transmission path(s) (i.e., terrestrial cables) from cable landing points to points of interconnection (POIs) in Zone J, including sites for converter stations, if necessary; and
- Necessary **improvements** to and/or expansion of the existing **onshore transmission system**.
- Demonstrate plans to complete all permitting and construction activities necessary to achieve an in-service date no later than **January 1, 2033**.

NYC PPTN
Potential Solutions

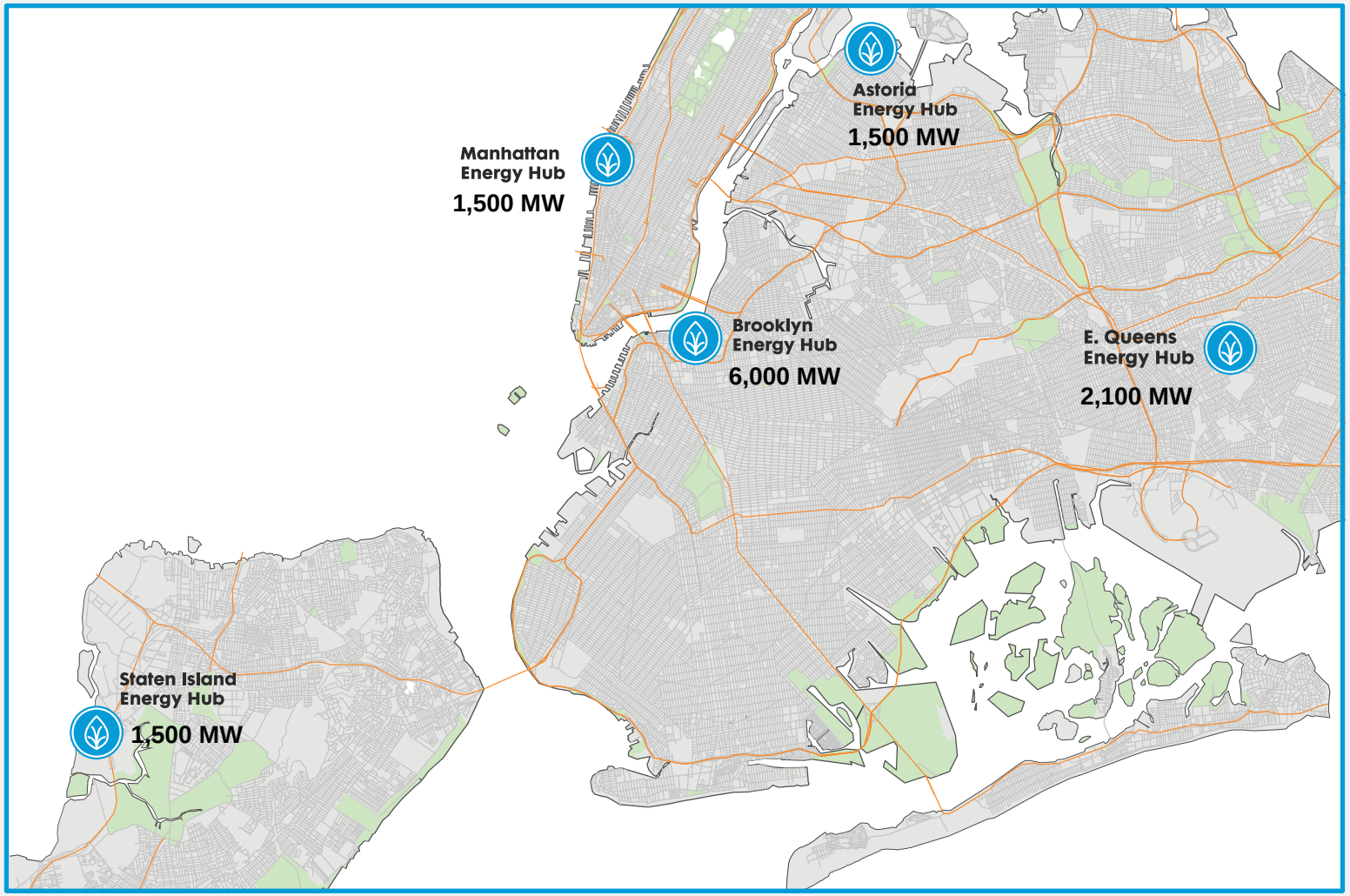


NYC PPTN SOLUTION

Unique Characteristics
NYC Grid

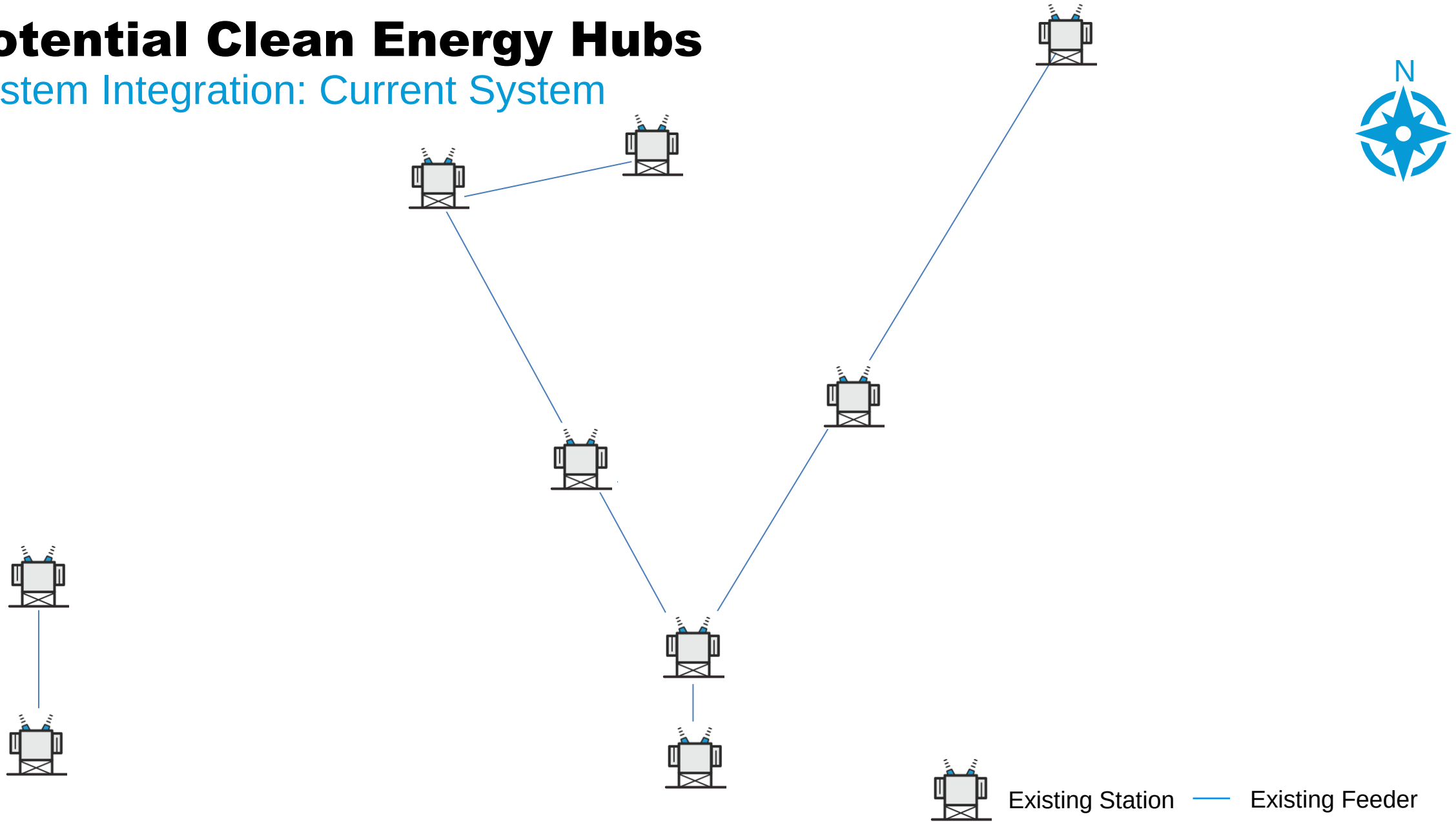
- Vast majority of NYC Zone J Transmission System is underground cable operated at 345 kV and 138 kV
- Reduced capacity on underground cables as compared to overhead transmission
  - Underground 345 kV Feeder rating ~ 750 MW per transmission line
  - Overhead 345 kV Feeder rating ~ 1,800 MW per transmission line
- Optimum solutions help avoid constraints
  - Co-locates generation points of interconnection and load-serving substations
  - Are near load-serving substations

Potential Clean Energy Hubs



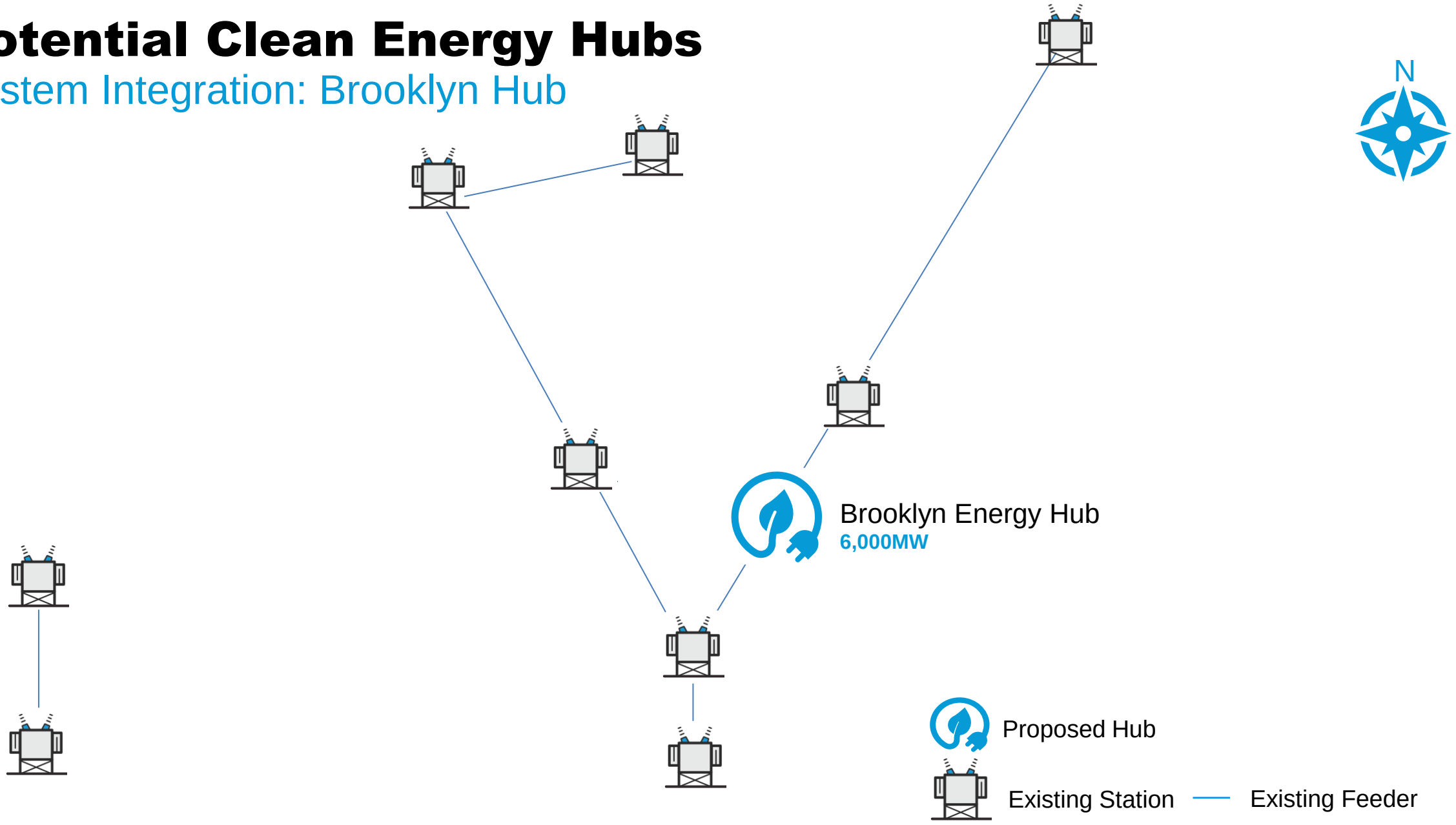
Potential Clean Energy Hubs

System Integration: Current System



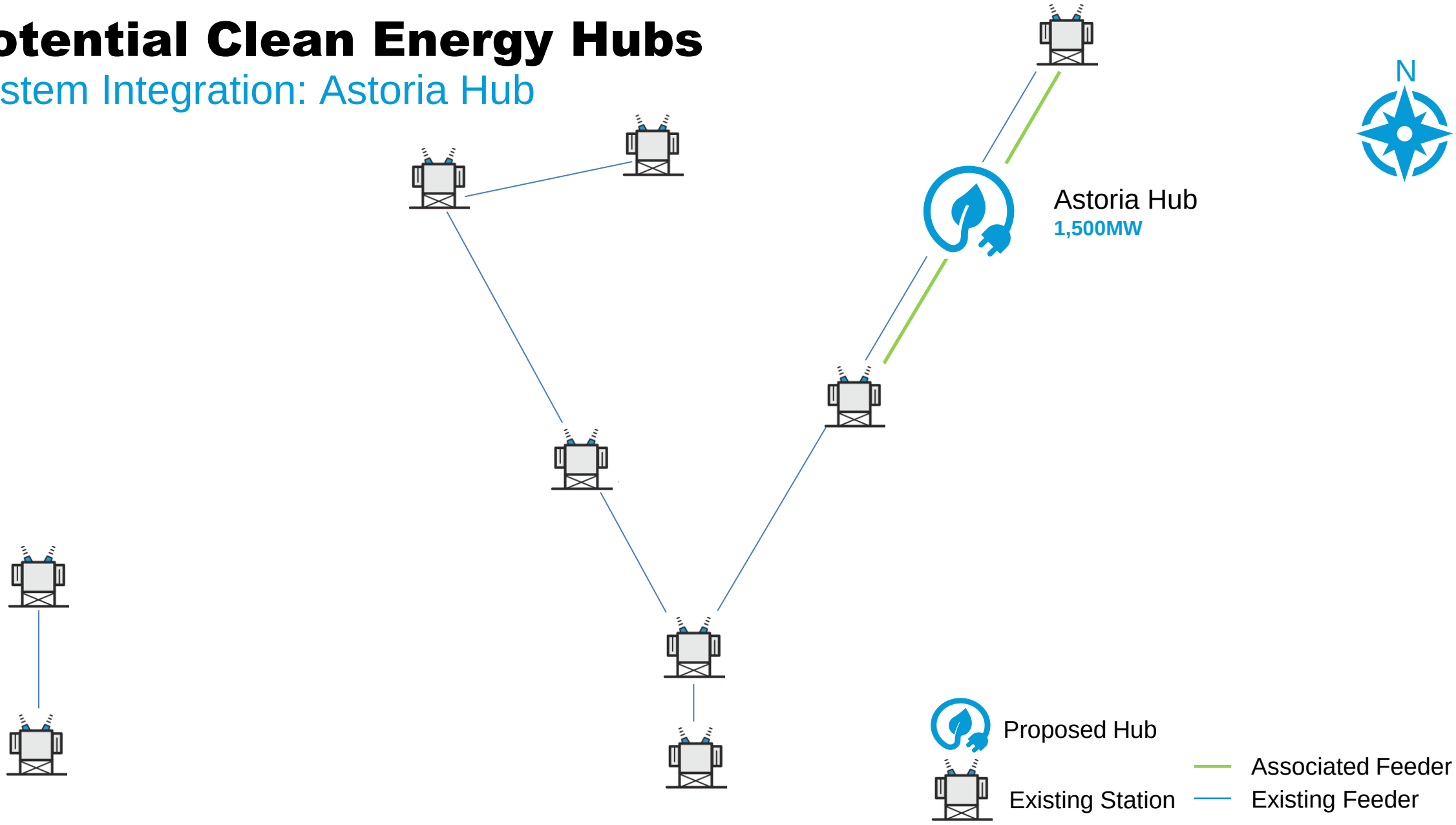
Potential Clean Energy Hubs

System Integration: Brooklyn Hub



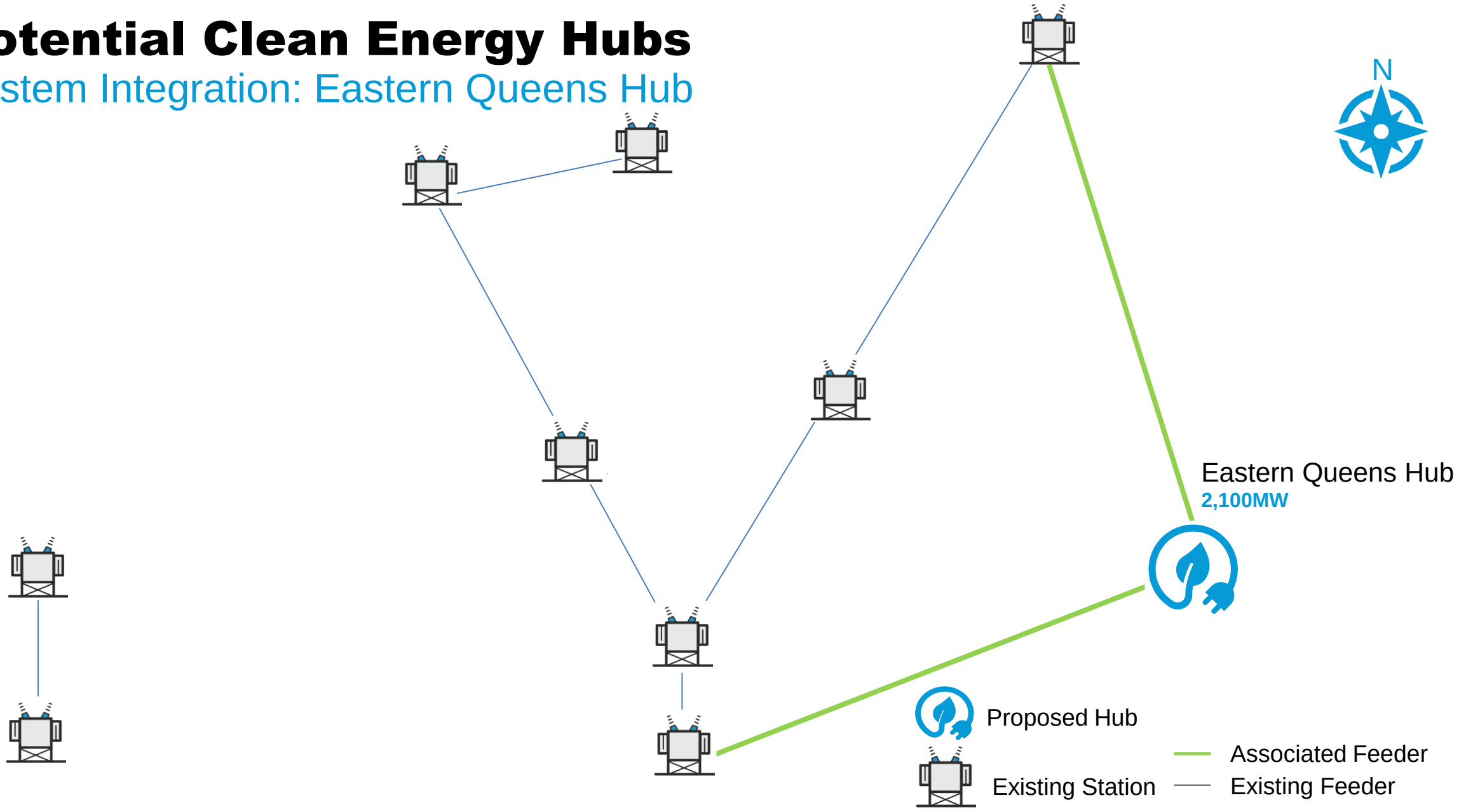
Potential Clean Energy Hubs

System Integration: Astoria Hub



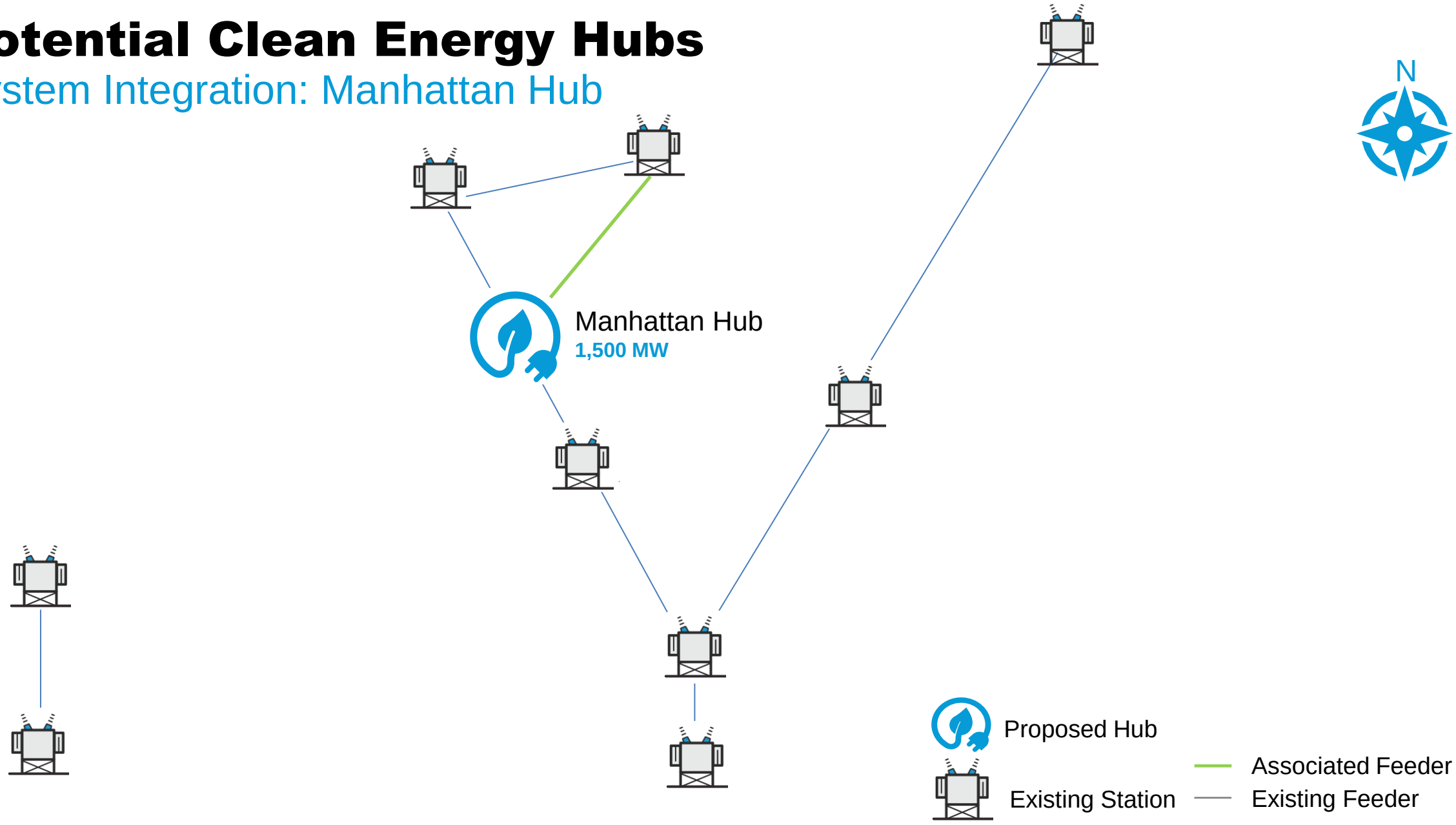
Potential Clean Energy Hubs

System Integration: Eastern Queens Hub



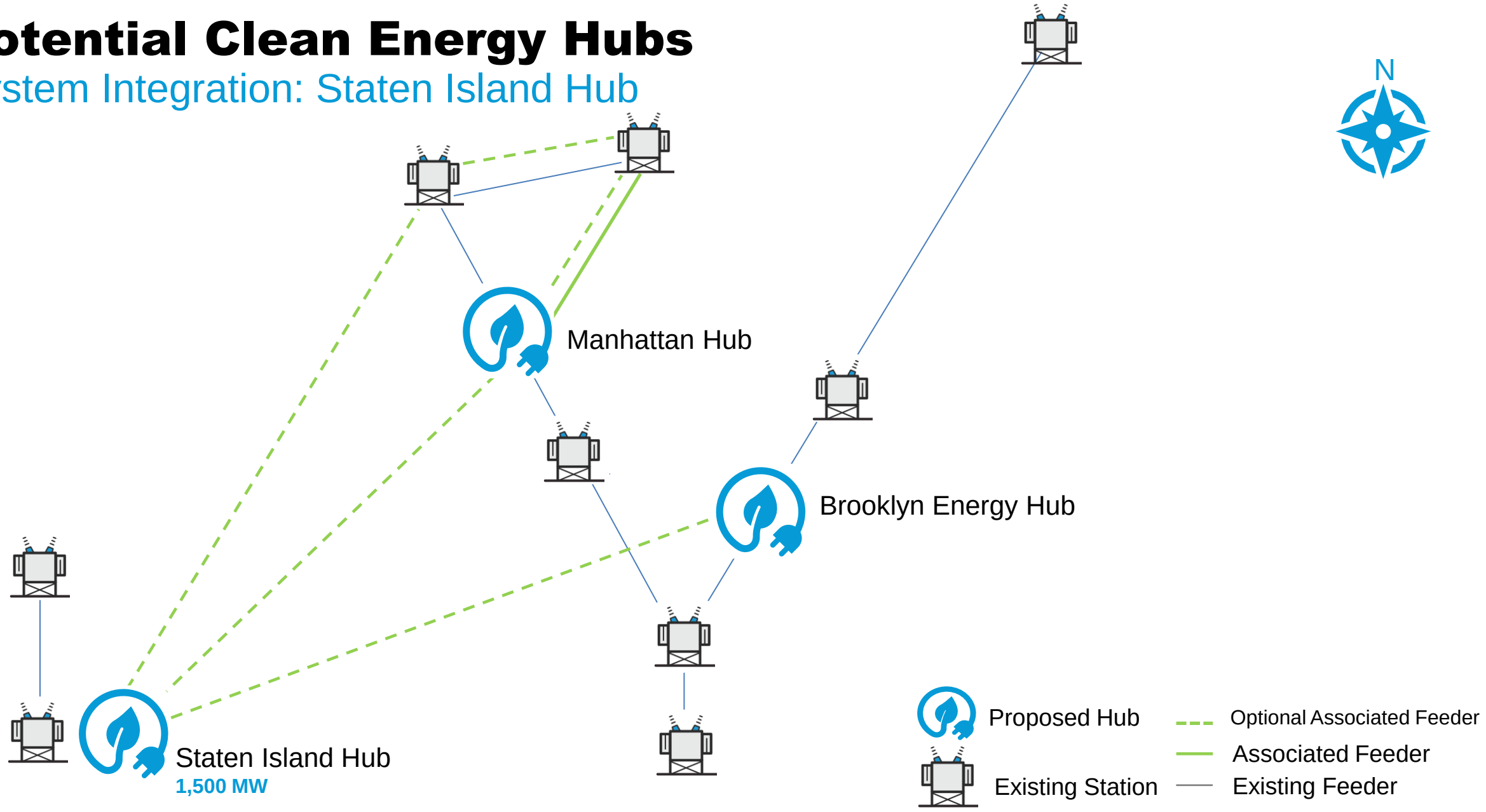
Potential Clean Energy Hubs

System Integration: Manhattan Hub



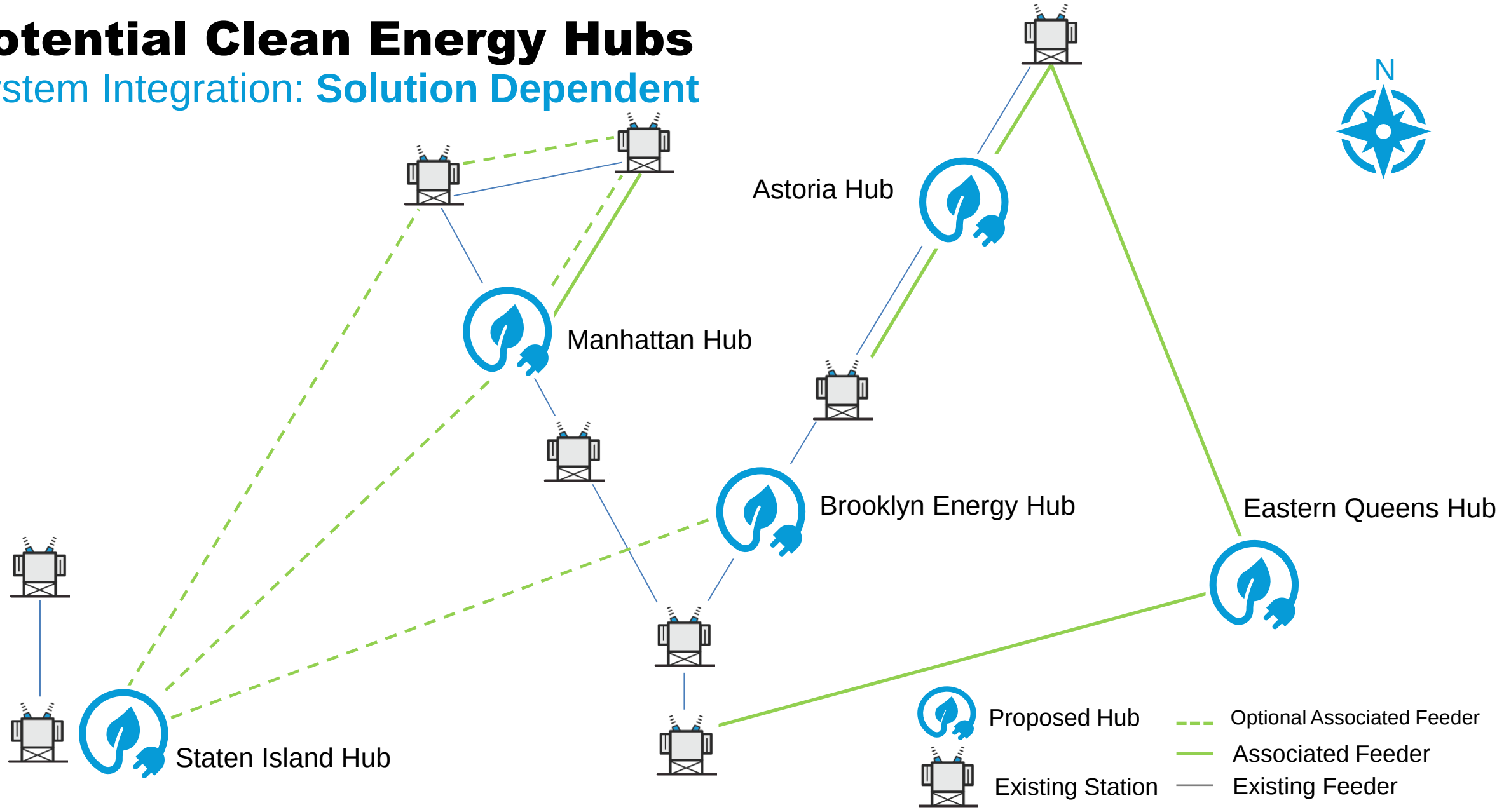
Potential Clean Energy Hubs

System Integration: Staten Island Hub



Potential Clean Energy Hubs

System Integration: **Solution Dependent**



Clean Energy Hubs

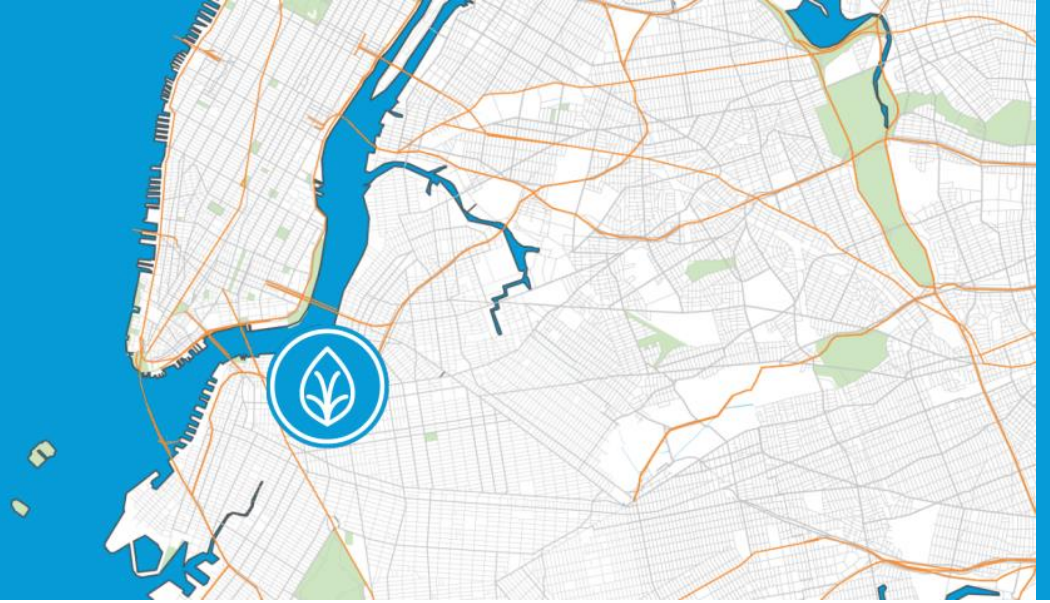
BROOKLYN

Clean Energy Hub

Offshore Wind Capacity:

1,500MW OSW

Expandable to 6,000MW

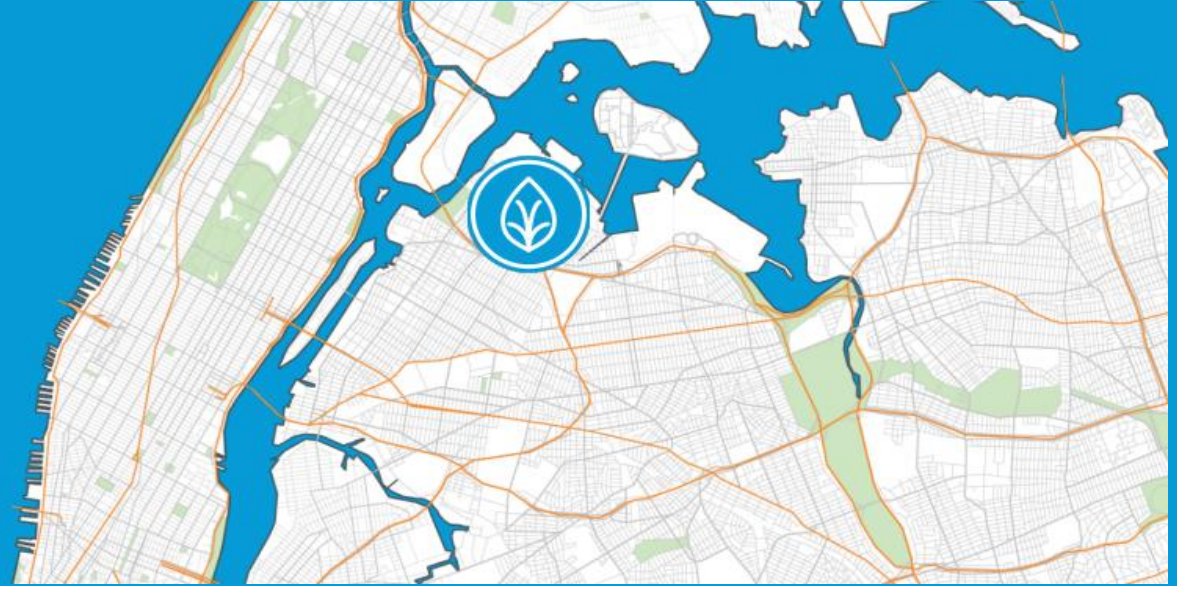


- Location: Hudson Ave, Brooklyn
- Property: 3 acres; zoned for Manufacturing

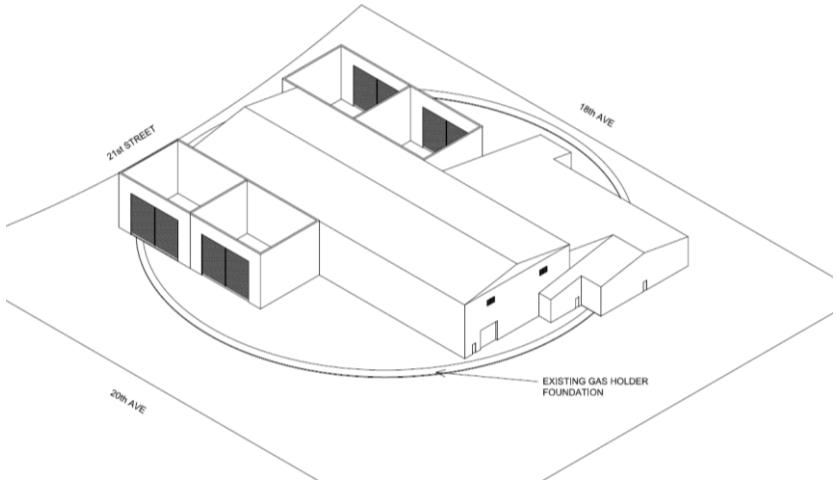
- **Benefits:**
  - Firm & currently in Construction
  - Minimal modification cost to inject up to 6,000 MW
  - Provides for multiple Transmission interties
  - Facility will be energized in 2028 for interconnections
  - Will feed local load: ~1,900 MW
  - Adjacent to Farragut substation
- **Challenges:**
  - Feeder routes to substation

ASTORIA
Clean Energy Hub

Offshore Wind Capacity:
1,500MW OSW
Expandable to 3,000MW

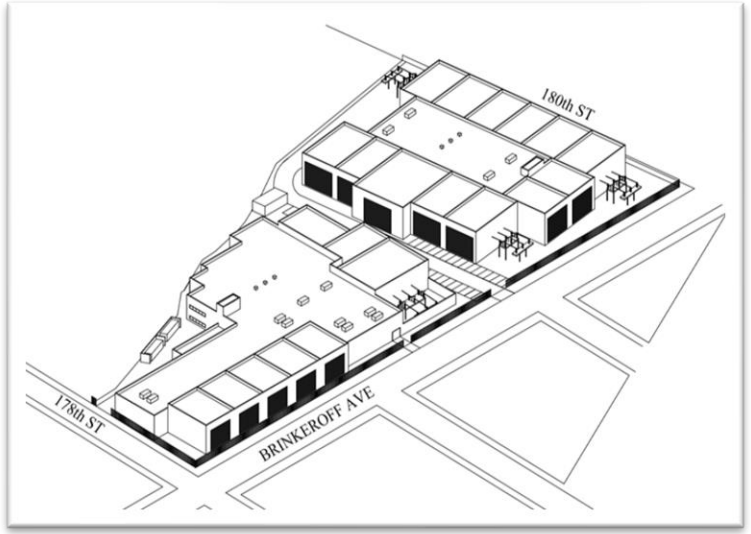


- Location: 20th Ave , Queens
- Property: 3 acres; zoned Manufacturing



- **Benefits:**
  - Project is on company-owned property
  - Provides multiple transmission interties
  - Feeds local load at Astoria West substation
  - Water approaches possible for developer feeders
- **Challenges:**
  - Removal of water & designing around existing gas holder foundation

- Location: Brinkerhoff Ave, Queens
- Property : 5 acres; zoned Manufacturing



- **Benefits:**
  - Transmission interconnections to both Con Edison and LIPA
  - Will feed local load: 3 area substations
  - Location provides for approaches of OSW feeders from north or south
  - Property for siting HVDC Convertor stations within reasonable distance
- **Challenges:**
  - Nearby Residential properties

MANHATTAN

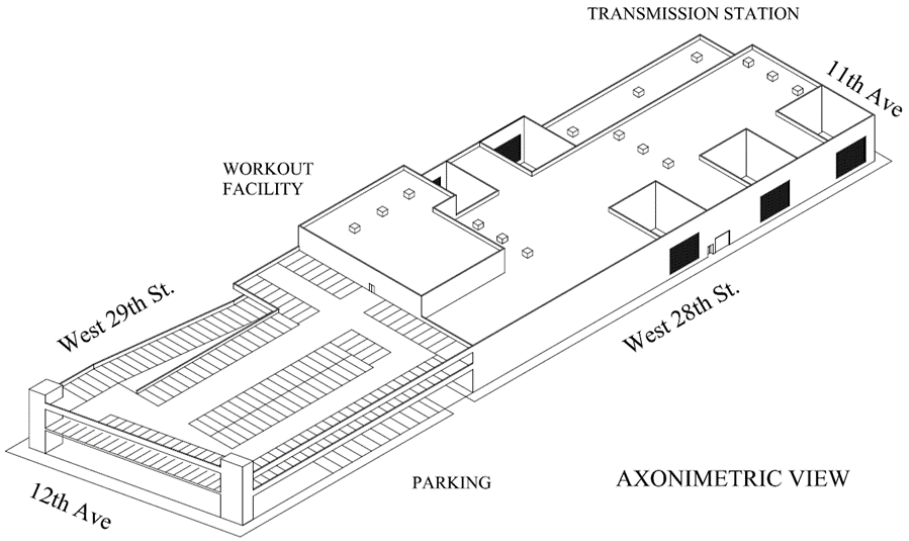
Clean Energy Hub

Offshore Wind Capacity:

1,500MW OSW

Expandable to 4,500MW

- Location: W 28th St Manhattan
- Property: 3+ acres, zoned Manufacturing



- **Benefits:**
  - Solution is in large load area
  - Provides multiple Transmission interties
  - Will feeds local load: ~1,900 MW
  - Water approaches possible for developer feeders
- **Challenges:**
  - Manhattan construction issues, feeder routing
  - Location is currently in use

STATEN ISLAND

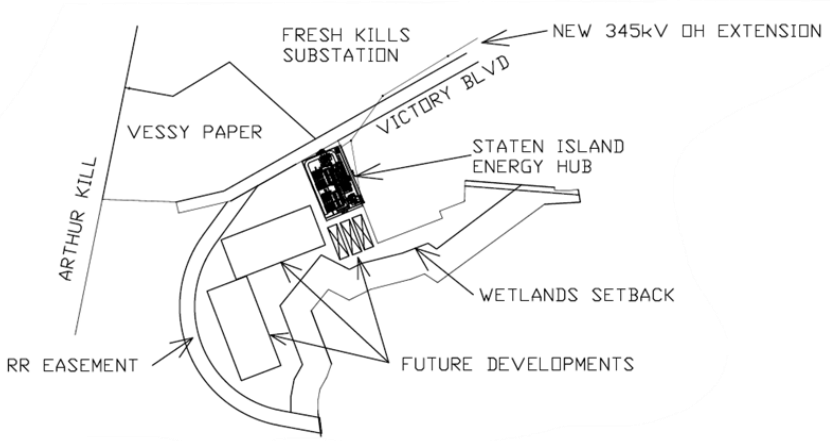
Clean Energy Hub

Offshore Wind Capacity:

1,500MW OSW

Expandable to 3,000MW

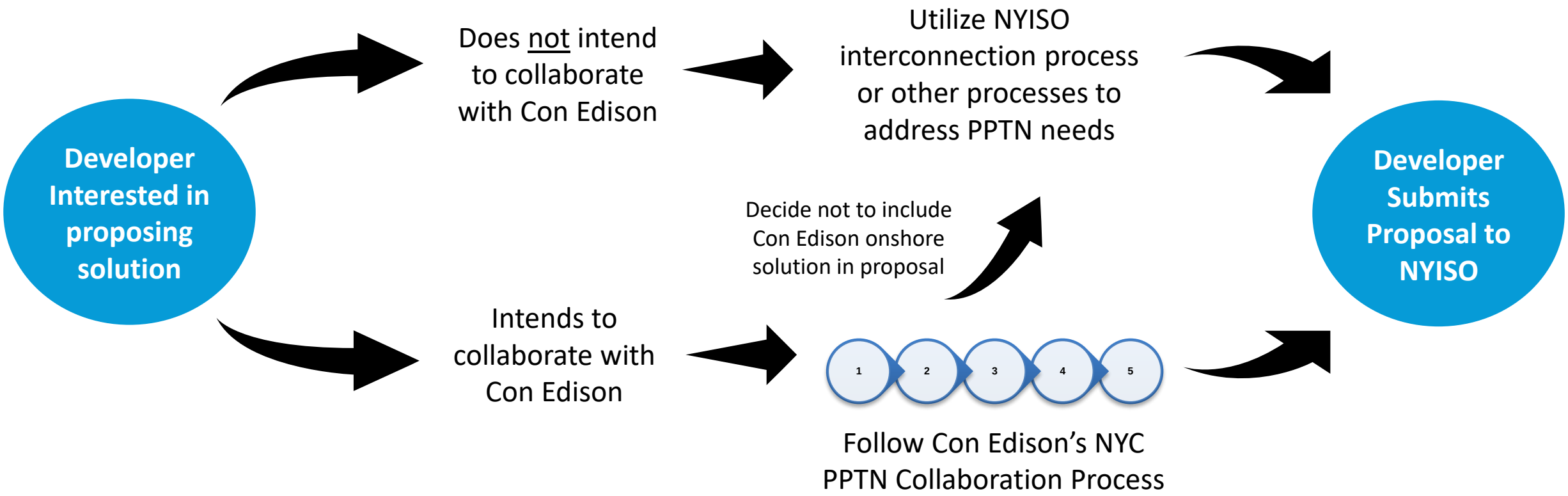
- Location: 4420 Victory Blvd, Staten Island
- Property: 98 acres, zoned Manufacturing



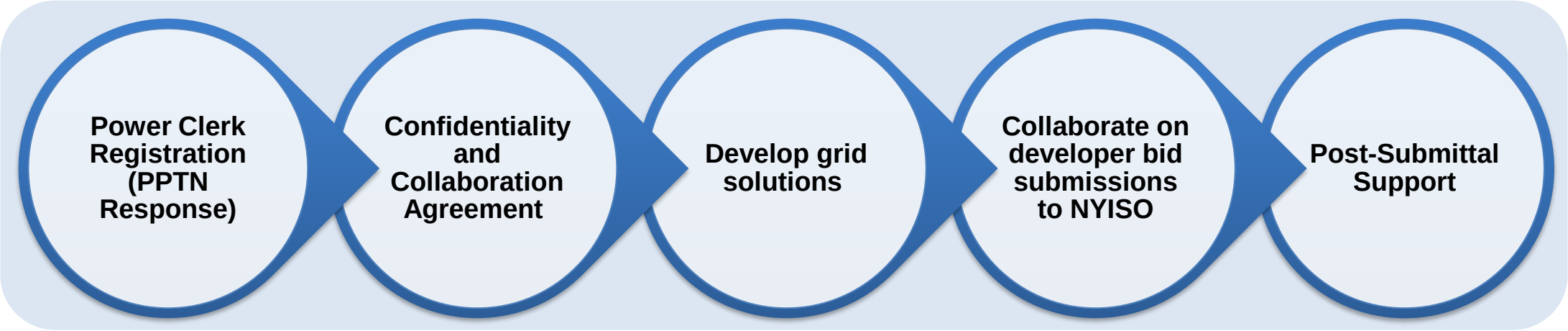
- **Benefits:**
  - Large site available, only location for multiple HVDC Converter stations
  - Avoids HVDC feeders in the Narrows
  - Multiple options to unbottle Staten Island
  - Short Developer AC interconnection feeders
  - Uncongested area
  - Allows for Battery storage facilities on site
  - Adjacent to Fresh Kills substation
- **Challenges:**
  - Wetlands

Con Edison NYC PPTN Process

NYC PPTN Proposal Submission Options

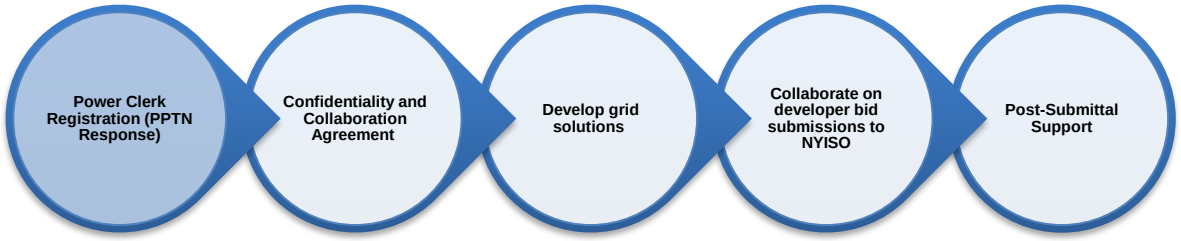


Con Edison NYC PPTN Collaboration Process

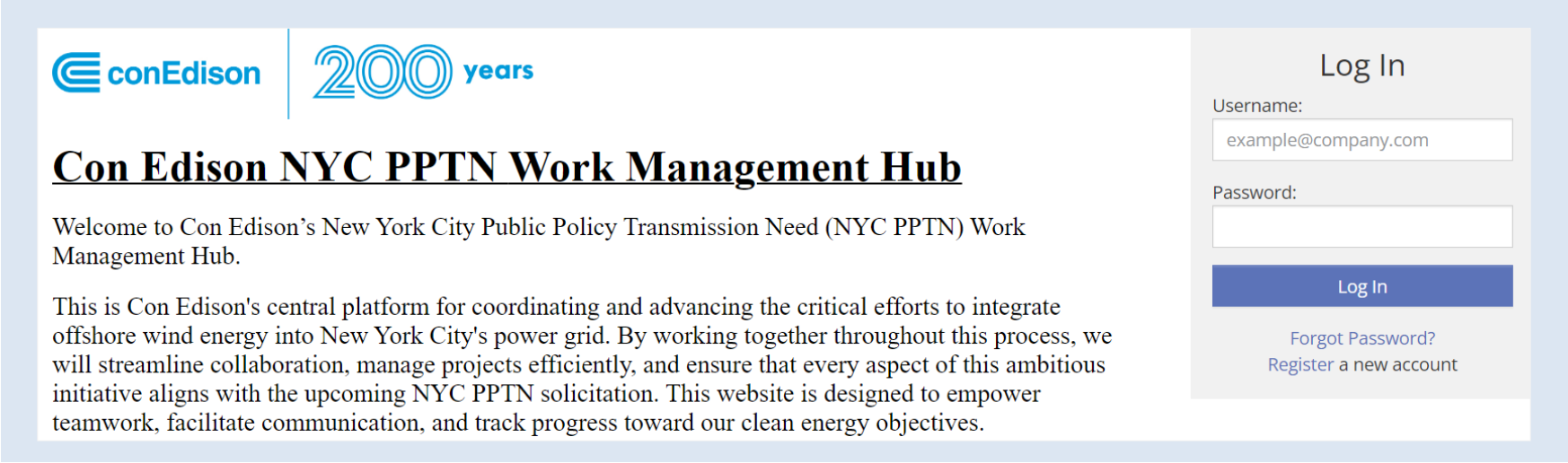


Collaboration Process

Power Clerk Registration (PPTN Response)

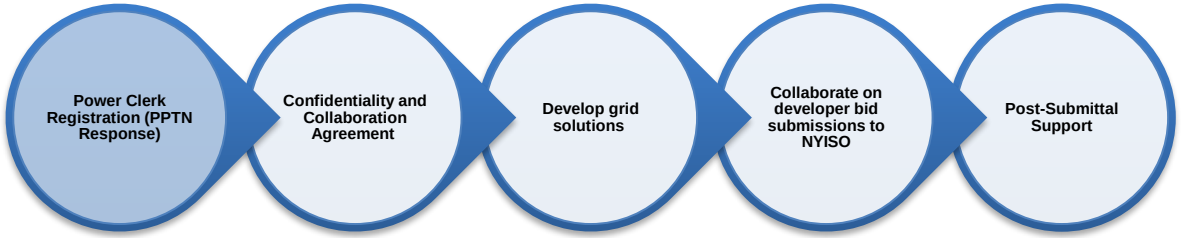


- Access through coned.com
- *New York City Public Policy Transmission Need* page
- Register a new account



Collaboration Process

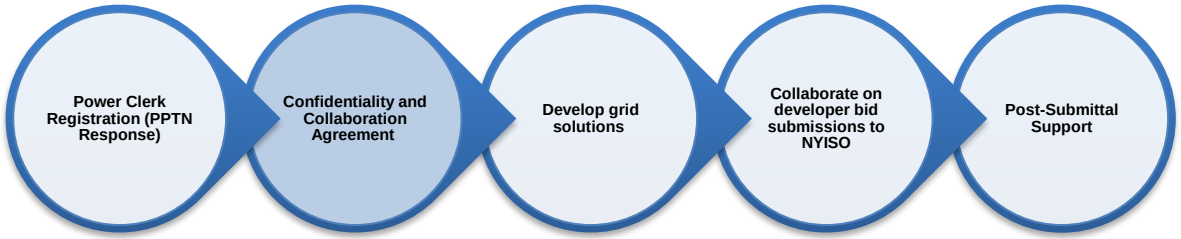
Power Clerk Registration (PPTN Response)



- Two registration options
  - General Inquiry (non-developers)
  - PPTN Response
- One registration per company
- One location to track all communications and documents

Collaboration Process

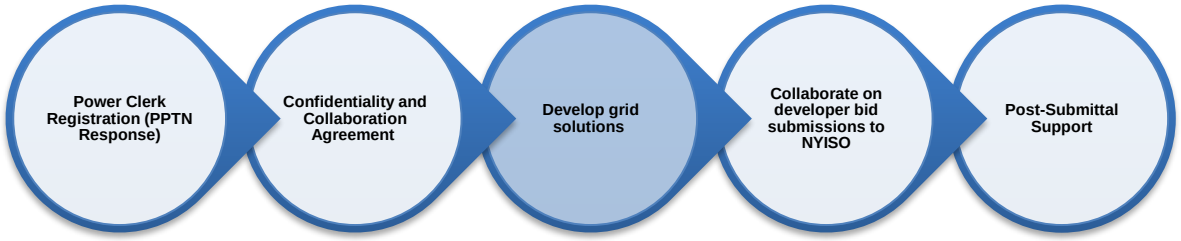
Confidentiality & Collaboration Agreement



- Mutual agreement to protect confidential information
- Does not require collaboration
- Establishes ground rules *if* the parties *do* collaborate on an interconnection solution
- Hubs/other multi-value substations and related transmission facilities will be constructed, owned, operated and earned on by Con Edison
  - Recognizes Con Edison's intellectual property rights
  - Solutions will meet future system needs
  - Includes facilities needed to make injected energy/capacity deliverable
- Con Edison's approval rights are limited to Con Edison's interconnection solutions
  - Bid information
  - Cost containment

Collaboration Process

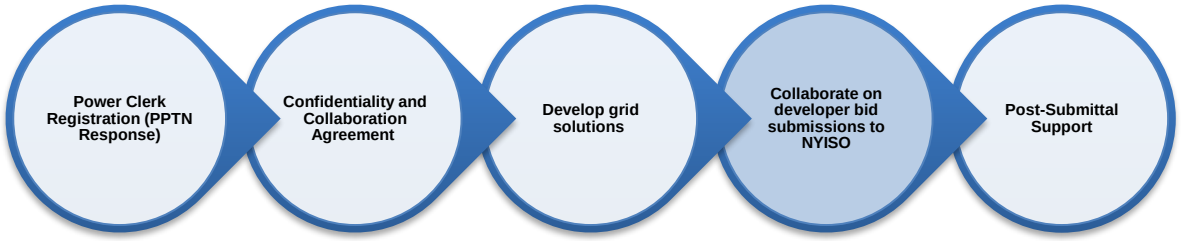
Develop On Shore Grid Solutions



- Confidential kick off meeting
- Con Edison to share relevant system information, including hub designs to integrate into developer solutions
- Work together to solution alternatives proposed by collaborating developers

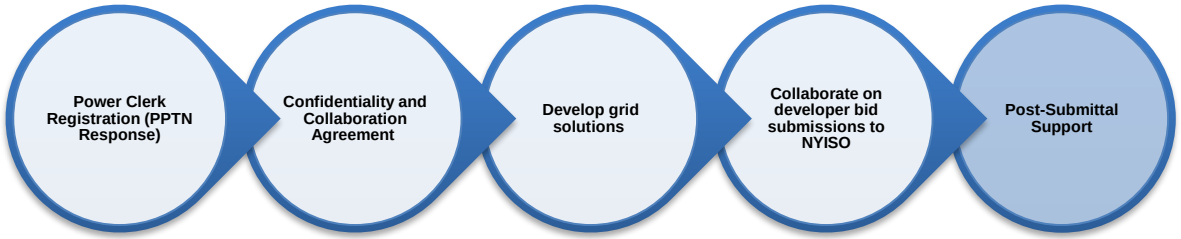
Collaboration Process

Collaborate on Developer Bid Submission



- Con Edison will provide technical and financial information associated with the Con Edison facility portions of the developer bid
- Con Edison will prepare information and disclosures for inclusion in the developer bids relating to the interconnection plan

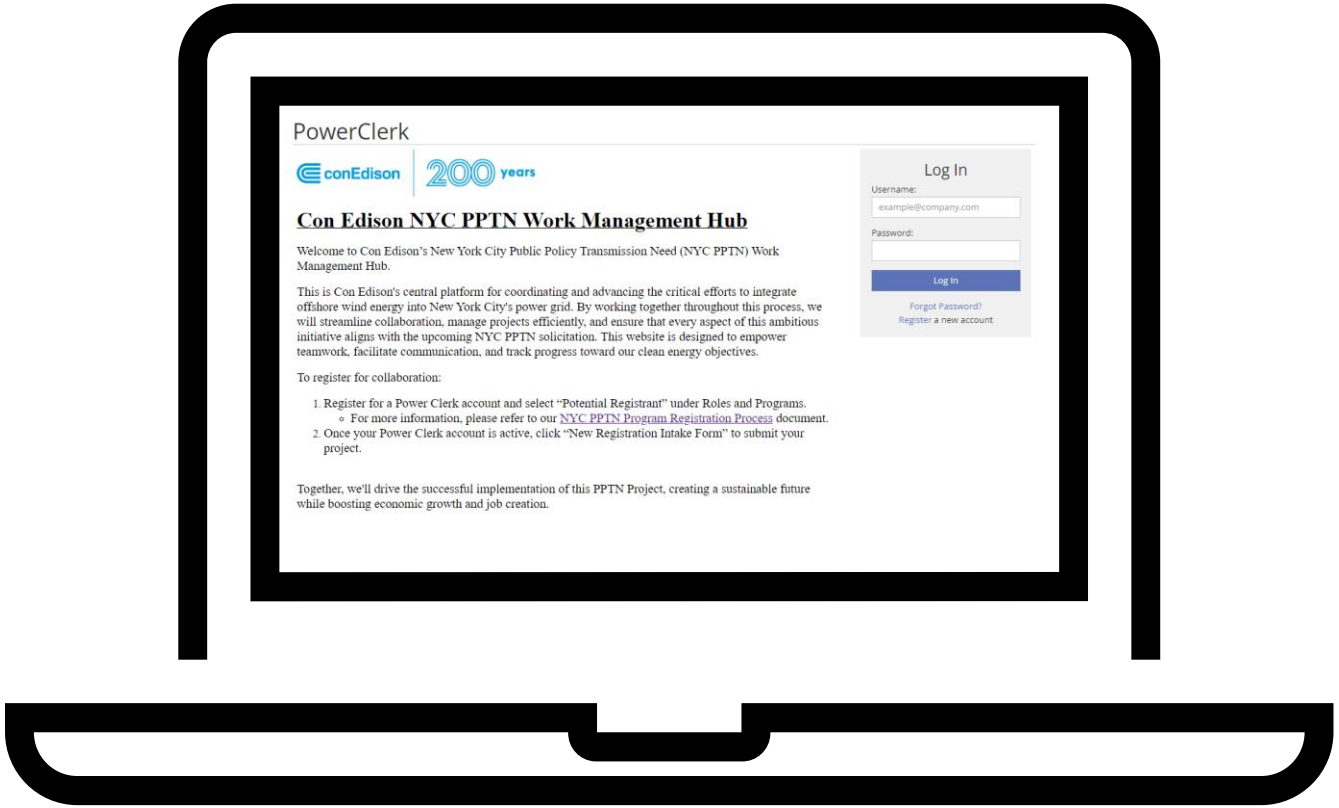
Collaboration Process
Post-submittal Support



- Con Edison to support Developer's technical responses during NYISO evaluation process
- Con Edison and the Developer will work collaboratively with the NYISO to execute appropriate agreements pursuant to NYISO's PPTN process for the project (if selected)
- Any co-optimized facilities proposed by Con Edison in coordination with developers will be recovered by Con Edison

What next?

Register Now!



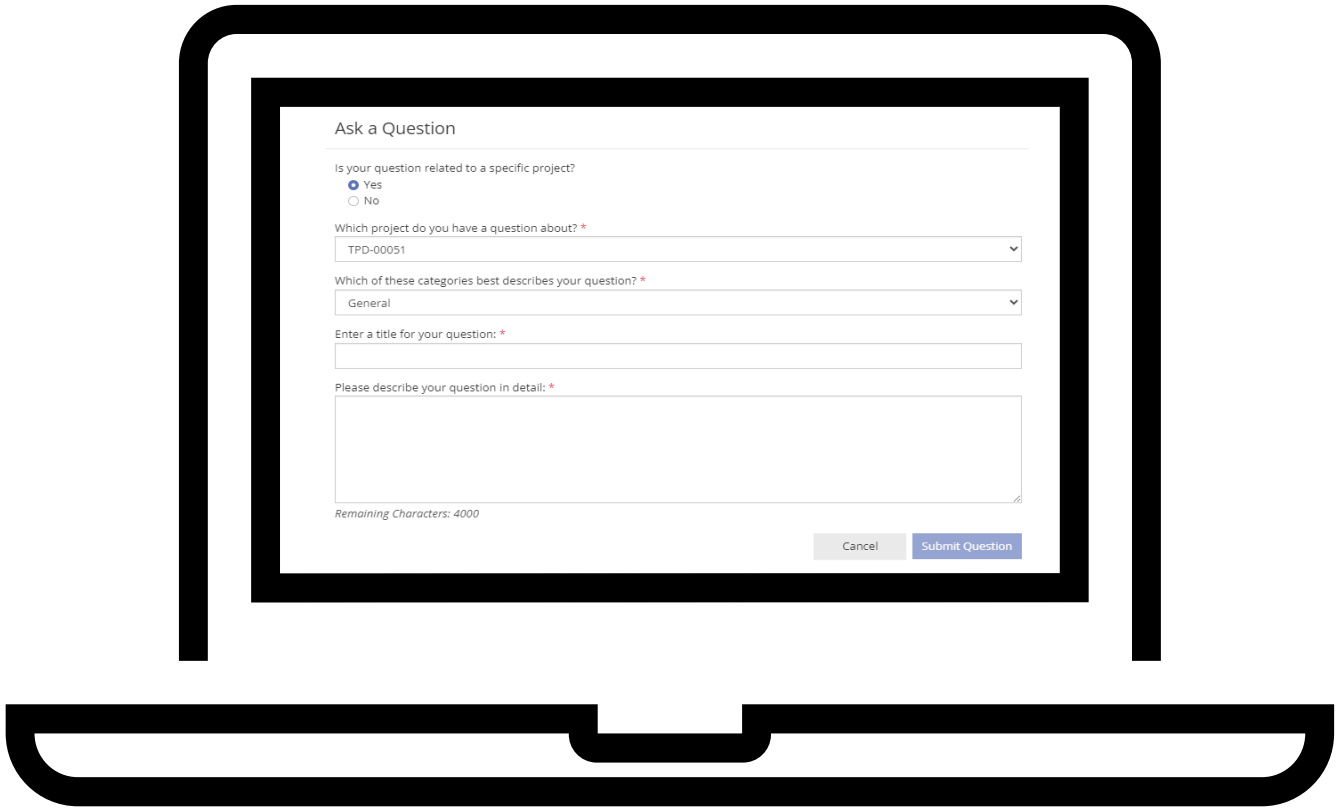
Benefits of the Collaborative PPTN Process

Benefits of Collaboration PPTN Process

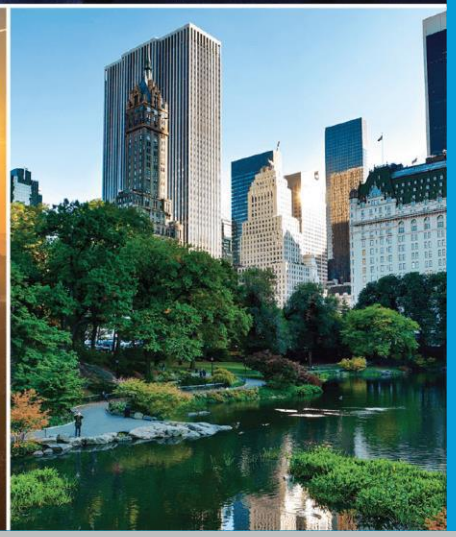
- Access to Local Expertise
- Siting and Permitting Insight
- Coordination of Transmission Infrastructure
- Efficient Interconnection Planning
- Co-Optimization
- Cost-Effectiveness

Questions & Answers

More Questions?



Click the "**Ask a Question**" button to submit an inquiry.



Consolidated Edison Company of New York

NYC PPTN Technical Conference

October 23, 2023