

A photograph of an offshore wind farm in the ocean. The sky is a pale, hazy blue, and the water is a calm, light blue-grey. In the center, a large wind turbine stands prominently, its three blades extending upwards. Several other smaller turbines are visible in the distance, scattered across the horizon. A small boat or platform is visible near the base of the central turbine.

# **New York State Offshore Wind Interconnection Webinar**

**New York State Energy Research and Development Authority  
(NYSERDA)**

September 28, 2022 | Webex

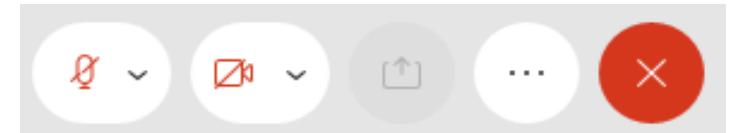
# Meeting Procedures


**Webinar recording will be available at:**

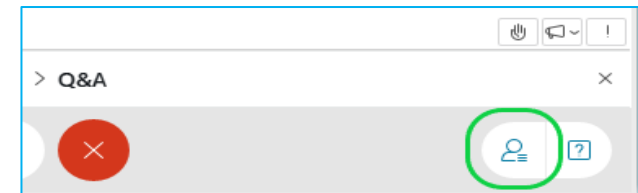
<https://www.nyserda.ny.gov/All-Programs/offshore-wind> under Focus Areas and Transmission

## Participation for Members of the Public:

- > Members of the public will be muted upon entry.
- > Questions and comments may be submitted in writing through the Q&A feature at any time during the event.
- > If technical problems arise, please contact [Sal.Graven@nyserda.ny.gov](mailto:Sal.Graven@nyserda.ny.gov)



**You'll see  when your microphone is muted**



# Presentation Schedule

1:00 – 1:10 p.m. | Welcome and Agenda

1:10 – 1:55 p.m. | Avangrid

1:55 – 2:40 p.m. | New York Power Authority (NYPA)

2:40 – 3:25 p.m. | Rise Light & Power

*Each Presentation will be followed by 15 minutes of Q&A facilitated by NYS Department of Public Service (DPS) Staff.*



# Excelsior Hub

*NYSERDA Offshore Wind Transmission webinar*

*Business Development*

September 2022

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# AVANGRID NETWORKS

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## Owner of 8 electric & gas utilities in the Northeast

- | NYSEG & RGE in NY – 1.3 million customers
- | Part of NY Transco currently developing 4 transmission projects in NY
- | Currently building the NECEC HVDC Project between Quebec and Maine
- | Proposed the Excelsior Connect HVDC Project to NYSERDA in the Tier4 RFP

## Part of AVANGRID and the Iberdrola Group

- | AGR is currently building the first commercial scale OSW project in the US and is actively developing the PCQ and CMW OSW projects
- | Iberdrola Global Networks team commissioned the Western Link HVDC Project (239 miles of submarine cable) in 2018, in partnership with National Grid



# Current state of the market – NY Offshore Wind

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## Success depends on recognizing and adapting to current obstacles

- | The Generator Lead Line (“GLL”) model is preferred
- | Generators have no incentive to optimally develop the network
- | Multiple awarded projects are competing for the same real estate and POIs
- | Generators are in control of their destiny, but is this the right recipe?
- | GLL results in lower short-term cost and simpler RFP processes
- | Interconnection queue filled with potential projects
- | Outcome of the Long Island PPTN is awaiting

Results in:



**Project delays**

**Cost increases**

**Higher  
curtailments**

**Higher risk  
premiums**

# Proposed solutions – NY Offshore Wind

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## How can we quickly adapt and propose implementable solutions?

- | Risk allocation amongst the right parties is key
  - | OSW developers should not be responsible for coordinating and building the onshore network
  - | Transmission developers building offshore transmission lines and substations doesn't align with their core expertise
- | Centralized Planning is necessary in NY
- | Competition in the onshore transmission space leads to more innovative and more cost-effective solutions
- | Holistic approach would reduce impact on marine and coastal environment

Results in:



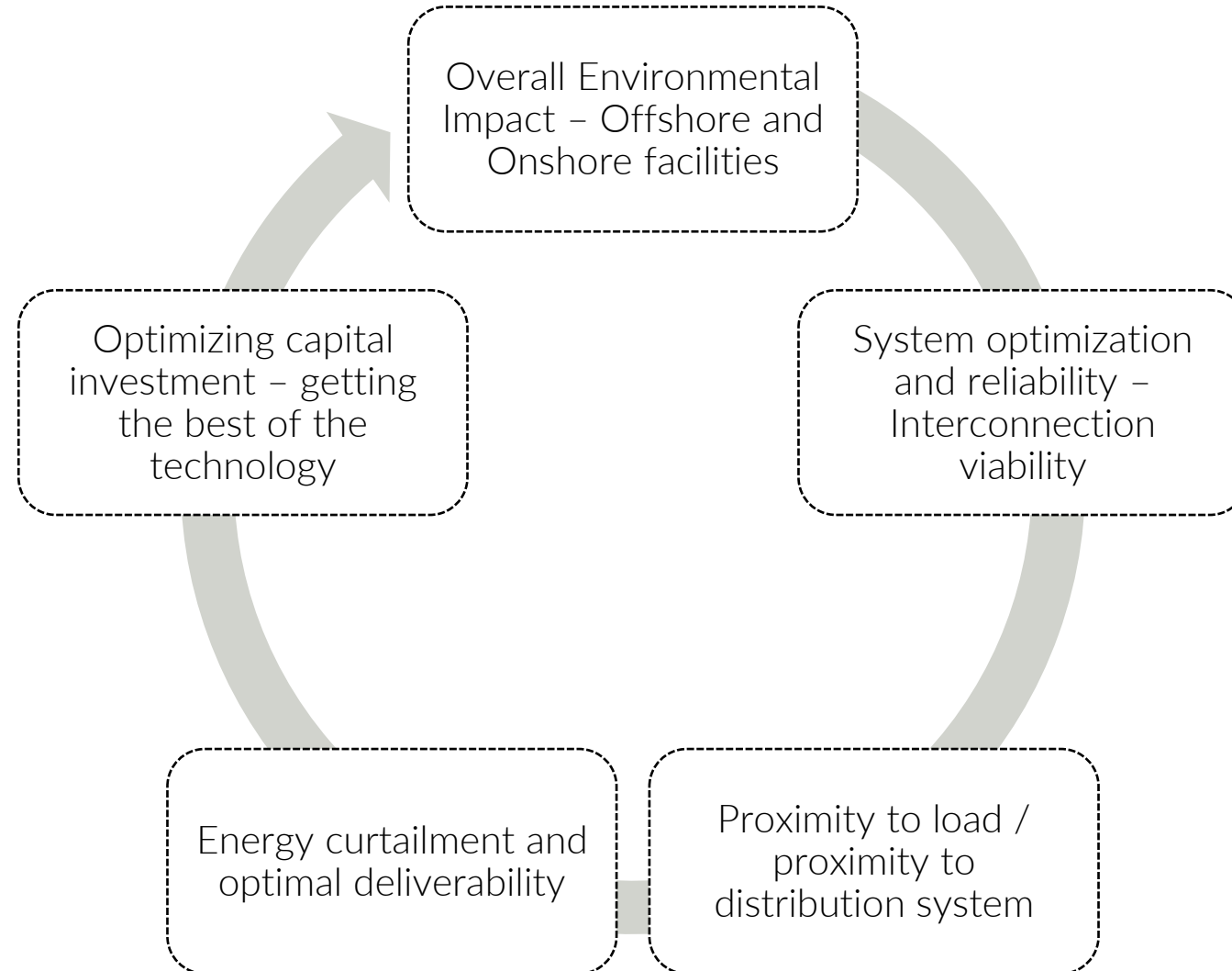
**Reduced risk premiums**

**Increased network benefits**

**Lower curtailments**

**Less environmental impact**

# Development Takeaways





# Environmental and community constrains

Avangrid evaluated alternatives using these factors:

- ✓ environmental impacts,
- ✓ land uses,
- ✓ cultural resources,
- ✓ technical and constructability components, etc.

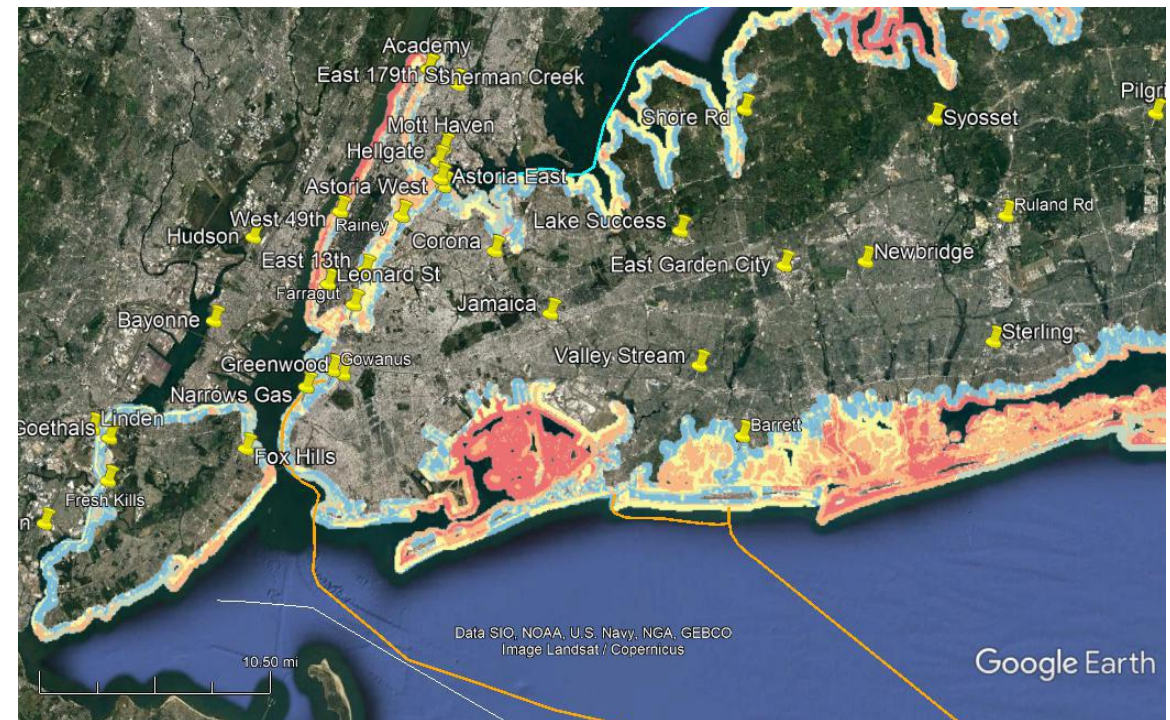
This resulted in a cable landing heat map for the NY coast line

The tool does not build in the offshore routing complexity (such as routing under the Narrows), but can be used to refine routes

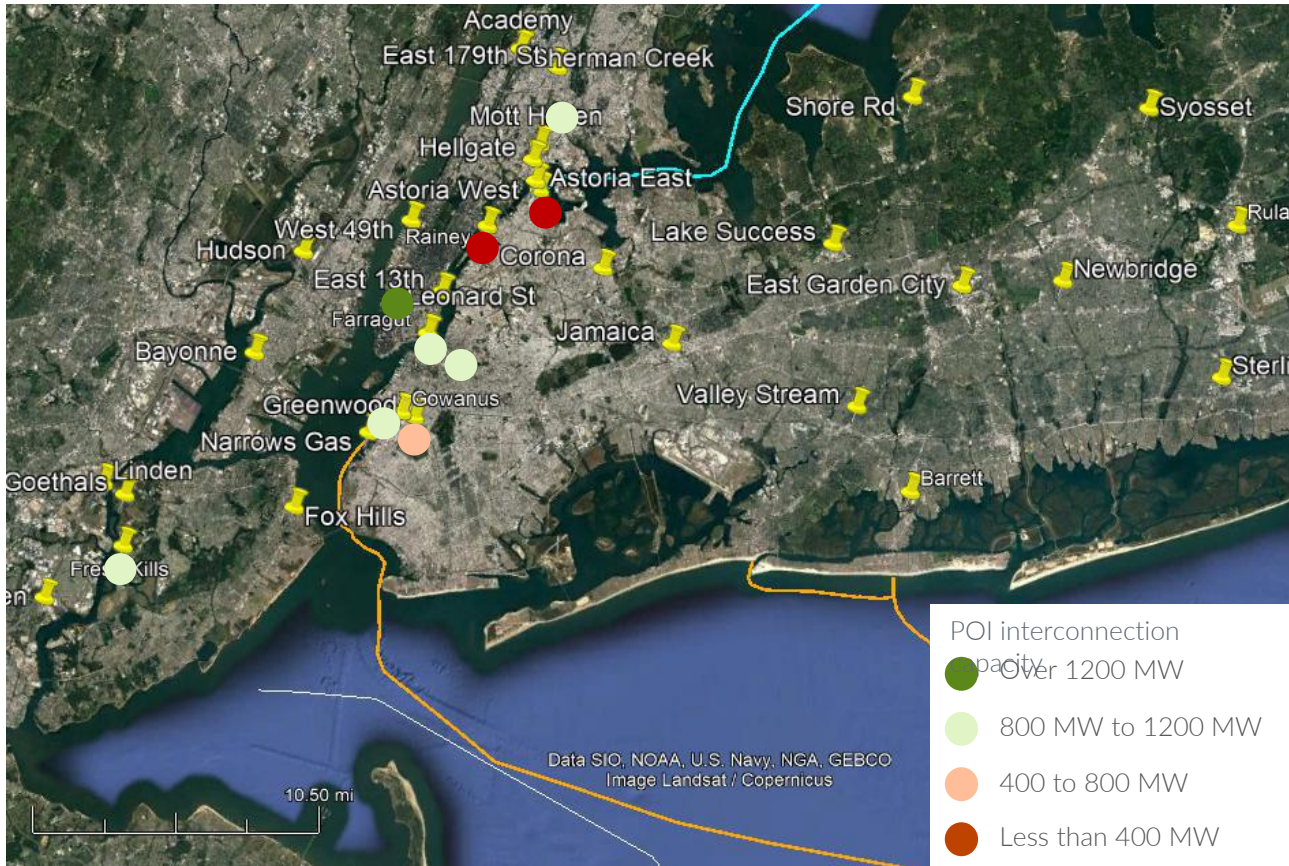
 Staten Island and the Lower Bay / South Brooklyn have the largest landing potential



Cable landing heat map for NYC and Long Island



# POI Screening



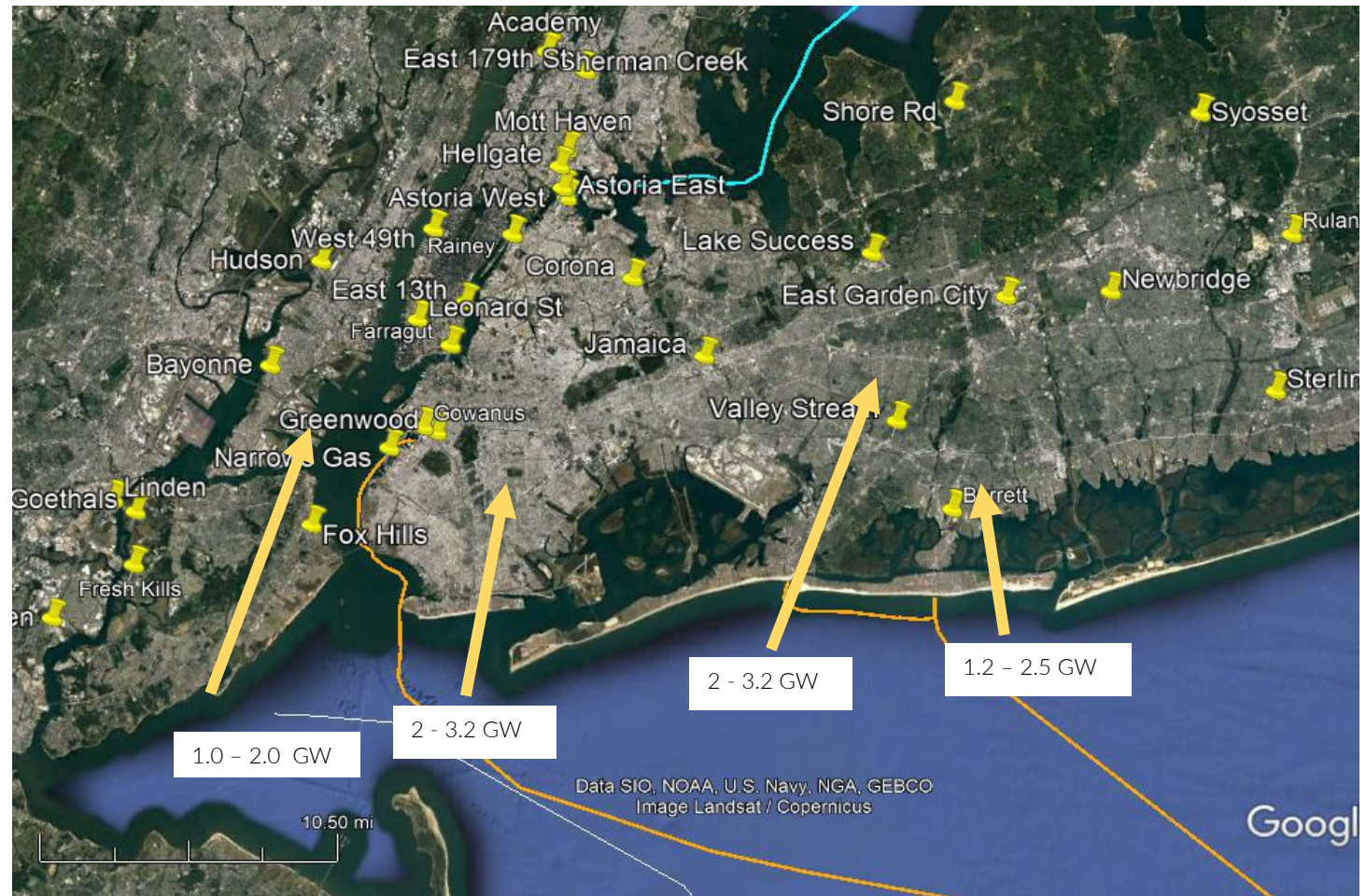
- | Available capacity is limited and doesn't allow for a direct tie without major system upgrades
- | NYC grid will require significant system upgrades which will be transferred to ratepayers
- | Introducing a planned approach reduces interconnection costs, developer risk, and system congestion, minimizing overall costs
- | Staten Island lacks the electric infrastructure to integrate large-scale OSW.

Study files included awarded projects.  
POIs have been evaluated independently as capacity resources

# Planned approach

## Onshore transmission development with coordinated planning approach

- Reduced impact to rate payers. A planned, well studied, approach to system development will have a lower overall cost
- Would result in solutions that will expand existing facilities, improving system reliability
- Targets optimized injection and reduced congestion. Minimizes impact to locational energy prices
- Best if open for competition – will allow all stakeholders to provide feedback and developers to deliver best solutions
- A planned approach allows for the development of combined injection studies



# OSW Transmission – Avangrid development



- ① New 138kV / 230 kV / 345 kV landing facility
- ② 138 kV / 345 kV circuits
- ③ Potential secondary hub location

Transmission facilities should be designed to:

- be expanded in the future if required
- help improve the local system and get energy closer to load
- Improve energy deliverability

Great opportunity to improve reliability in NYC by constructing new substations, integrating converter stations and tying to the future Long Island project resulting from the NYISO PPTN

AVANGRID has developed two transmission solutions for OSW:

- Different landing locations
- Expandable
- Cost effective
- Adapted to different possible developer requirements

- Allows for future expansion at a reduced marginal cost
- Improves NYC system reliability
- Could be expanded to serve lower voltages



## Planned approach to OSW transmission development

- Best use of infrastructure: Converter stations are highly valuable system assets – Best if spread across the system
- Several hubs optimize the benefits of the offshore mesh and reduce basis risk
- Cost competitive vs. gen-tie approach
- Will reduce future system congestion and the need for large additional upgrades



## Holistic approach

- OSW facilities need to be considered when developing interconnection facilities
- Avoids constrained routes, both offshore and onshore
- Minimizes environmental and social impact
- Optimizes the use of capital
- Interconnection studies will provide visibility on future needs for more ambitious goals



## Competitively structured

- An open solicitation to allow ideas from different transmission developers to be evaluated
- Successful track record of competitive projects in NY minimizes development risk
- Clear goals and evaluation metrics facilitates the selection of the most effective solution

# Q&A with Avangrid





**NY Power  
Authority**

**LSP**  **POWER** **GRID**  
NEW YORK

# OSW Interconnection Solutions

## King's Spoke

October 3, 2022

# Summary

- King's Spoke provides low-cost and low-risk interconnection for OSW into Zone J
  - Minimizes scope of facilities including SUFs in the NYISO process
  - Reinforces the system providing reliability benefits
  - Avoids the Narrows and New York Harbor
- Flexible injection capability through spoke model
- Development team of the New York Power Authority and LS Power Grid has experience in developing, siting, constructing, and operating major electric transmission facilities, including collaboratively
- Independent participants in Long Island Offshore Wind Export PPTN with extensive knowledge studying the bulk transmission system for OSW integration



# Challenge



- Limited New York State Points of Interconnection (POIs) with full generation injection capability
- Existing constraints include Narrows and NYC harbor
- Limited appropriately sized real estate in Zone J
- Risk of SUFs in the Class Year process, including a share in facilities that result from other generators

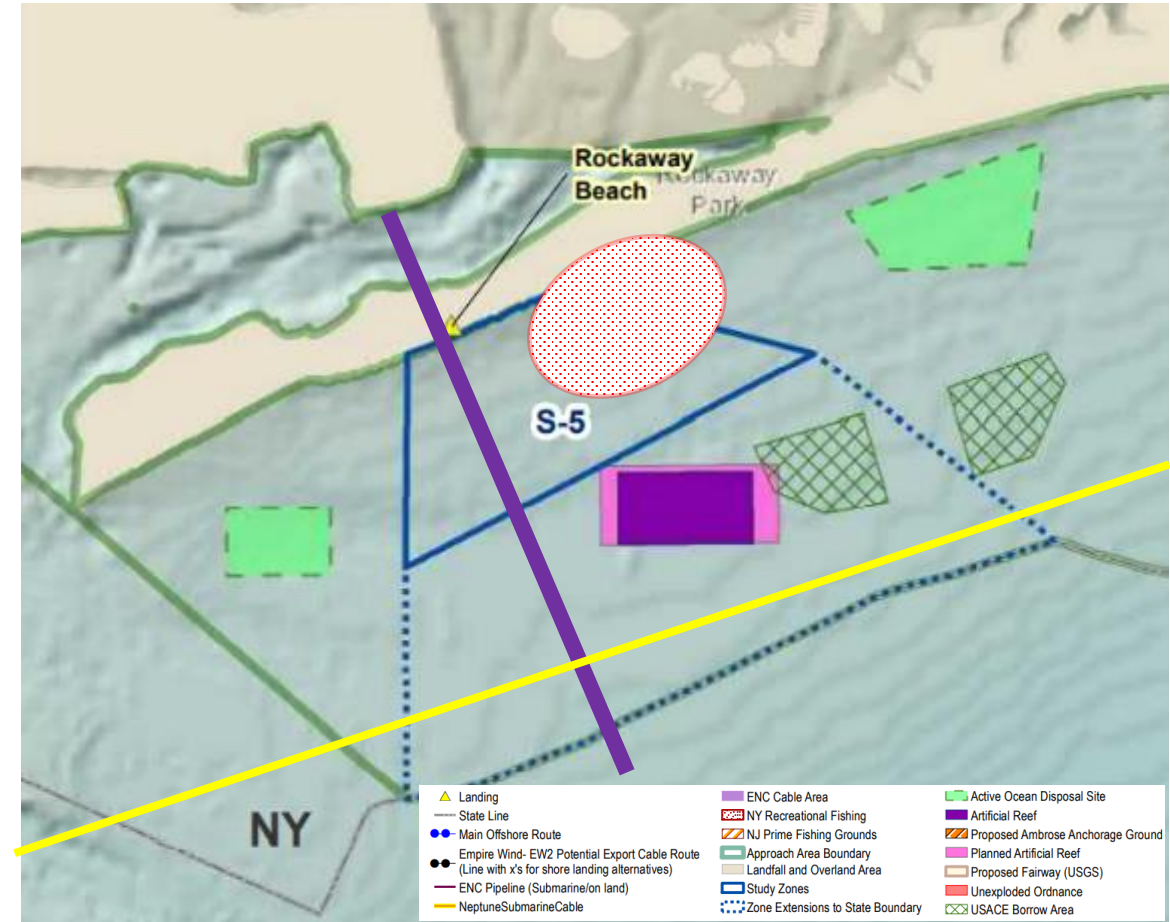
# King's Spoke Solution



- King's Spoke creates a new POI with direct links to load – minimizing system impacts and risk of upgrades
- Additional reliability benefits to the area
- Fully packaged solution
  - Cable landing
  - Routing & siting study
  - HVDC converter site
  - POI substation
- Flexible injection capacity
  - 1.3 GW+

# Cable Landing in Far Rockaway

- Avoidance of Narrows and New York Harbor constraints
- Identified in NYSERDA Offshore Wind Cable Corridor Constraints Assessment as feasible
- Constraints exist:
  - Popular beach & fishing area
  - Transco 26” gas main
  - Neptune HVDC circuit
  - 400+ acre artificial reef
  - USACE borrow area



Draft Offshore Wind Cable Corridor Constraints Assessment – NYSERDA, 2022

# Next Steps

- Routing Study: Completed
- Cost Estimates: Completed
- Secure real estate: Underway
- NYISO Interconnection Process: Q1435 Underway
- Cable landing and HVDC site design: OSW Developer
- King's Spoke Substation design: Preliminary
- Coordination on interconnection of existing circuits, routes, and cost estimates as NYISO process advances



# King's Spoke Collaboration



Interested in further collaborating on King's Spoke? Project contacts:

Frank D'Eufemia @ [Frank.D'Eufemia@nypa.gov](mailto:Frank.D'Eufemia@nypa.gov)  
Lawrence Willick @ [LWillick@lspower.com](mailto:LWillick@lspower.com)





**NY Power  
Authority**

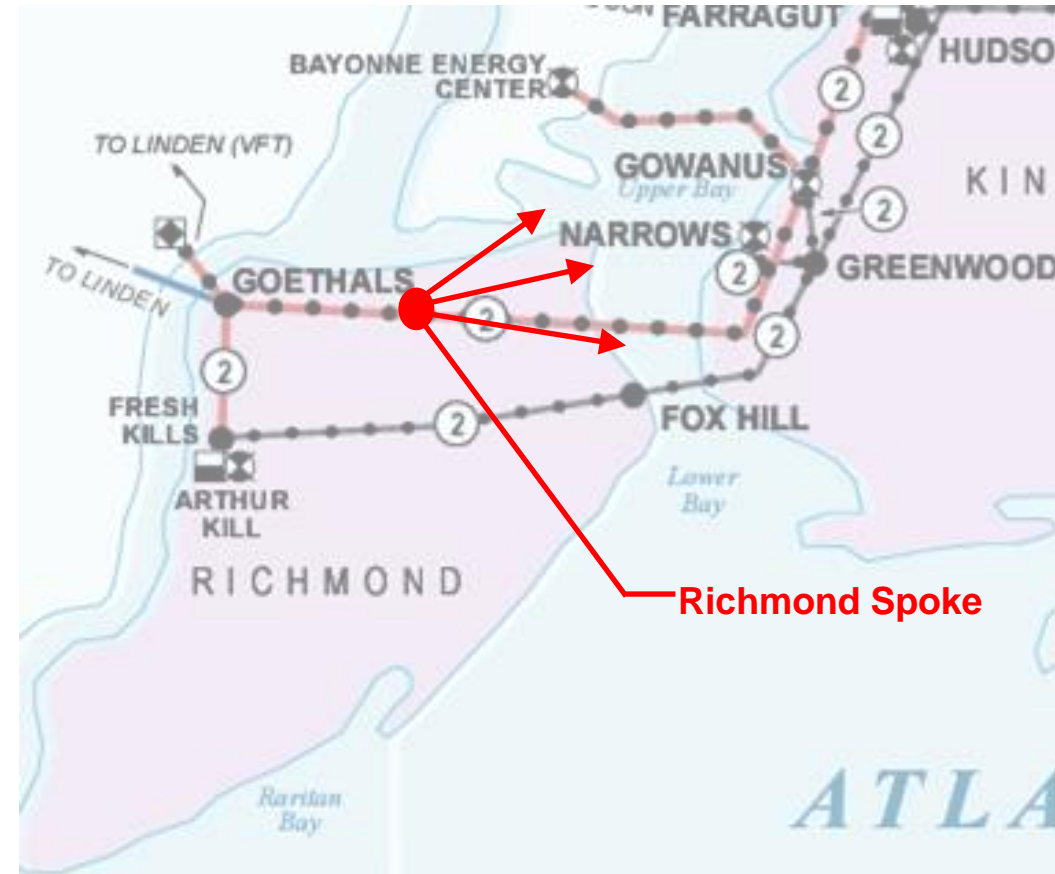
# **OSW Interconnection Solutions**

## **Richmond Spoke**

**October 3, 2022**

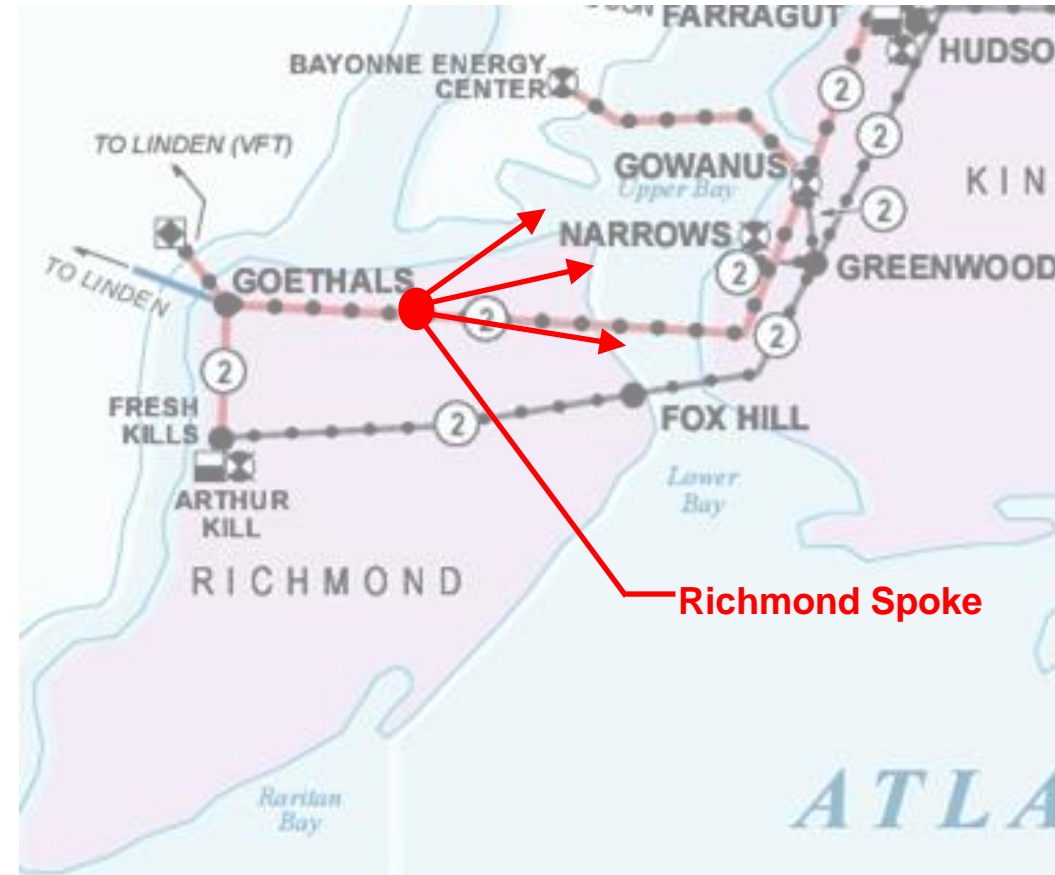
# Richmond Spoke: Overview

- Initial transmission planning studies complete, indicating injection and deliverability of 1.3 GW+
- **Interconnection Queue #1308**
- Opportunity to leverage Staten Island strengths to interconnect OSW, providing transmission and local economic development opportunities
  - Location parallel to Narrows constraint
  - HVDC Converter station feasibility
- Spokes are flexible to provide resiliency and deliverability between Staten Island and NYCA



# Richmond Spoke: Status

- Routing Study with alternates: **In Progress**
- Cost Estimates on routes: **In Progress**
- Cable landing, HVDC Converter station, and Richmond Spoke substation sites: **Evaluation**
- Cable landing and HVDC site design: **OSW Developer**
- Richmond Spoke Substation design: **Preliminary**
- Coordination on interconnection of existing circuits, routes, and cost estimates as NYISO process advances





# Richmond Spoke: Project Contacts

Interested in further collaborating on Richmond Spoke? Project contacts:

Frank D'Eufemia @ [Frank.D'Eufemia@nypa.gov](mailto:Frank.D'Eufemia@nypa.gov)

Girish Behal @ [Girish.Behal@nypa.gov](mailto:Girish.Behal@nypa.gov)

# Q&A with NYPA





## Introduction to **Renewable Ravenswood** and the **Queensboro Renewable Express** project.

*A vision for transforming New York City's largest fossil generating station into a hub for clean energy, anchored by Offshore Wind.*



**RISE**  
LIGHT & POWER

September 28, 2022

# Disclaimer

The presentation is the property of Rise Light & Power, LLC (the “Company”). This presentation and the information contained herein is only an outline of certain capabilities of the Company’s property and assets. It is not a solicitation or a request for counterparties to approach the Company or enter into any transaction with respect to the materials presented.

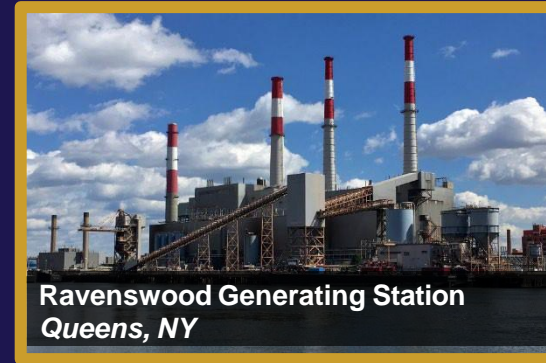
# Delivering Power to Shore is a Potential Fatal Flaw for Every Offshore Wind Project in America.

*Local opposition, particularly that focused on cable landings and onshore routing, has caused significant delays for most offshore wind farms in America.*



# Rise Light & Power and the Energy Transition.

- Rise is a wholly-owned subsidiary of LS Power
- Owns and operates the 2 GW Ravenswood Generating Station, New York City's largest generation facility
- Located on 27 waterfront acres in Long Island City
- Employs more than 100 union men and women



**Ravenswood Generating Station**  
*Queens, NY*

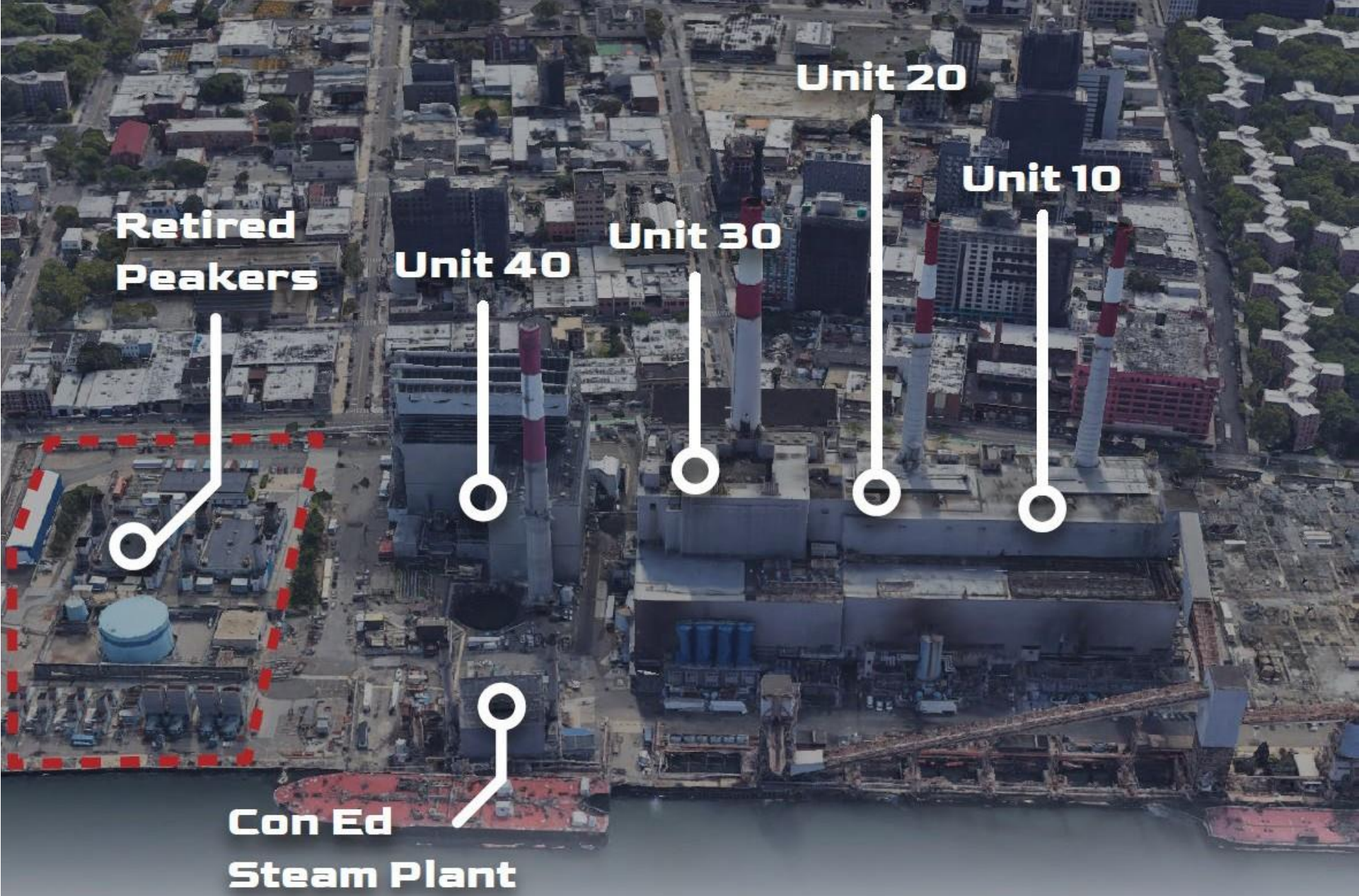


- Created in 1999 to acquire Ravenswood from Con Edison
- Acquired by LS Power in 2017
- Rebranded "Rise Light & Power" in 2020 with new focus on leveraging Ravenswood's assets and resources to develop new, large-scale clean energy infrastructure.

- Rise acquired the former Werner Power Station site located in South Amboy, New Jersey, as a hub for delivering offshore wind into the metro region
- Consists of 26 acres of dry land and 24 acres of submerged lands owned in fee.
- Ideally suited for wind power connections, with waterfront industrial property and existing substation on site



**Werner Power Station (Retired)**  
*South Amboy, New Jersey*



**RISE**  
LIGHT & POWER



**RAVENSWOOD**  
GENERATING STATION

# Ravenswood is a Critical Energy Infrastructure Asset for NYC.

**> 2,000 MW**

of installed generating capacity, the largest in New York City

**> 100**

Local employees at Ravenswood, mostly union

**~ 500 MW**

of peaking capacity decommissioned by 2023

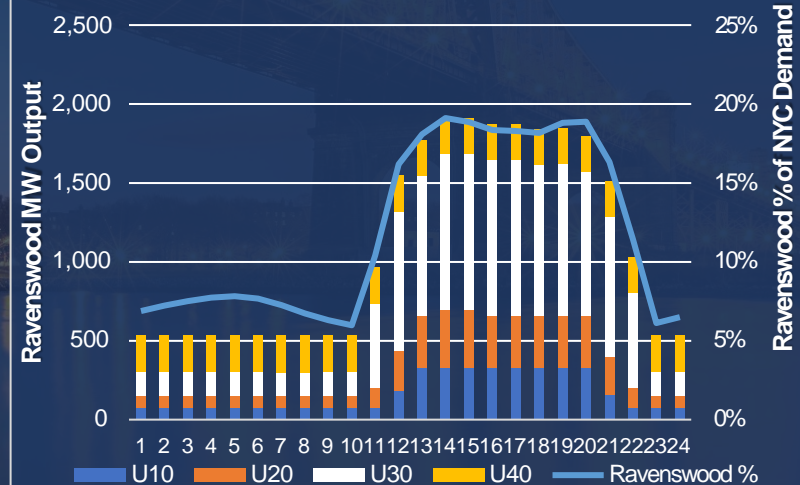
**> \$500,000**

in 2022 charitable giving to workforce development, youth & senior services, sustainability initiatives

**> 20%**

of NYC's generation during Peak Demand

Ravenswood Energy Output (7/21/2022)





# Rise is Committed to Environmental Justice.

*Located within an Environmental Justice Community, Ravenswood can be part of the solution.*

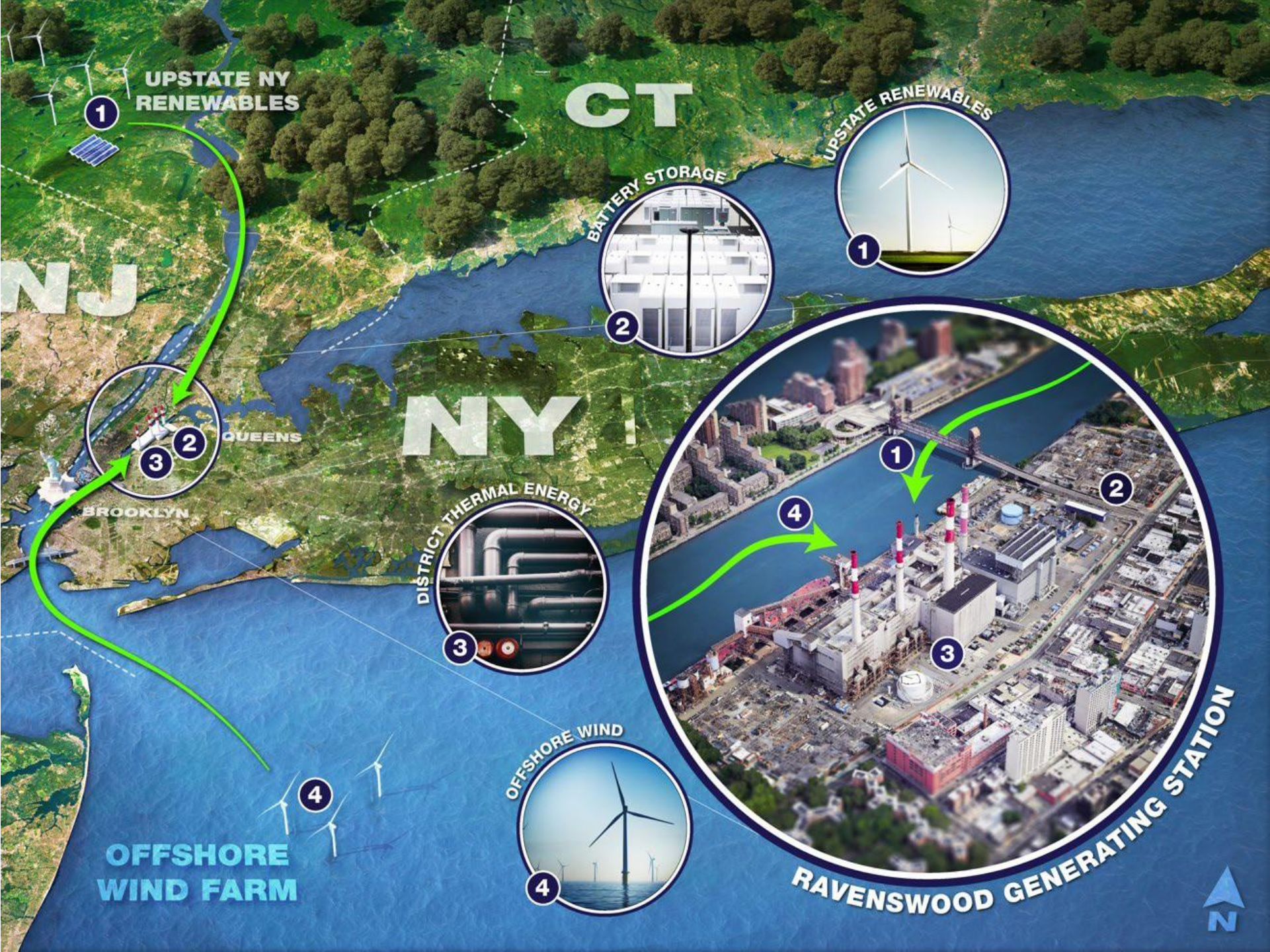
- Our neighbors include 7,500+ NYCHA units (at the Queensbridge, Ravenswood, Astoria, and Woodside Houses).
- Northwestern Queens experiences some of the highest rates of respiratory disease in all of New York State.
- Transforming Ravenswood into a clean energy hub presents an historic environmental justice victory – replacing fossil with new renewables.
- We are investing in workforce development, supply chain capacity, complementary uses of the site to achieve other policy goals.
- We aim to be an example for similar facilities; many other power generating facilities are also located in EJ communities like NW Queens, South Bronx, SW Brooklyn.



Ravenswood abuts NYCHA Queensbridge, the largest public housing development in North America.



March 2022: Rep. Maloney, Queens BP Richards, UWJA Local 1-2, and Environmental Justice Leaders gather to discuss a renewable energy future for Ravenswood Generating



## Plans developed in close coordination with Community Partners.

Supporting our partners to foster community, economic empowerment, and environmental justice.





“ With Rise, NYCHA is truly at the table for discussions about our energy future. We need to get this done!

**CLAUDIA COGER**  
**NYCHA ASTORIA**



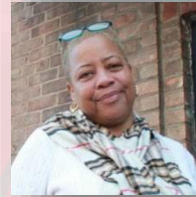
“ UWUA is proud to partner with Rise and play a key role in building New York’s clean energy future.

**JAMES SHILLITTO**  
**UTILITY WORKERS UNION LOCAL 1-2**



“ Rise’s vision goes beyond the symbolic because it delivers real environmental justice for communities that have for too long waited for it.

**EDDIE BAUTISTA**  
**NYCEJA**



“ We know Rise’s vision is possible and call on our leaders to do everything in their power to make it happen.

**APRIL SIMPSON,**  
**NYCHA QUEENSBRIDGE**



“ It isn’t just about tearing down Big Allis; it’s about building something that invests in the community. We want a renewable energy hub that offers jobs and hope.

**BP DONOVAN RICHARDS**



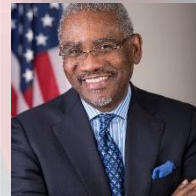
“ We supply 45% of the power and receive 100% of the pollution. Renewable Ravenswood will change that. Let’s put our money where our mouth is.

**BISHOP MITCHELL TAYLOR**



“ I applaud Rise for taking steps to transform Ravenswood to a clean energy hub. Shutting down ‘Big Allis’ is a major step forward on environmental justice.

**REP. CAROLYN MALONEY**



“ “Renewable Ravenswood’s vision for a future powered by wind, solar, and battery technology is what we need as we face this climate emergency.”

**REP. GREGORY MEEKS**



“ We need to encourage projects like this, which focus on meeting the ambitious goals laid out in the CLCPA, for a just transition and to protect our neighbors.

**SENATOR MICHAEL GIANARIS**



“ Ravenswood is a microcosm of our climate crisis but can also be a shining example of a just transition. This is a clear and exciting path forward.

**MARITZA SILVA-FARRELL, ALIGN**

# Introducing Queensboro Renewable Express.



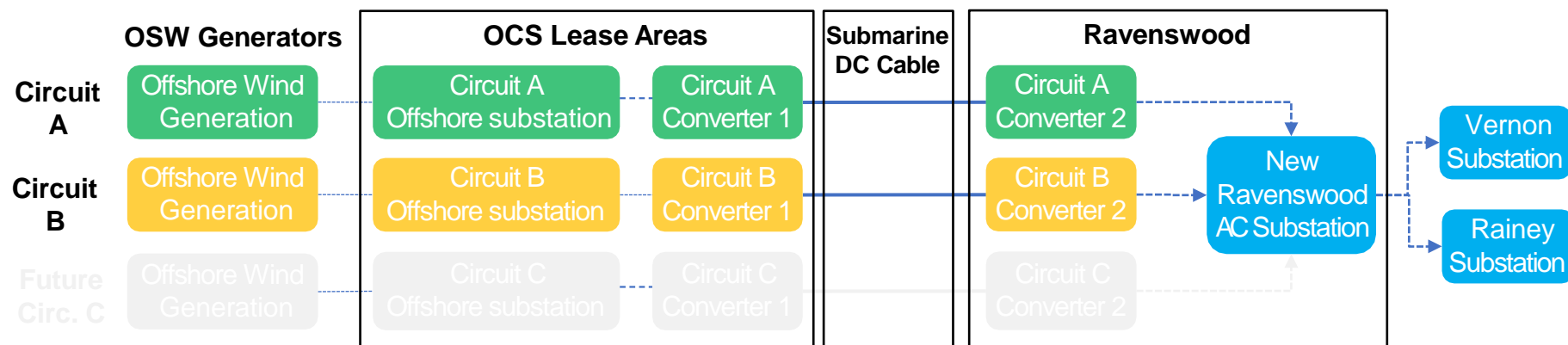
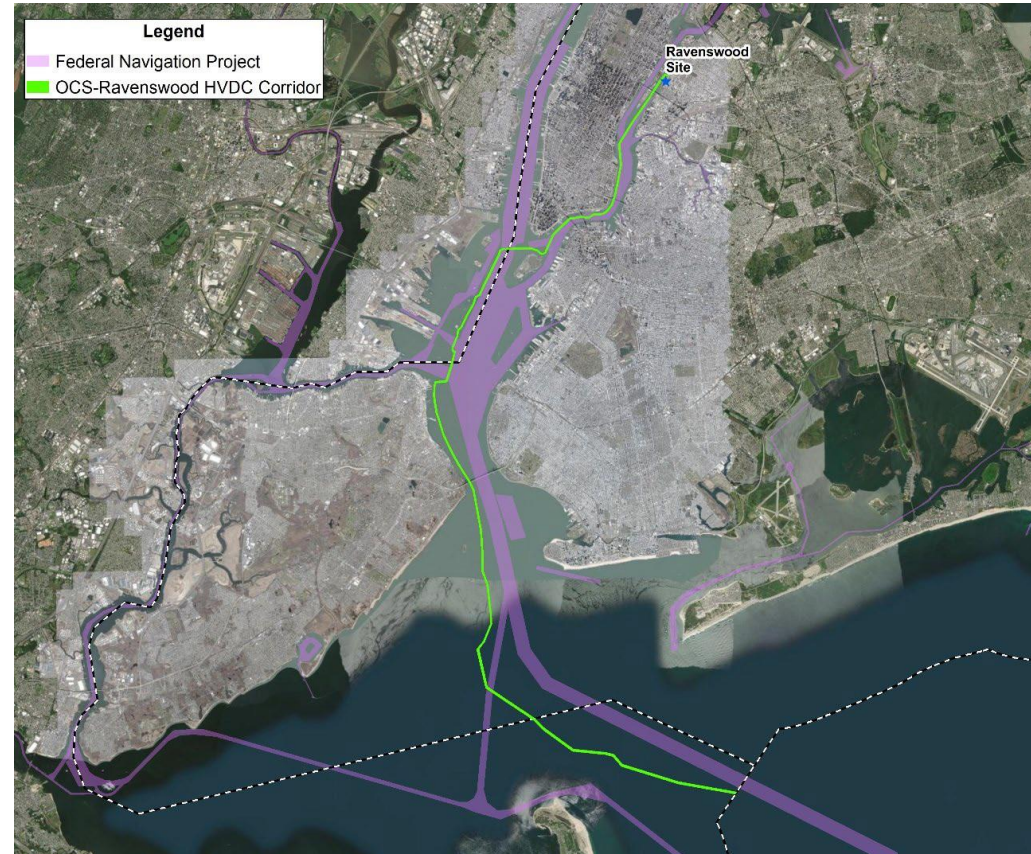
*The Queensboro project will be the first major development initiative of Renewable Ravenswood to proceed with permitting.*

- Designed to facilitate delivery of up to 3.9 GW of offshore wind at Ravenswood.
- If approved, will cause the retirement of one or more of the 1960's vintage fossil generators at Ravenswood.
- Consists of up to three submarine cables in one corridor, reducing permitting and marine conflicts and avoiding navigational restrictions
- NYS Article VII application to be submitted this fall

# Matured plan to deliver Offshore Wind to Ravenswood.

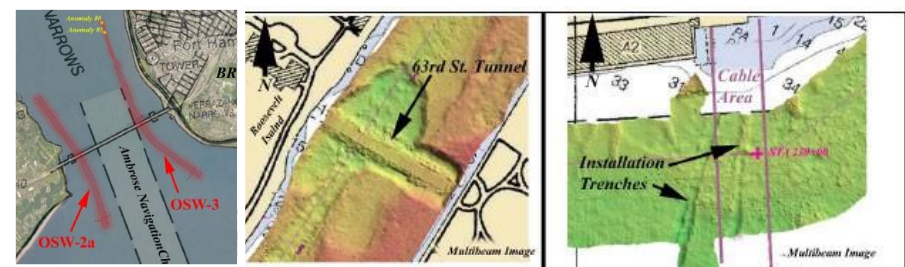
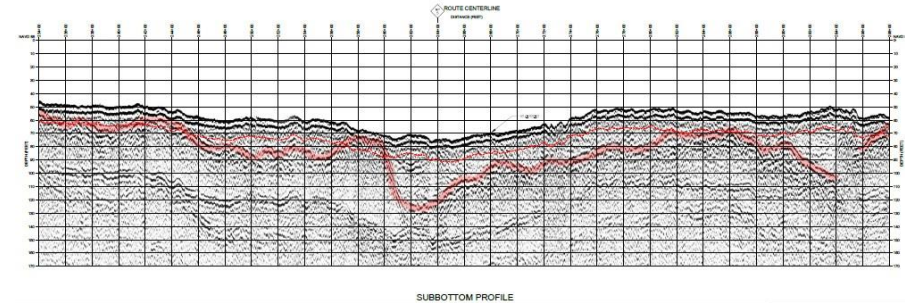
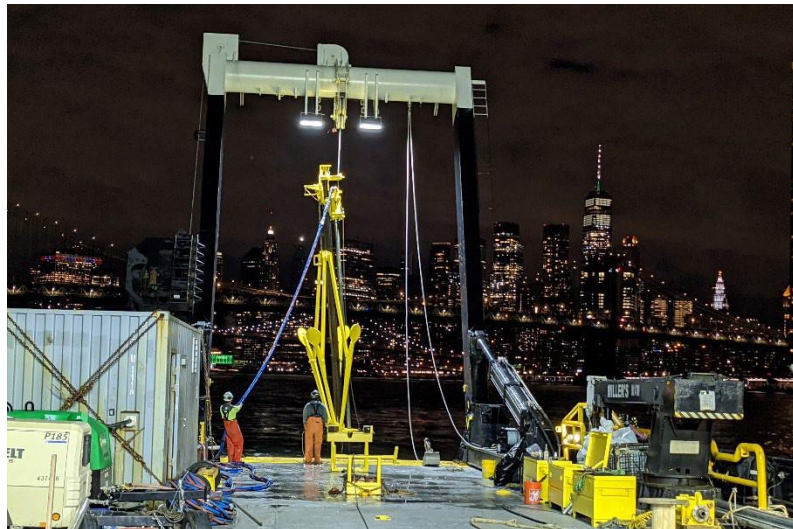
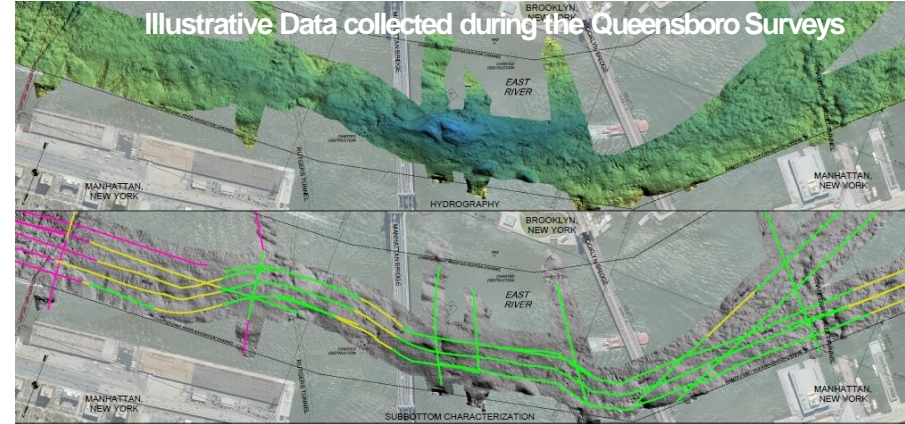
*A carefully-planned project designed to help New York achieve its offshore wind goals.*

- Consists of up to three 400kV HVDC circuits connecting multiple offshore wind farms to Ravenswood, capable of carrying 3.9 GW of offshore wind energy
- Cable route designed in collaboration with maritime interests, recently presented at the NY/NJ Harbor Operations committee
- Based on infrastructure crossings and maritime uses, we have engaged with the majority parties with interests in the proposed right-of-way

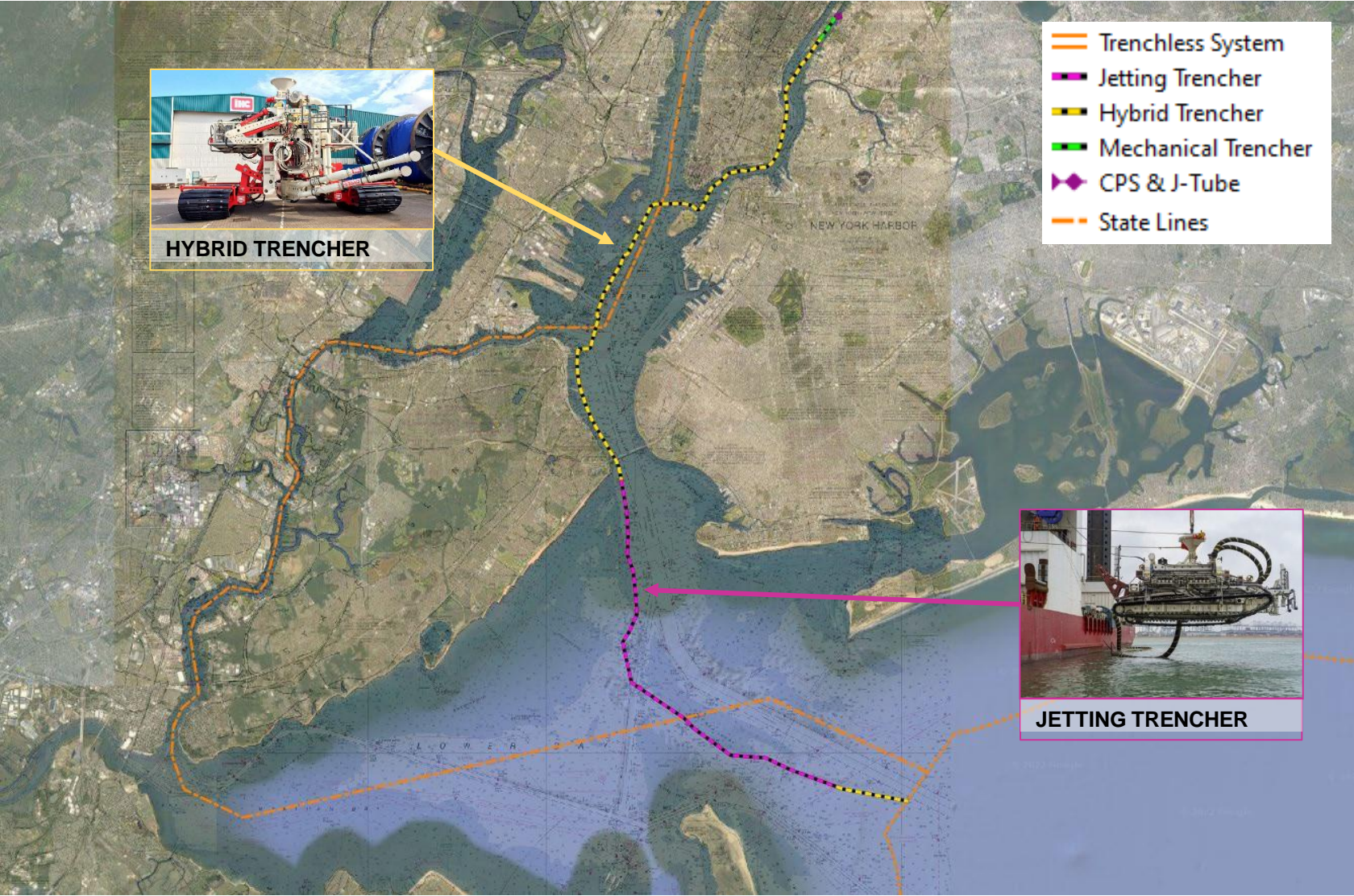


# Rise completed Marine Surveys, which confirm technical feasibility of full route to Ravenswood site.

*In preparation for submission of Article VII and USACE applications, Rise undertook comprehensive surveys of the full route.*



# Rise has Matured Plans for Cable Installation along the full Route.





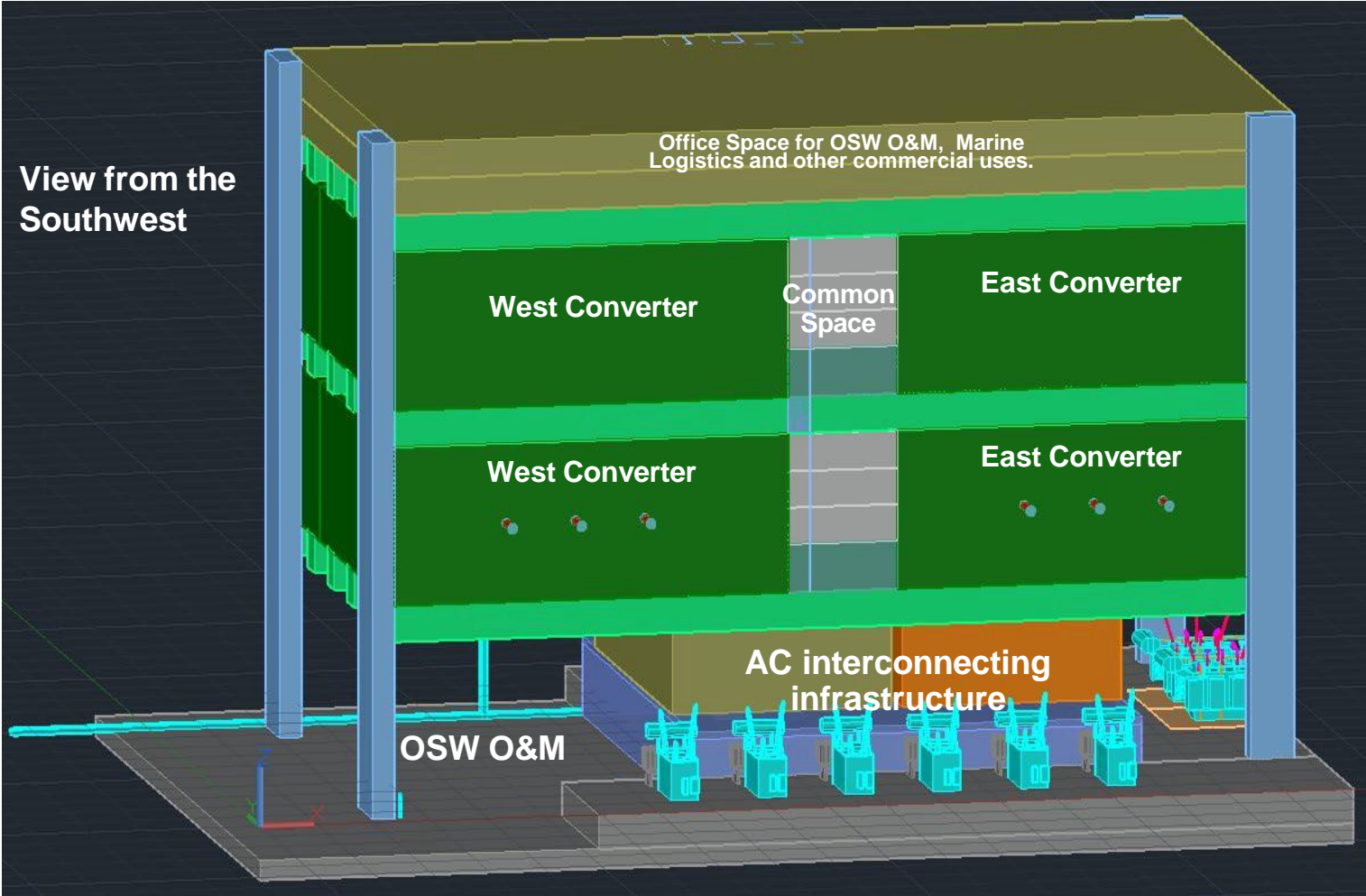
# Ravenswood can host Three Converter Stations with space for O&M.

Onshore construction will be on Ravenswood Generating Station property and adjacent interconnecting substations.



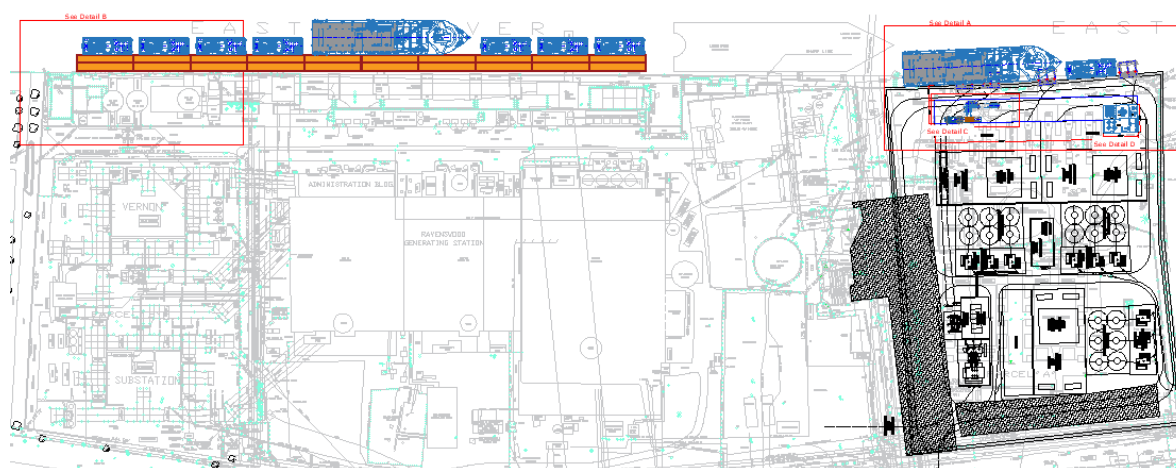
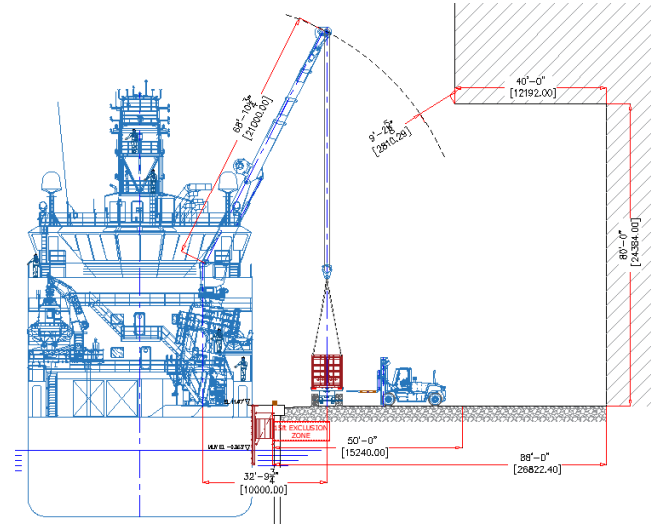
# Vertical arrangement allows greater Density.

*Based on offshore converter stations, our design provides adequate space on the GT site for two 400kV HVDC facilities, interconnecting AC infrastructure, offshore O&M storage, and other uses*



# O&M Designs Aligned with Existing and Planned Uses of the Ravenswood Quayside.

- Existing docking infrastructure provides turnkey solution for offshore wind maritime activity
- Rise has developed a conceptual layout of new hub with capacity of up to 8 CTVs & 2 SOVs, depending on vessel specifications
- Feasible alongside other future site uses (HVDC converter infrastructure, battery storage)
- Provides additional source of green jobs and new opportunities for our existing workforce and the broader community



# Thank You!

Direct Inquiries To: [Jamil.Khan@RiseLight.com](mailto:Jamil.Khan@RiseLight.com)  
[www.RenewableRavenswood.com](http://www.RenewableRavenswood.com)

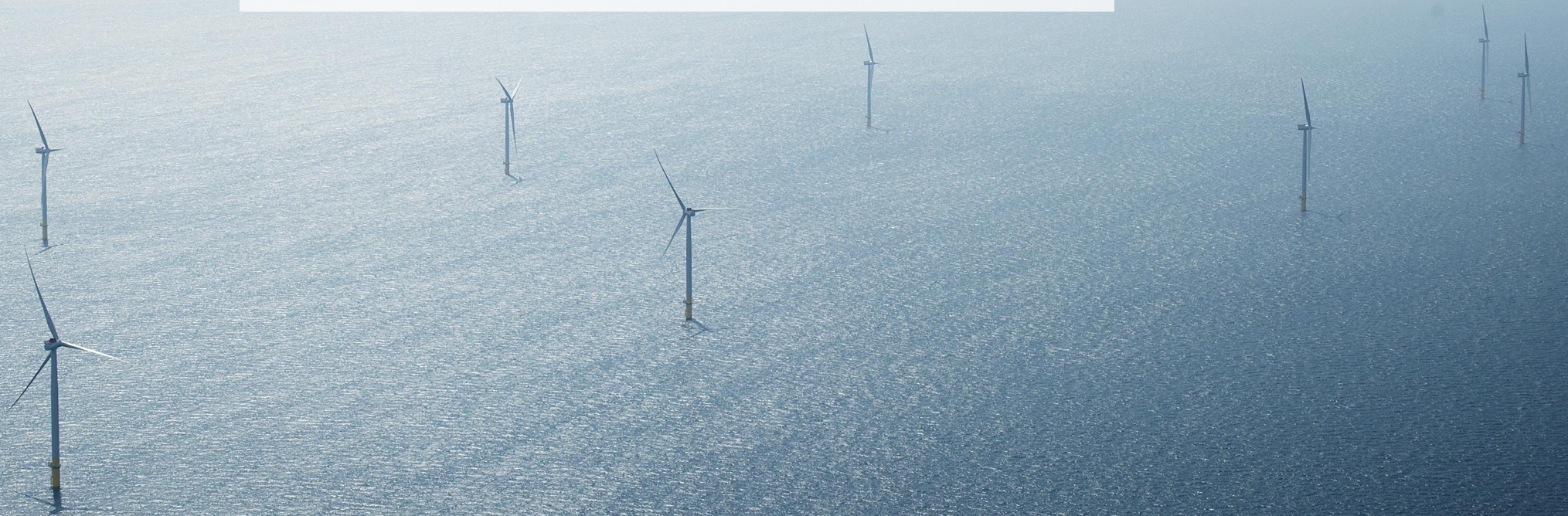


renewable  
RAVENSWOOD



**QUEENSBORO**  
RENEWABLE EXPRESS

# Q&A with Rise Light & Power



**A recording of this Webinar will soon be made available at:**

<https://www.nyscrda.ny.gov/All-Programs/Offshore-Wind/Focus-Areas/Transmission-NY-Electricity-Grid>



**NYSERDA**

