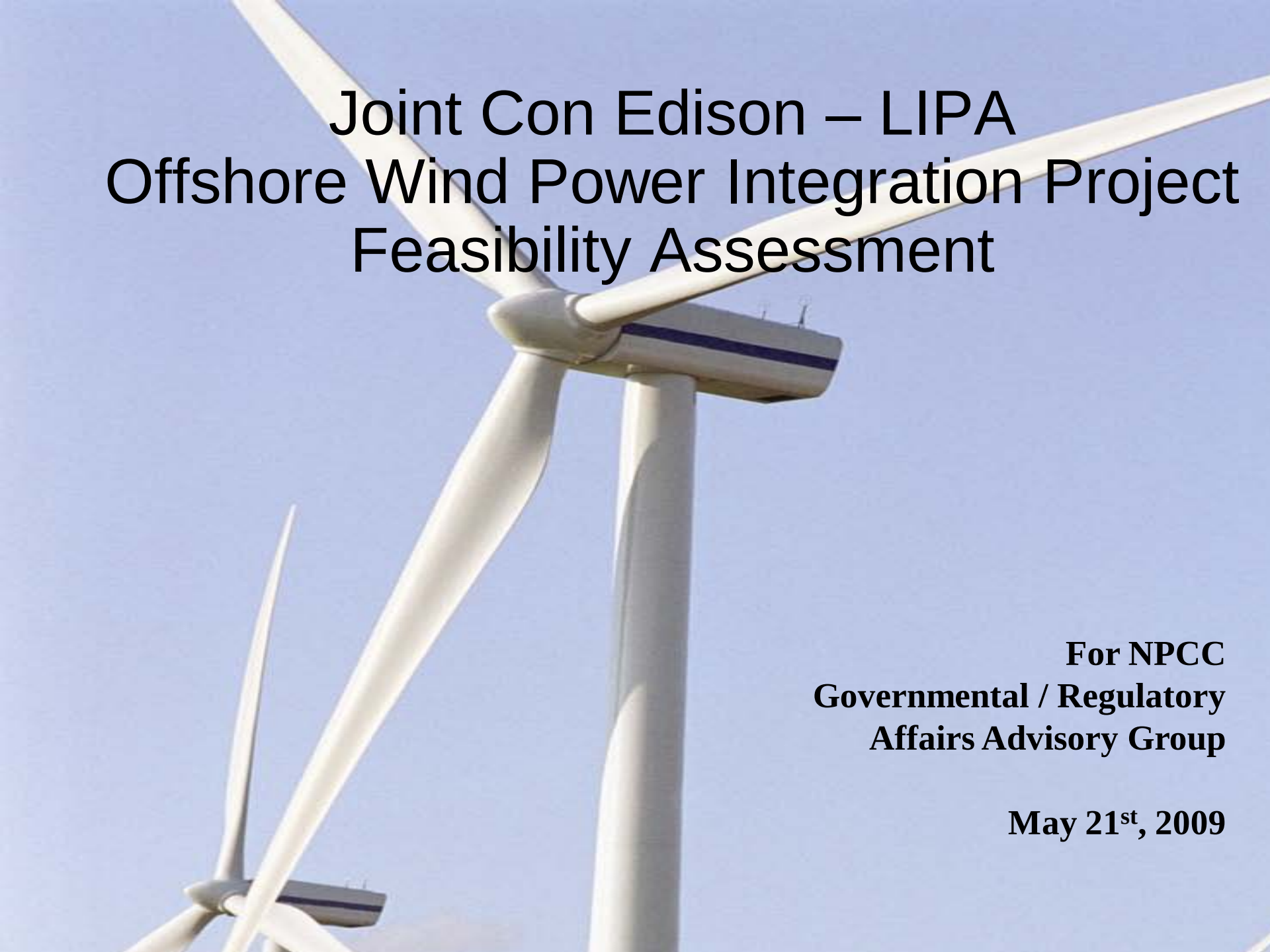


Joint Con Edison – LIPA Offshore Wind Power Integration Project Feasibility Assessment

For NPCC
Governmental / Regulatory Affairs Advisory Group

May 21st, 2009

Executive Summary

- Engineers from Con Edison and LIPA combined forces to determine the feasibility of their transmission systems to connect with and support a large source of new wind power to be located off the south shore of Long Island.

- Advantages of Joint Study:
  - Shared infrastructure
  - Shared costs
  - Shared risk
  - Mutual support

Beneficial Environmental Impact

- A 350 MW wind facility operating at 30% capacity factor would generate about 920,000 megawatt-hours per year, enough energy for over 250,000 homes.

- One megawatt-hour of displaced fossil power is equivalent to 900 pounds of carbon dioxide or CO2. A wind facility of this size would displace 400,000 tons of CO2 annually, equivalent to removing 68,000 cars from local roads.

- New renewable resources will help meet the New York State Renewable Portfolio Standard (RPS) and expected federal renewable energy goals and provide for added fuel diversity.

Background Information

Advantages

- Lots of Ocean and Consistent, Unobstructed Wind off LI coast
- Centralized for Cost Effectiveness and Size
- Proximity to land (avoid HVDC)
- Minimal Drop-off of Wind During Summer Peak Demand

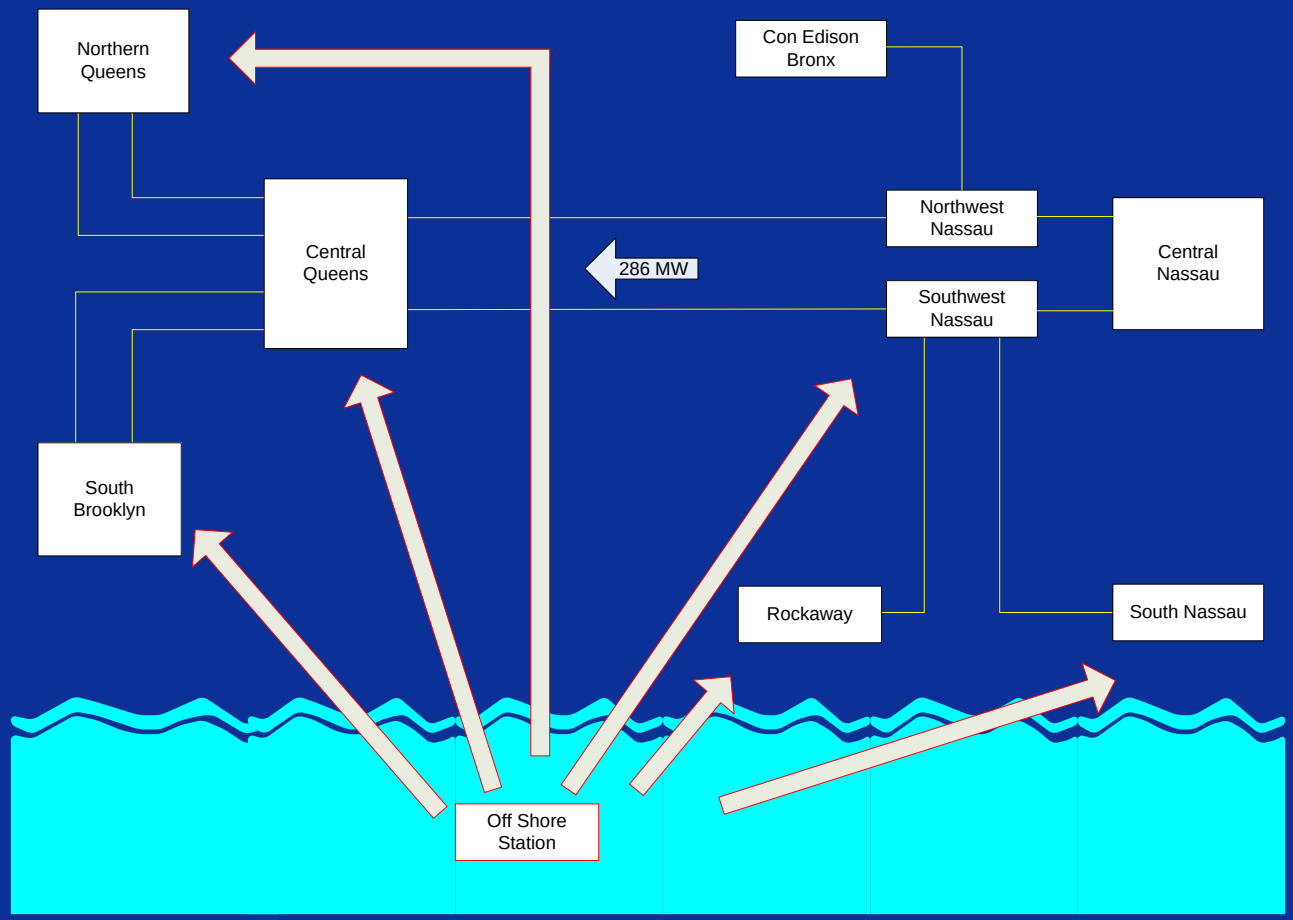
Disadvantages

- Wind is a low-density energy source
- Salt Water and Salt Air Corrosion adds to O&M, reduces Life-Cycle
- Costs:
  - Large numbers of large Wind Turbines
  - Multiple 15 mile submarine cables
  - Depth of Water (80-100 feet) impacts cost
  - Upgrading Transmission Receiving Infrastructure

Scope and Objectives

- This study evaluated the necessary transmission reinforcement required for 350 MW and 700 MW of generation.
- Objectives of this study included:
  - Best interconnection sites
  - Best transmission paths
  - Actual Transmission Reinforcement
    - Real and Reactive power
    - Power Flow
    - Short Circuit Issues
  - Order of magnitude cost estimates for transmission reinforcement

6 Options Were Evaluated



No one solution was considered to be best in all categories of reliability, cost-effectiveness and expandability. A two-phased approach with multiple points of interconnection was then considered.

Recommendations

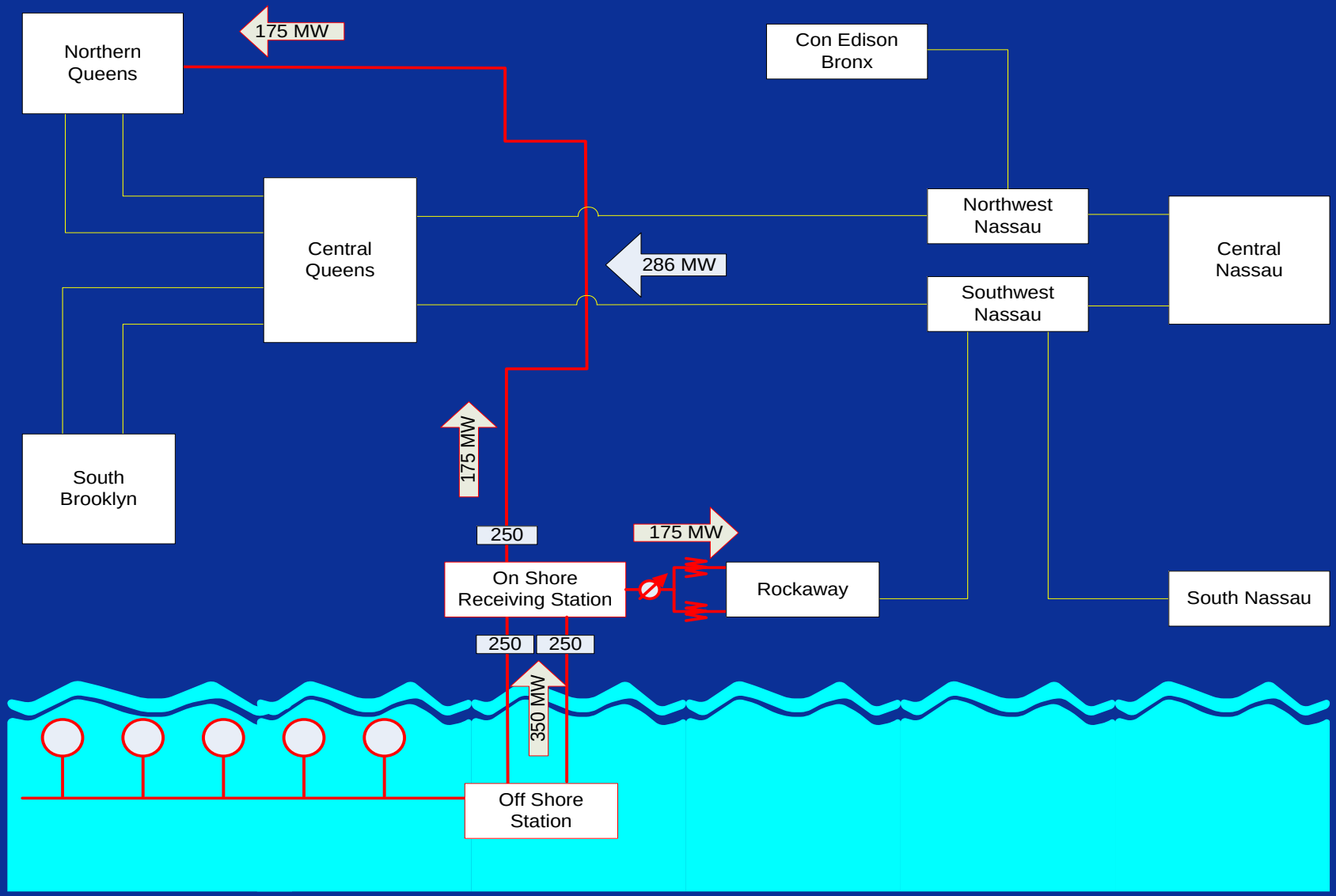
- For a wind power installation up to 350 MW
  - One new transmission line from onshore receiver station to an existing station in northern Queens
  - One new connection to the LIPA transmission system in the vicinity of the Rockaways

- For a wind power installation from 350 MW to 700 MW
  - Two new transmission lines from an onshore receiver station to a new substation in the vicinity of eastern Queens
  - One new transmission line from Eastern Queens to Northern Queens with Phase Angle Regulation
  - One new connection to LIPA transmission system in the Rockaways.
  - Reconfigure existing transmission lines between LIPA and Con Edison

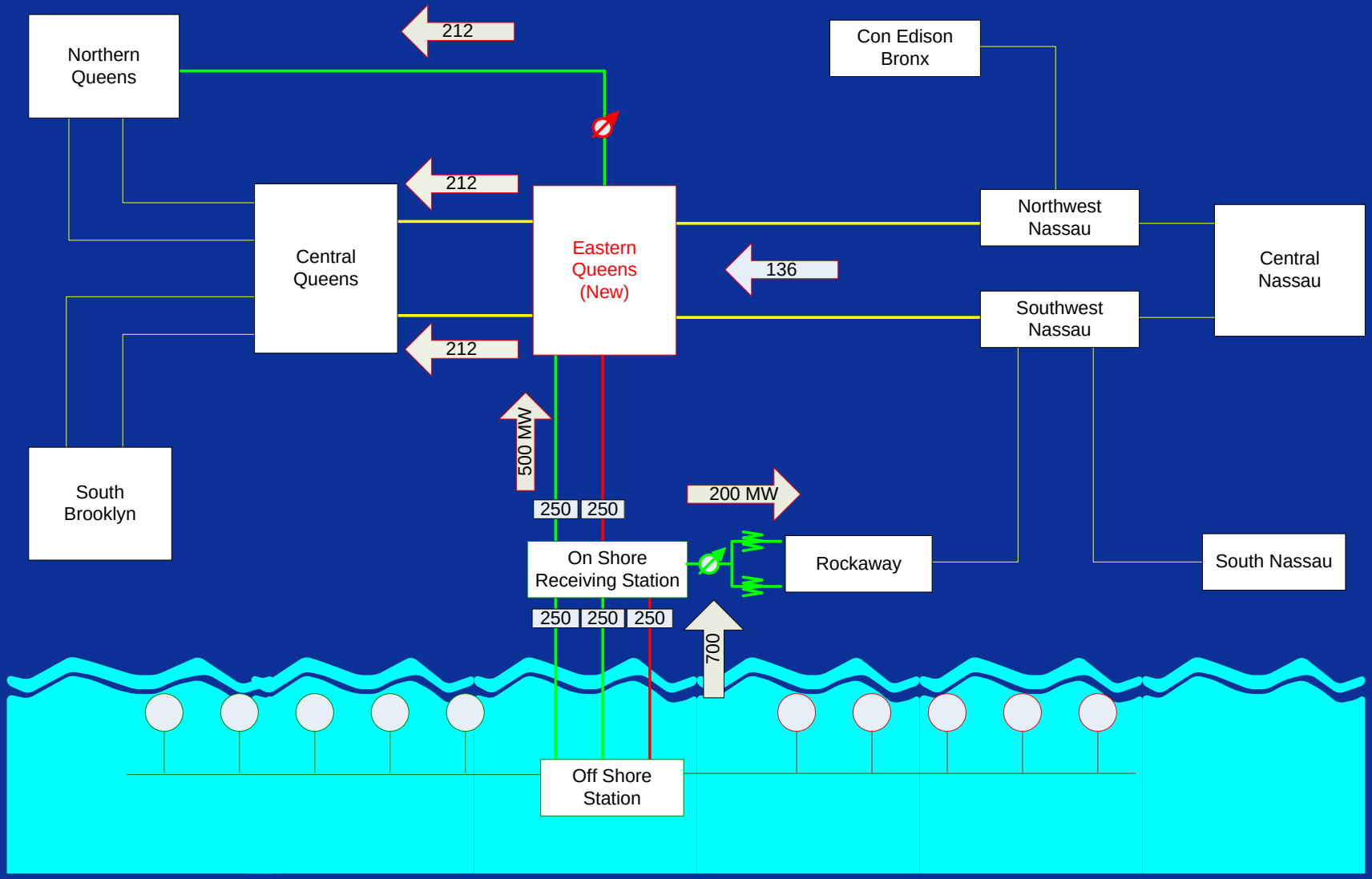
Advantages of Phased Approach

- Large construction costs are distributed over time.
- Multiple connections at both utilities improve flexibility and reliability.
- 138 kV voltage provides:
  - cost effective connectivity with the existing transmission infrastructure
  - minimal need for reactive compensation.
- Mutual support and sharing of resources, without taxing either utility's present infrastructure limitations.
- Will support future electric demand growth as a connection point for future generation and as a support for local load

Phased Approach – Phase I



Phased Approach – Phase II



Conclusions

- The connection of a large offshore wind power facility is feasible within the context of the current transmission infrastructure of the Con Edison and LIPA utilities.

- Various options exist for alternative size configurations, notably:
  - 350 MW
  - 700 MW
  - Phased in Approach
- Solutions can promote flexibility, reliability improvement, and synergies with future transmission opportunities.

Next Steps

- Assess potential options in more detail, including refinement of interconnection costs and construction plans, and conducting an evaluation of the impact of a wind farm would on grid operations.

- Issue Request for Information so that equipment manufacturers, wind developers and other interested parties can provide the necessary input.

- initiate the process for installing wind monitoring equipment in the Atlantic Ocean to collect wind data and characteristics to support the assessment of the wind potential off of Long Island and Queens.

Questions & Comments?