BEFORE THE STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Proceeding on Motion of the Commission to Implement Transmission Planning Pursuant to the Accelerated Renewable Energy Growth and Community Benefit Act	**CASE 20-E-0197**

PETITION OF CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. FOR APPROVAL TO RECOVER COSTS OF BROOKLYN CLEAN ENERGY HUB

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COMPANY OF NEW YORK, INC.

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Con Edison hereby petitions the Commission, pursuant to its *Order on Power Grid Study Recommendations* issued in this proceeding on January 20, 2022 (the "OSW Order"),[1] for an Order, no later than July 14, 2022, that:

1. Approves and authorizes cost recovery for the Brooklyn Clean Energy Hub because the project is necessary to achieve Climate Leadership and Community Protection Act ("CLCPA") goals;[2]
2. Determines it appropriate, in light of the statewide benefits the Brooklyn Clean Energy Hub realizes and consistent with the Commission's *Order on Local Transmission and Distribution Planning Process and Phase 2 Project Proposals*, issued September 9,

[1] *See* OSW Order at p. 22 ("The Commission … authorizes Con Edison to file a comprehensive petition addressing the Con Edison Hub …").

[2] New York Public Service Law, § 66-p.

2021 in this proceeding (the "Phase 2 Order"), that the cost of the Brooklyn Clean Energy Hub be allocated statewide on a volumetrically calculated load ratio share basis, and approves the costs of the project to be subject to the terms of the voluntary cost sharing and recovery agreement by and among the State's investor-owned utilities, Long Island Power Authority and New York Power Authority (collectively, the "NYTOs"), as approved by the Commission (the "Voluntary Agreement"), and recovered under the applicable corresponding rate schedule under the New York Independent System Operator, Inc. ("NYISO") Open Access Transmission Tariff ("OATT"),[3] when filed and accepted or approved, as applicable, by the Commission and the Federal Energy Regulatory Commission ("FERC");

3. If the Brooklyn Clean Energy Hub is in service prior to the effectiveness of the Company's FERC formula rate under the Voluntary Agreement and corresponding rate schedule described above (or if such Voluntary Agreement and rate mechanism are otherwise unavailable to recover any project related costs), then approves and authorizes cost recovery initially from Con Edison's customers through a surcharge mechanism,[4] which shall be trued up and reconciled with a statewide volumetric load ratio share cost allocation as directed by the Commission (a) upon acceptance or approval and effectiveness of the Voluntary Agreement, corresponding rate schedule and Con Edison's FERC formula rate therein or, (b) if (a) shall not occur, then

[3] The State's investor-owned utilities and LIPA (collectively, the "Utilities") filed their proposed Cost Sharing and Recovery Agreement and corresponding NYISO OATT rate schedule to implement it with the Commission in this proceeding on January 7, 2022 (the "Cost Sharing Filing"), which remained open for initial comment through February 8, 2022, pursuant to notice of the Secretary issued January 18, 2022.

[4] The Company notes that while this petition (and the statewide cost sharing it requests) is directed by the OSW Order and authorized by the Phase 2 Order, respectively, this petition's request that recovery be temporarily authorized from its customers as a backstop is also consistent with the Utilities' request in the transmittal letter of their Cost Sharing Filing.

administered by staff of the Department of Public Service ("DPS Staff") using a CLCPA cost tracker[5] or other accounting framework or mechanism the Commission shall approve; and

4. Directs Con Edison to make an appropriate tariff filing to implement any such surcharge mechanism upon its approval.

Further, consistent with the Commission's finding that "time is of the essence,"[6] the Company seeks expedited review because, as the Commission found in the OSW Order, the most effective responses to the State's planned 2022 solicitation for offshore wind generation (OSW) would result from creating viable locations to integrate that generation.[7] To facilitate timely achievement of the CLCPA's renewable energy and offshore wind mandates, Con Edison should immediately commence procurement of long-lead-time equipment and other work for the Brooklyn Clean Energy Hub and, to do so, the Company needs assurance of cost recovery as soon as possible.[8]

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[5] In their Utility Transmission and Distribution Investment Working Group Report (November 2, 2020) filed by the Utilities in this proceeding (*see* Case 20-E-0197, *Proceeding on Motion of the Commission to Implement Transmission Planning Pursuant to the Accelerated Renewable Energy Growth and Community Benefit Act* (the "Utility Report"), the Utilities recommended that "The Commission should track individual utility CLCPA project costs and consider whether costs are incurred equitably across the State [i.e., reflecting a load ratio share cost allocation] when determining the need for cost sharing." *Id*. at 4. In its Phase 2 Order, the Commission approved a volumetric load ratio share cost allocation to apply to both "new projects and incremental investments to "business as usual" projects that capture CLCPA benefits" (collectively referred to herein as "CLCPA Projects") (*see* Phase 2 Order at pp. 22-23) and found that "the participant funding model can efficiently accomplish the balancing necessary to achieve an equitable cost distribution throughout the State." (*Id.* at p. 30). Accordingly, if the envisioned participant funding, Voluntary Agreement is not effectuated, Con Edison requests that the Commission establish an alternative State-administered accounting framework to equitably distribute the Brooklyn Clean Energy Hub's costs consistent with the Phase 2 Order.

[6] OSW Order at p. 21.

[7] *See* OSW Order at p. 21. *See also* Governor Hochul's State of the State address at: https://www.c-span.org/video/?517021-1/york-state-state-address and NYSERDA's webpage available at: here.

[8] In addition, the Company has requested in its recently filed rate case (*see* Case No. 22-E-0064, *Proceedings on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service*) (the "2022 Electric Rate Case Filing") capital funding for a new area substation (*i.e.*, load serving) in Brooklyn, known as the Gateway Park Area Substation, to meet expected forecasted electric demand in parts of Brooklyn and Queens, including disadvantaged communities, beginning in 2028.

I. EXECUTIVE SUMMARY

The Commission should approve the Brooklyn Clean Energy Hub because it is necessary to meet the CLCPA's 9,000 MW offshore wind goal and because it is a high-value, multi-benefit, cost effective solution.

As the Company described in the November 2020 Utility Report filed pursuant to the Accelerated Renewable Energy Growth and Community Benefit Act (the "Act")[9] and the Commission's related Initiating Order,[10] the Brooklyn Clean Energy Hub is needed to timely achieve the State's clean energy mandates. This is so because, as the Commission noted in the OSW Order, interconnection points capable of integrating offshore wind generation into New York's grid in the amounts required to meet CLCPA OSW generation capacity targets do not currently exist in the downstate region. New York City's transmission system currently offers few, if any, open bus positions (also known as points of interconnection, or POIs) that are electrically suitable to connect new, large resources. Further, the electric system's configuration, together with limited real estate, limit possible substation expansions or additions. As the Commission stated in the OSW Order, providing "potential bidders greater transparency regarding the availability of POIs that can realistically be used to inject their generation into New York City would improve future NYSERDA solicitations. Indeed, given that the next solicitation is expected in 2022, the Commission notes that time is of the essence."[11] The Brooklyn Clean Energy Hub is, accordingly, an important first step to providing this transparency.

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[9] New York Public Service Law §§ 162, 123 and 126.

[10] Case 20-E-0197, *Proceeding on Motion of the Commission to Implement Transmission Planning Pursuant to the Accelerated Renewable Energy Growth and Community Benefit Act,* Order on Transmission Planning Pursuant to the Accelerated Renewable Energy Growth and Community Benefit Act (issued May 14, 2020) ("Initiating Order").

[11] OSW Order at p. 22. NYSERDA announced on its quarterly offshore wind call on March 15, 2022, that its 2022 solicitation will be released, and responses to it will be due, in the second and third quarters of 2022, respectively.

First, the Brooklyn Clean Energy Hub can in a single project create POIs to reliably inject up to 6,000 MW of offshore wind energy. The project will integrate these large quantities of offshore wind directly to areas within Con Edison's system where there is high electricity demand, enabling the most efficient use of the generation, including by customers located in environmental justice areas. Moreover, while the Hub enables direct use of OSW energy by nearby load, it provides multiple connections onto the Company's 345 kV system, allowing the offshore wind energy to reach all customers in and around New York City and to be exported upstate and to other regions.

Second, partly because the project uses existing utility-owned property in an electrically optimal location, the Brooklyn Clean Energy Hub can be constructed cost effectively, at modest cost relative to its extensive benefits, bringing high value to ratepayers. Indeed, the site on which the Company proposes to construct the Hub has considerable value.[12] This represents an economic benefit to New York's customers given that any other project would require the purchase or long-term lease of real property in the region – even if not ideally situated at water's edge. Moreover, Commission approval of the Hub will provide generation developers with both (1) early notice of where locations to integrate large-scale offshore wind generation will be made available; and (2) a turn-key or "make-ready" solution that will reduce, if not eliminate, uncertainty in interconnection feasibility and cost. Elimination of this uncertainty reduces any risk premium related to interconnection points that OSW developers may include in their bids, allowing developers to submit higher quality proposals in response to NYSERDA solicitations.

[12] Locating the Hub close to the waterway improves overall cost effectiveness of delivering OSW, as it allows for water approaches. And, the fair market value of waterfront property generally exceeds that of in-land property.

The Company examined other potential stations and solutions to provide the same or similar functionality and benefits provided by the Hub and has concluded that the Hub provides the best combination of cost-effectiveness, State policy facilitation, and co-benefits.

In addition to this project's ability to single-handedly materially advance the State's readiness to achieve the CLCPA's requirements, the Brooklyn Clean Energy Hub provides additional valuable benefits, such as local system resiliency. For example, the project enhances system diversity by allowing the reconfiguration of feeder connections to permit large load areas to be served by multiple sources and substations, providing additional assurance that the loss of a substation would no longer result in the loss of the system. Given the increasing frequency and severity of extreme weather events, these are important additional network reliability and resiliency co-benefits in the State's most densely populated load centers. Finally, the Hub itself will be resilient, as the Company will "storm harden" it so that it can withstand extreme weather events.

For the foregoing reasons, the Brooklyn Clean Energy Hub is a high value, cost effective and multi-benefit solution: it will enable rapid, efficient advancement towards achievement of the CLCPA's offshore wind goals, while also significantly enhancing the system's resilience in the event of a contingency's occurrence. Accordingly, consistent with the OSW Order, the Phase 2 Order, and the Initiating Order, the Company respectfully requests that the Commission approve construction of the Brooklyn Clean Energy Hub and authorize recovery of its costs under the Voluntary Agreement and corresponding rate schedule under the NYISO OATT or, in the alternative (in the event such Agreement and rate schedule are not timely approved or available), grant the Company surcharge recovery of project related costs initially from its customers, subject to future adjustment to a statewide load ratio share, on the terms described herein.[13]

II. BACKGROUND

A. CLCPA and the Renewable Energy and OSW Mandates

New York State has, by its 2019 enactment of the CLCPA, committed to achieving one of the most ambitious plans to decarbonize and address climate change of any major economy in the world. The legislation requires 70 percent renewable energy by 2030; 100 percent carbon-free electricity by 2040; and 85 percent economy-wide decarbonization from 1990 levels by 2050. The CLCPA also specifies minimum amounts of certain resource types, including, of relevance here, 9,000 MW of OSW generation by 2035.

It is widely understood, not only by the State's political leaders and policy makers, but also by industry experts and market participants, that meeting these milestones will require fundamental change in how electricity is produced, transmitted, and consumed throughout the State. It is also well understood – as both the Act and the Power Grid Study[14] the Commission initiated under it attest – that complying with CLCPA's directives cost-effectively will depend upon forward-thinking electric transmission and distribution infrastructure planning and investment.

The Brooklyn Clean Energy Hub is a product of such forward-thinking infrastructure planning. The Company proposes this Hub to be sited in an optimal location (geographically – close to shore to allow for water-side interconnections that minimize more costly land-side cable

[13] Finally, as the Commission requested, the Company provides information regarding converter stations as detailed in section V below.

[14] DPS Staff, working with NYSERDA, filed the Initial Report on the Power Grid Study, including the Power Grid Study, in January 2021. *See* Case 20-E-0197, *Proceeding on Motion of the Commission to Implement Transmission Planning Pursuant to the Accelerated Renewable Energy Growth and Community Benefit Act,* Initial Report (filed January 19, 2021) (Power Grid Study Report).

routing – as well as electrically – at the heart of New York City load centers) to cost-effectively integrate large volumes of clean energy produced offshore from Wind Energy Areas in the New York Bight[15] and other offshore wind generation locations so that the clean energy is fully deliverable to and usable by highly populated load centers nearby, as well as, during low load periods, in other parts of the State.

B. The OSW Order

The OSW Order recounts the Power Grid Study's conclusion that interconnecting the CLCPA target of 9,000 MW of offshore wind generation should be achievable if the system is developed in a "well-coordinated"[16] way "that optimizes POIs with the capabilities of the existing transmission system,"[17] among other things. The OSW Order further recounts that the OSW Study component of the Power Grid Study[18] evaluated every New York City and Long Island substation above 69 kV to attempt to identify interconnection locations that may deliver the required 9,000 MW of OSW into New York City and Long Island. While the OSW Study identified in its base case certain locations and injection capacities for such integration, it noted that a "major"[19] unresolved issue is whether those locations "have the physical space necessary to accommodate the upgrades for the planned injections."[20] Moreover, both the OSW Order and the Power Grid

[15] Refers to areas in the Atlantic Ocean (south of New York City and Long Island and east of the New Jersey coastline) that may be auctioned for wind energy lease by the U.S. Department of the Interior's Bureau of Ocean Energy Management.

[16] OSW Order at p. 18, citing the Power Grid Study at p. 62.

[17] *Id.*

[18] OSW Study refers to the "study of offshore and onshore bulk power transmission infrastructure scenarios, and related environmental permitting considerations, to illustrate possible solutions to integrate the mandated 9,000 megawatts (MW) of offshore wind" that had been conducted by the State. *See Id.* at p.2.

[19] *Id*. at p.19.

[20] *Id.*

Study Report note that "'reliability needs and space limitations for adding necessary interconnection equipment to existing Con Edison substations might be an obstacle to implementing the OSW Study's recommendations."[21] This, together with certain recent events,[22] caused the Commission to "call into question"[23] some of the OSW Study's base case assumptions.

Finding that additional work is needed to identify plausible scenarios to interconnect offshore wind generation into New York City at the levels identified in the OSW Study and that "time is of the essence"[24] to provide potential bidders with "greater transparency regarding the availability of POIs that can realistically be used to inject their generation into New York City,"[25] the Commission stated that "the record in this proceeding shows that Con Edison may have a potential solution."[26]

The OSW Order acknowledged that Con Edison had identified in the Utility Report several projects with broad regional CLCPA benefits[27] needed to integrate feasibly and cost-effectively 9,000 MW of OSW into New York City and Long Island. It further observed that the project Con Edison called "New York City Clean Energy Hub #1" in the Utility Report – which is the Brooklyn Clean Energy Hub project described herein – would be sited "directly adjacent" to the Farragut substation and "between the Farragut and Rainey substations" and thus be electrically consistent

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[21] *Id*. at p. 20.

[22] OSW Order at p. 20.

[23] *Id.*

[24] *Id.* at p.21.

[25] *Id.*

[26] *Id.*

[27] The Utility Report called projects that have needs cases driven primarily by achieving CLCPA targets "Phase 2" projects.

with the OSW Study's findings while addressing space constraints.[28] The Commission stated: "Given the recognized difficulty in finding feasible and cost-effective POIs in space-constrained lower Manhattan, the Con Edison Hub appears to be a potential solution for offshore wind generation injected into New York City."[29] The Commission thus authorized Con Edison to file a comprehensive petition addressing the Con Edison Hub.[30]

C. Eligibility for Cost Recovery under the Voluntary Agreement and the Need for Backstop Cost Recovery

The Company also files the instant petition consistent with the directives of the Phase 2 Order. Specifically, the Phase 2 Order held that the costs of "new projects and incremental investments to "business as usual" projects that capture CLCPA benefits"[31] (collectively, "CLCPA Projects") should be allocated statewide on a volumetric load ratio share basis, and that "the participant funding model can efficiently accomplish the balancing necessary to achieve an equitable cost distribution throughout the State."[32] The Brooklyn Clean Energy Hub is such a CLCPA Project.

III. APPLICABLE ANALYSIS

A. Con Edison Transmission Planning Standards

When expanding and incorporating new facilities on its system, Con Edison must adhere to its published Transmission Planning Criteria: Specification TP-7100.[33] That specification

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[28] *See Id.* at p. 22.

[29] *Id.*

[30] *Id.*

[31] Phase 2 Order at pp.22-23.

[32] *Id.* at p.30.

[33] Available at: https://www.coned.com/-/media/files/coned/documents/business-partners/transmission-planning/transmission-planning-criteria-2017.pdf

describes the planning criteria to assess the adequacy of the Company's Bulk Electric System ("BES") and certain non-BES 138 kV and 69 kV systems (collectively, the "Transmission System") to withstand design contingency conditions in order to provide reliable supply to all Con Edison customers throughout the applicable planning horizon. The specification establishes Fundamental Design Principles and Performance Criteria. These two components complement each other, and adherence to both is required by all new projects proposed both by the Company and independent developers that connect to the Company's Transmission System. In addition to Specification TP-7100, all facilities – generation and transmission – must be designed to adhere to all applicable North American Electric Reliability Corporation ("NERC"), Northeast Power Coordinating Council ("NPCC"), and New York State Reliability Council ("NYSRC") Reliability Rules, including NYSRC Local Reliability Rules, as well as applicable Con Edison specifications, procedures, and guidelines.

B. The Need for Brooklyn Clean Energy Hub

New York's CLCPA sets ambitious emissions and clean energy targets. For New York to achieve the law's requirements – such as 70% renewable energy by 2030 and 100% zero-emission electricity by 2040 – the State will need to change the way it generates, interconnects, and uses power.

Among CLCPA's imperatives is to interconnect 9,000 MW of OSW by 2035. Due to the geographic location of OSW and the need for nearby, on shore injection, the OSW must be connected to the downstate region. Moreover, due to the large size of OSW connections (projected to be 1,200 – 1,500 MW), the OSW must be connected to the unconstrained portion of the high capacity 345 kV transmission system for the OSW to be fully deliverable. Con Edison, through its assessment and application of CLCPA needs and Con Edison's Transmission Planning Standards (which includes short circuit, power flow and stability assessments), has developed a proposal for a local transmission project – the Brooklyn Clean Energy Hub – that addresses these concerns. The Hub creates POIs, or “on-ramps,”[34] for up 6,000 MW of OSW (the amount identified in the OSW Order) or other renewable resources that would be deliverable to New York State customers through the existing local New York City transmission system via the unconstrained portion of the 345 kV transmission system.

C. <u>Location of the Brooklyn Clean Energy Hub</u>

As the OSW Order preliminarily recognizes, the most effective local system expansion to enable New York to meet the CLCPA’s requirements is through a holistic, coordinated approach that would establish a single Hub that can accommodate high volumes of large-scale OSW injection. Con Edison designed the Brooklyn Clean Energy Hub to be a “make ready” substation that eliminates the need for additional system upgrades to accommodate OSW interconnection (such as, for example, station expansion for additional bus positions or breakers). It is a feasible solution at a lower cost than the status quo and the alternatives and can establish POIs by 2027.

Figure 1 below shows the high-level topology of the existing portion of Con Edison’s local 345 kV transmission system. The figure identifies two major 345 kV load centers – Rainey (in Queens) and Farragut (in Brooklyn) – that together supply a diverse set of customers. Rainey (pictured on the left) supplies customers in Upper Manhattan and Midtown, while Farragut (pictured on the right) supplies customers in parts of Brooklyn, Queens, and lower Manhattan.

[34] The Utility Report (at pp. 16, 58) described “on-ramps” as transmission projects that enhance renewable generation utilization by enabling renewable generation to move into the bulk system.

Together, these two load centers support about 2,500 MW of in-city load, including environmental justice communities.

Furthermore, Rainey and Farragut are two of the main 345 kV substations within Con Edison's service territory with multiple existing 345 kV and 138 kV transmission outlets. Although Rainey and Farragut are 345 kV substations interconnected with the rest of the transmission system, their primary function is to support load in New York City. The system topology is driven by New York City's high population density: the City represents one-third of the load in the entire state and is highly concentrated in a small geographical area where space for energy infrastructure is limited. As such, Con Edison's local system is unique when compared to the rest of the state. That is, it must use high voltages (*i.e.,* 345 kV) to efficiently serve its load. These stations are generally not used for cross-state or cross-regional power transfers.[35]

The two stations connect to each other with three high capacity 345 kV transmission feeders that, due to current system topology (e.g., distribution of generation, load), have significant spare transmission capacity.

[35] Accordingly, and as further set forth below, the Brooklyn Clean Energy Hub is a local transmission project, as defined by the Commission in its Initiating Order at p.3, fn. 4 ("transmission line(s) and substation(s) *that generally serve local load* and transmission lines which transfer power to other service territories and operate at less than 200 kV") (emphasis added).

Figure 1: Existing Portion of Con Edison's 345 kV System

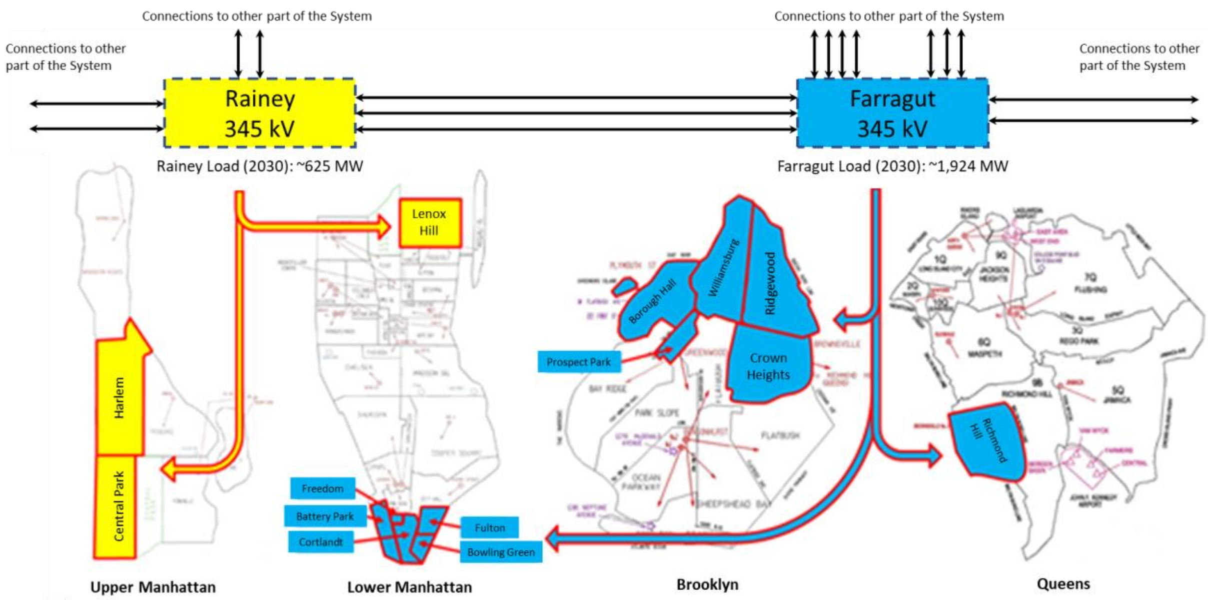
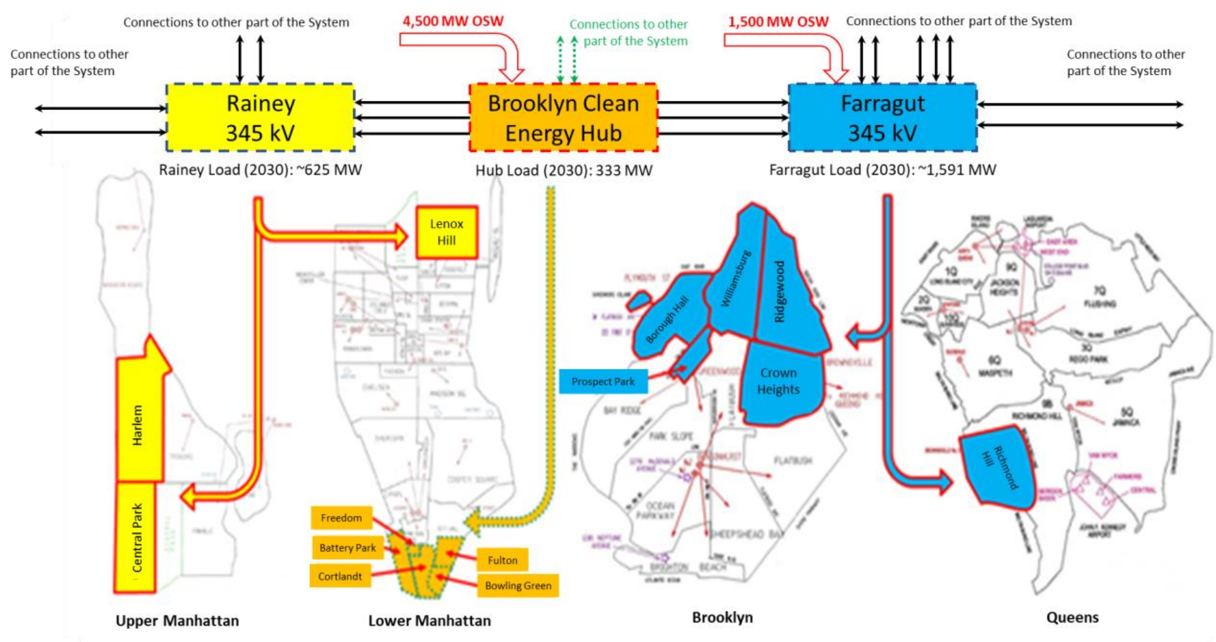


Figure 2 (below) shows the electrical location of the Brooklyn Clean Energy Hub, where the Hub will intercept the three high capacity 345 kV transmission feeders, currently with significant spare capacity, between the Rainey and Farragut substations. The interception of these three existing 345 kV transmission feeders results in the Hub having six 345 kV transmission outlet feeders. The project also relocates two existing 345 kV feeders currently connecting Farragut in Brooklyn with the East 13th Street substation in Manhattan so that these two existing feeders are connected to the Hub. This reconfiguration allows for additional outlet headroom from the Hub (i.e., from six to eight 345 kV transmission outlet feeders), which can accept injection of 4,500 MW of large-scale renewable generation at the Hub. Moreover, this reconfiguration opens two bus positions at Farragut (previously occupied by the feeders moved to the Hub) for a potential to inject an additional 1,500 MW of large-scale renewable generation. In addition, the project transfers some load that Farragut currently supplies to the Hub. This load transfer allows for additional injection of large-scale renewable generation at the Hub, as the load would be directly supplied by offshore wind without the need to transfer some of the energy to the rest of the system. Like the existing Rainey and Farragut 345 kV substations, the Brooklyn Clean Energy Hub will be highly integrated with the rest of the local 345 kV transmission system that Con Edison operates. And, in addition to creating locations for OSW to connect and distributing energy from OSW resources to customers, the Hub would support load in New York City. The project's feeder relocation and load transfer components provide for greater resiliency and reliability to the local transmission and distribution network to mitigate the impacts of extreme weather events on our infrastructure and, correspondingly, our customers. Additionally, the Brooklyn Clean Energy Hub was designed to accommodate the additional load being connected to it, as electrification is forecasted to increase electricity demand in New York City.

Figure 2: Inclusion of the Hub within Con Edison's 345 kV System



Overall, the Brooklyn Clean Energy Hub would be a highly integrated, central part of Con Edison's local transmission system that could be depended on to support load and maintain local system reliability. The energy from large-scale OSW injection at the Hub will not only supply load directly by displacing fossil generation, but also through eight free flowing 345 kV transmission feeders to the densely populated Rainey and Farragut load centers of Central Park and Harlem (in Manhattan), Borough Hall, Prospect Park, Williamsburg, Ridgewood, and Crown Heights (in Brooklyn), and Richmond Hill (in Queens),[36] and, on low-load days, potentially further to other upstate and downstate New York customers.

IV. PROPOSED PROJECT

A. Description of Project

The Brooklyn Clean Energy Hub project is a 345 kV transmission substation located adjacent to Con Edison's Farragut substation on Con Edison-owned property in Brooklyn, New York. The project will create POIs for large scale renewable resources, specifically offshore wind generation. The Hub substation will include five 345/138 kV transformer banks that will provide supply to Con Edison's existing World Trade Center and South Street Seaport substations (Nos. 1 and 2) in Lower Manhattan (refer to Figure 2) as well as future area substations (creating approximately 1,600 MW of headroom). This project will require demolition of retired facilities and the Company will complete its construction in two stages as described below.

The project will re-purpose real property currently occupied by an office building and Con Edison's Hudson Avenue Gas Turbine Nos. 3, 4 and 5 (Hudson Ave GTs). The Hudson Ave GTs are expected to be retired on November 1, 2022. The re-purposed property being used for the

[36] As noted elsewhere herein, the Company intends to rely on the Brooklyn Clean Energy Hub, for example, to provide crucial electric supply to the Gateway Park Area Substation, a new area substation needed in 2028 and proposed in the Company's pending rate case to "create smaller, more resilient network areas that will directly benefit the reliability throughout the outer boroughs of Brooklyn and Queens that include disadvantaged communities" and "allow for a greater portion of offshore wind to be delivered within this area. …" *See* 2022 Electric Case Filing, CLCPA Panel Testimony at p. 67.

Brooklyn Clean Energy Hub is all part of Con Edison's Hudson Avenue Generating Station facility in the Vinegar Hill neighborhood of Brooklyn. As a result, several buildings on this property will be demolished to provide the space necessary for construction of the Hub. The demolition will begin in the fourth quarter of 2022.

The first stage of construction will include the design and construction of a double ring bus substation with twenty 345kV circuit breakers, six POIs and four 345/138kV transformer banks. Three existing 345kV feeders (61, 62 and 63) between Con Edison's Farragut and Rainey 345kV substations will be intercepted and diverted into the Brooklyn Clean Energy Hub. At the conclusion of this stage of construction in 2027, the Hub will be in service and ready to accept large-scale renewable generation.

The second construction stage of this project will include creating two more POIs (at Farragut Substation), re-routing existing feeders B47 and 48 to the Hub, a fifth 345/138kV transformer, while also re-routing the Seaport and Trade Center supply feeders 38M11-38M15 to the Brooklyn Clean Energy Hub. The 345kV transmission feeders B47 and 48 are currently connected to Farragut Substation (from E13th Street substation) and this stage of construction will move their connection over to the Hub. The vacated positions from feeders B47 and 48 at Farragut create two additional POIs for OSW. Shifting the supply of Seaport/Trade Center loads from the Farragut 345 kV Substation to the Brooklyn Clean Energy Hub will improve resiliency and reduce load loss during an extreme contingency event. To serve load growth and enhance resilience, the Hub will also be capable of supplying additional five-transformer bank load-serving substations, including (but not limited to) any new area stations that may be constructed pursuant to the Company's pending rate case. In summary, upon completion of the second phase of construction, the project will create POIs for injection of 6,000 MW of OSW: 4,500 MW at the Brooklyn Clean

Energy Hub, and 1,500MW at its adjacent Farragut Substation. Both the Brooklyn Clean Energy Hub and the Farragut substation will be built to capable of withstanding extreme weather (see Storm Hardening section below) and comply with all applicable reliability criteria, including North American Electric Reliability Corporation (NERC) standards for "extreme contingencies" as specified in NERC Standard TPL-001-4. The second phase of construction will be complete in 2032.

As indicated in Exhibit A, the currently estimated total cost of the Brooklyn Clean Energy Hub project is $1 billion.

B. <u>CLCPA Justification</u>

The Brooklyn Clean Energy Hub is needed to timely achieve the CLCPA's clean energy mandates for each of the reasons described below.

1. **Makes Offshore Wind Injection Possible.** Offshore wind's geographic proximity to the downstate region makes its connection to land there advantageous. Further, the magnitude of the OSW injection to achieve CLCPA requires that the OSW be connected to the free flowing, unconstrained part of 345 kV system to provide for its deliverability and usability. However, the expandability of New York City's transmission system is highly limited. As discussed in more detail below in the Alternatives section, there are few bus positions in existing substations available, creating the need for costly local upgrades to interconnect. The Brooklyn Clean Energy Hub addresses these issues: it creates POIs electrically suitable to inject 6,000 MW of wind that do not currently exist, while leveraging existing infrastructure and synergies with distribution system needs to do so cost effectively.

2. Provides Maximum Capacity of Wind Injection and Delivery at Least Cost. The Brooklyn Clean Energy Hub can singlehandedly create points to reliably interconnect up to 6,000 MW of offshore wind energy. The project will integrate these large quantities of offshore wind directly to areas within Con Edison's system with high electricity demand, including environmental justice communities, enabling the most efficient use of the generation. Moreover, while the Hub enables direct use of OSW energy by nearby load, it provides multiple connections onto the Company's 345 kV system, allowing wind generation to reach all customers in and around New York City and to be exported upstate and to other regions during on and off-peak conditions.

Under the current approach of separately planning for each individual OSW project's interconnection, connecting a considerable amount of new energy to the New York City grid is likely to require costly upgrades to make that energy deliverable.[37] As described above, the Brooklyn Clean Energy Hub project provides a deliverable outlet path for 6,000 MW of OSW without additional transmission upgrades. This deliverability characteristic makes the location of the Brooklyn Clean Energy Hub unique within the Con Edison system.

3. "Make Ready" Interconnection Solution Speeds Generation Projects and Reduces Their Costs. As the OSW Order recognizes, the Hub reduces project risk and uncertainty for OSW generation developers with both (1) early notice of where locations to integrate large-scale offshore wind generation will be made available and (2) a turn-key or "make-ready" solution that will reduce or eliminate interconnection feasibility and cost uncertainty. OSW developers will be positioned to submit high-quality proposals based on firm costs into state

[37] Under the NYISO OATT studies must be performed to determine transmission system upgrades needed to reliably interconnect the new generation (called System Upgrade Facilities) as well as to "deliver" that generation for purposes of being recognized as a capacity resource (called System Deliverability Upgrades). Studies are performed in a class year, and cost assignments for such upgrades are often substantial. *See* Attachment S of the NYISO OATT.

procurement solicitations, producing superior RFP results. Because developers are likely to include 'risk premiums' in their pricing when faced with significant project uncertainty, the Company believes that the Hub, by reducing project uncertainty, will result in more cost-effective bids from OSW developers.

4. Repurposes Property Previously Dedicated to Fossil-Fuel-Burning Generation. The Company proposes to construct the Brooklyn Clean Energy Hub on the site where the Company's kerosene-burning Hudson Avenue Gas Turbines 3 and 5 are located. The Company elected to retire the 1970-era Gas Turbines following enactment of the air emissions regulations, known as the "Peaker Rule," by the New York State Department of Environmental Conservation in 2019. The project thus advances CLCPA goals of reducing fossil fuel use and improves the environment locally and regionally by both demolishing dirty emitting resources and making way for their replacement with clean energy resources.[38]

C. Cost Effectiveness and Alternative Solutions

As described above, the Company planned the Brooklyn Clean Energy Hub through a holistic, coordinated approach to timely meet the State's clean energy goals. The project enables achievement of CLCPA renewable power goals by addressing electrical and physical feasibility constraints that pose significant barriers to system expansion in New York City's densely populated load center.[39] It will also create multiple points of interconnection onto the 345 kV

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[38] Another way that the Brooklyn Clean Energy Hub assists the State to support the goals of CLCPA is by providing additional Transmission System capacity and operational flexibility necessary to accommodate the future load growth from electrification in the heating and transportation sectors that must occur to achieve the goals. Specifically, in addition to being able to support additional load-serving area substations, the Brooklyn Clean Energy Hub will create about 1,600 MW of headroom – an amount that can help to maintain reliability as future demands from electrification are placed upon the system to meet the State's clean energy goals.

[39] Electrical feasibility is the cost effectiveness of adding points of interconnection to an existing substation. Physical feasibility is the cost effectiveness of expanding the footprint of a substation.

system that can, in a geographically and electrically central location, accommodate large volumes of large-scale renewable generation injection.

The Company designed the Brooklyn Clean Energy Hub to be a "make ready" station that, by creating interconnection "on-ramps," avoids costlier system and deliverability upgrades that would otherwise be necessary if clean energy developers relied instead on existing substations requiring expansion (for example, by adding bus positions or breakers). It is a feasible solution that, as further described below, is less costly than alternatives.

First, it is important to note that using interconnection points currently occupied by peaking or other fossil fuel-fired generating plants to connect offshore wind is neither practical nor advisable for several reasons. Because the Company has largely divested all its generation, nearly all the greenhouse gas-emitting generation that exists in the downstate region is owned by third parties and therefore not under the Company's ownership or control. The rules governing POIs are established by the NYISO and FERC; consequently, any Company effort to repurpose them would involve significant legal and practical challenges. The only electric production the Company maintains is associated with its steam system. And because the Company plans to decarbonize its steam system while maintaining its cogeneration capability, it needs to retain those interconnection points for the electric production.

Second, New York's need to maintain a reliable electric system prevents the use of POIs occupied by generators that contribute to that reliability. The NYISO has a process for resource retirements to ensure that reliability criteria are consistently met. Fossil fuel-fired generation cannot disconnect from the grid if reliability needs are identified until replacement resources that provide the necessary reliability contribution are online. Thus, POIs held by such resources are not likely to be available. Moreover, if they do become available, it is certain that their re-use will require significant capital investment to adhere to the most recent NERC, NPCC and New York State Reliability Council (NYSRC) Reliability Rules (including Local Reliability Rules) as well as Con Edison specifications, procedures, and guidelines (from which the existing generators are grandfathered). As a result, use of such interconnection points by new resources is not likely to be economical compared to the Hub.

Finally, nearly all the downstate peaking and other fossil fuel-fired generating plants are interconnected to the 138 kV system. The 138 kV system is not capable of integrating large injections from even a single OSW project much less the volume of OSW the CLCPA requires. The number of connections that would be needed to accept thousands of megawatts of OSW exceed by large numbers those that are available. Moreover, the 138 kV system cannot accommodate the kind of power flows OSW would generate. For example, a typical underground 138 kV feeder can carry about 200 MW while a typical underground 345 kV feeder can carry about 700 MW of energy. Power flows that exceed transmission lines' capabilities could threaten to overload them and would certainly result in bottled generation: that is, generation that is neither deliverable nor usable. For these reasons, connection to the 138 kV system will not provide the MW capacity called for by the OSW Order. In addition, the 138 kV system is better sized to accommodate energy storage resources, for which the State also has ambitious but lower requirements than OSW, which the OSW Order affirms will be needed in New York City.[40]

Thus, connecting to the 345 kV system is the only feasible way to integrate the 6,000 MW that the OSW Order finds New York City needs to achieve the State's goals. And as noted above, the unavailability of capacity – both physically and electrically – to expand the system through

[40] See OSW Order at p. 26 ("For example, the [Power Grid] Study projects that by 2040, over 4,000 MW of energy storage will be needed in New York City and over 3,000 MW on Long Island.")

existing substation expansion renders the status quo (*i.e.*, developers relying on the NYISO's existing interconnection rules to integrate generation) costly, if feasible at all.

The Company presents here an avoided cost analysis that compares, on an investment per MW of interconnected capacity basis, current interconnection requests from Class Year 2019 to what the Hub can achieve. The comparison demonstrates the Brooklyn Clean Energy Hub's cost effectiveness. The table below lists NYISO published costs of interconnection for major generation facilities as compared to the Brooklyn Clean Energy Hub.

Comparative Interconnection Cost	Project Size (MW)	Cost ($/MW) Proposed Projects*	Cost ($/MW) Brooklyn Clean Energy Hub**	Relative Cost Effectiveness
Low	1,000	$242,153	$166,667	1.45
Medium	1,172	$332,744		2.00
High	258	$1,216,153		7.30
Weighted Average		$389,257		2.34

**Low is CHPE: Astoria Annex 345kV, Medium is North Bergen Liberty: W49th St. 345kV and High is Ravenswood ESS: GIS Intercepting Farragut-Rainey 345kV based on 2019 NYISO Class Year Study*
***Brooklyn Clean Energy Hub: $1,000M / 6,000 MW of POI's = $166,667/MW. Any additional interconnection costs (e.g., breakers, NYISO fees, etc.) are de-minimis.*

Specifically, the table compares three recent publicly announced major merchant interconnection requests: Champlain Hudson Power Express (CHPE) into the Astoria Annex, North Bergen Liberty into West 49th Street, and Ravenswood Energy Storage System (ESS) intercepting Farragut-Rainey. These three requests span the low, medium, and high ends of estimated interconnection costs for generators of the scale and magnitude comparable to OSW connections. The range of costs shown above are much more than the Brooklyn Clean Energy Hub, which has a relative cost effectiveness of 2.34, based on a weighted average avoided cost.

Further, using NYISO's assumed OSW capacity factor of 45%,[41] the Brooklyn Clean Energy Hub can integrate offshore wind, for example, at a cost of $0.85 to $1.06/MWh.[42]

The Hub is therefore the only project that is physically feasible and can be in-service by 2027 for the proper implementation of the CLCPA's OSW goals. For example, the Company considered expanding the Gowanus substation (Gowanus Expansion Project). However, the existing limited transmission feeder outlets there are fully used by the existing and proposed resources (including OSW injection from an existing project that is in development).[43] To achieve outlet capability comparable to the Hub, Gowanus's expansion would require installation of several additional 345 kV transmission lines to match the capability that the Hub offers (at 6,000 MW). In fact, *any* additional injection at Gowanus would require a new outlet feeder. This would require creating POIs for transmission interconnection not only at Gowanus but at other Con Edison substations within New York City that do not currently exist. Such requirements would increase the scope of the project substantially – both as to its cost and time to implement – and based on physical constraints may be infeasible. Further, establishing additional points of interconnection at Gowanus would require a second ring configuration and expanding into adjacent property that is not owned by Con Edison, adding further expense and time. The Gowanus Expansion Project would thus have a much larger scope and cost than the Hub and may not be physically feasible.

Further, the difficulties associated with injecting offshore wind on Staten Island are even more challenging than those associated with the Gowanus Expansion Project. First, in the Con

[41] Reflects capacity factor NYISO used in the recent SRO capacity expansion results for 2035.

[42] Calculation is $1,000M/ (6000 MW*8760 hours * 45% capacity factor) for offshore wind that would operate from 40 years to 50 years.

[43] Empire Offshore Wind, LLC proposes to connect its 816 MW EI Sunset Park project to the Gowanus substation.

Edison system, Staten Island resides "behind" the Gowanus substation electrically: power injected on Staten Island has limited transmission outlet capability, with much of the power needing to pass through the Gowanus substation to reach the rest of the transmission system. This makes Staten Island electrically bottled. And it means that *all* the upgrades needed to expand the Gowanus substation (*i.e.*, the multiple new 345 kV feeders, creating a second ring bus at adjacent property, and creating POIs at Gowanus and at other Con Edison substations where they don't currently exist) would *also* be needed to establish OSW interconnection points on Staten Island. Further, significant additional electrical upgrades would be required on Staten Island. For example, to match the required injection of OSW into the Staten Island portion of the transmission system, several additional 345 kV transmission lines between Staten Island and Gowanus would have to be installed. For these reasons, establishing an interconnection location for offshore wind on Staten Island at this time would be far more expensive than the Brooklyn Clean Energy Hub, if feasible at all.

For all these reasons, the Brooklyn Clean Energy Hub is the most cost-effective solution to integrate OSW into New York City.

D. Additional Benefits of the Brooklyn Clean Energy Hub

Not only is the Brooklyn Clean Energy Hub the optimal solution to achieve CLCPA's offshore wind and clean energy mandates, but the project brings multiple additional benefits to the local system that only enhance its value and cost effectiveness.

1. Supply to Future Load-Serving Area Stations. Because Con Edison proposed the Brooklyn Clean Energy Hub project to establish a major substation within its system, capable of integrating and transmitting 6,000 MW of clean energy generation, it will have the capacity to supply future load-serving substations in New York City, including in areas most densely populated and with the highest electricity demand. For example, the Hub will be the supply source for the new 27 kV Gateway Park Area Substation, which will serve the reliability needs of the Company's stressed Brooklyn and Queens load centers that include disadvantaged communities and can supply other stations in the future as electricity demand grows due to electrification or other factors.

2. Resilience Benefits. Recent events have demonstrated that extreme weather events caused by climate change can materially harm the integrity of energy infrastructure, causing major disruption of the delivery of power to customers and threatening the safety and security of New Yorkers. As New York races to mitigate climate change by greening the grid, it is also important to strengthen our energy system's resilience to such extreme weather events, to reduce the severity and duration of their impact on customers, for so long as such events occur. The Brooklyn Clean Energy Hub provides these local system resiliency benefits.

a. Enhanced System Diversity Can Avoid Power Outages and Improve Restoration Times When Outages Occur. As noted above, the Hub enhances system diversity by allowing the reconfiguration of feeder connections (i.e., between the Hub and Farragut to area stations) to permit large load areas to be served by multiple sources and substations, providing additional assurance that the loss of even key substations in the case of an extreme contingency will no longer result in the loss of the system. Additionally, by allowing for the potential to confine the scope of a loss-of-load event, the added flexibility and redundancy the Hub brings will permit the Company to restore the system more quickly, reducing the impact of power outages on customers.

b. Storm Hardening and Enhanced Security. The Brooklyn Clean Energy Hub will be an indoor transmission substation (as opposed to an outside, open-air substation) that is weather hardened. Specifically, the Company will build the Hub to a higher flood protection standard of the 2015 FEMA +5 and with other storm hardening measures, as further described in the Appendix hereto. The project itself will produce a resilient station capable of withstanding extreme weather. In addition, the project will improve local system resilience by providing enhanced protection and security to equipment from storm damage. And shifting load from the Farragut substation to the Hub enables the dense load centers that will be fed from the Hub to reap the reliability and resilience benefits of this new construction.

c. Advanced Technology. Finally, the Brooklyn Clean Energy Project will seek to use state-of-the-art equipment and the most advanced information systems available, to ensure minimal impact to the environment (such as from dielectric release) while also providing the capability for optimal operation and maintenance of the facility after it is placed in service. In addition to providing access to up 6,000 MW of OSW or other renewable resources, the Brooklyn Clean Energy Hub could also spur other clean technology advancements, such as long duration energy storage by, for example, producing and storing green hydrogen for later use.

V. CONVERTER STATIONS

The OSW Order underscored the importance of considering cable design and routing to achieving CLCPA targets. Specifically, the OSW Order anticipates that future awards of OSW generation will use high voltage direct current (HVDC) transmission,[44] as it requires about one-third the number of cables as alternating current (AC) for the same amount of energy (an important consideration where undersea cable corridors are space constrained).[45] Accordingly, although the

[44] *See* OSW Order at p. 23 ("[M]ost, if not all, of the remaining offshore wind generation to be solicited in the future may be injected into New York City through an HVDC line.")

[45] *Id.* at p.15.

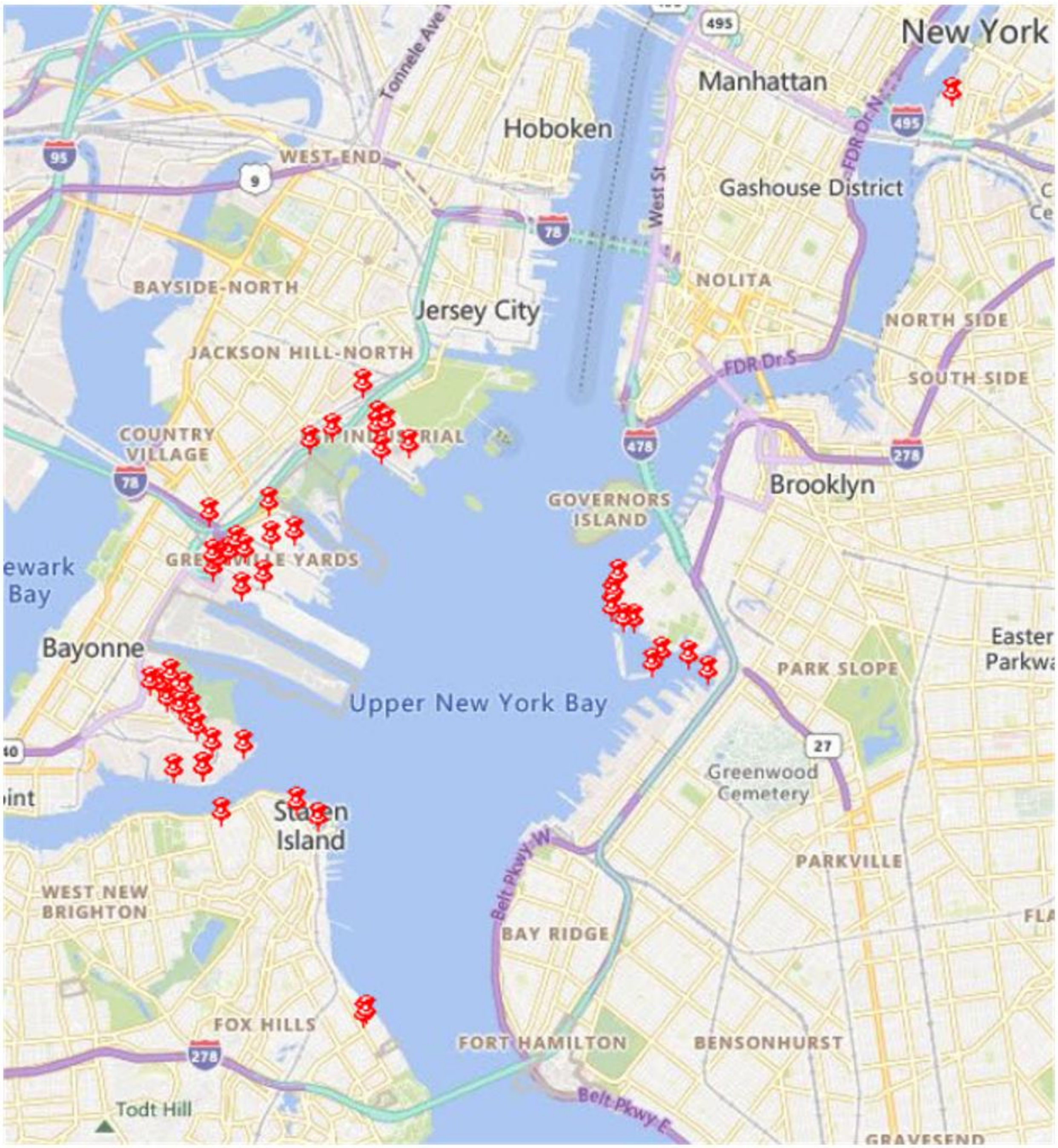
Brooklyn Clean Energy Hub project is limited to those elements described above and on the Appendix hereto, the OSW Order required the Company to consider where converter stations associated with HVDC lines may be located so as to inform whether offshore wind developers seeking to interconnect to the Hub may be able to do so in a manner that is not "infeasible or cost prohibitive."[46]

In response to the OSW Order's directive, the Company conducted a review of industrial zoned property in Brooklyn, Staten Island, Queens, and New Jersey that, alone or in combination with up to two other adjacent parcels, are at least five acres in size and therefore potentially suitable to site a 1,200 MW HVDC VSC converter. The Company's review has revealed that 57 parcels meet this criterion in these geographic areas. Specifically, after further eliminating sites that would require laying alternating current (AC) cable either (1) through the Newtown Creek or the Gowanus Canal (each of which has been designated a federal superfund site by the U.S. Environmental Protection Agency and therefore should be considered inaccessible) and (2) through the Narrows[47] (due to the undersea space constraints there), the Company has identified twelve sites in Brooklyn (located within the Red Hook, Gowanus and Sunset Park neighborhoods); five sites on the North Shore of Staten Island; one site in Long Island City in Queens, and 39 sites in Northeastern New Jersey (located in the Bayonne, Greenville Yards and

[46] *Id*. at p. 24.

[47] The "Narrows" here refers to the waterway beneath the Verrazano Narrows Bridge between Brooklyn and Staten Island. It is preferable to locate the converter station north of the Narrows so that AC cables would not have to traverse the Narrows.

Jersey City areas), as reflected on the map below. Further, our review shows that at least some parcels are on vacant land.



The Company has not investigated the cost to acquire any such properties, potential environmental conditions or constraints that may be associated with such properties, nor property owners' willingness to sell or lease nor considered any unique siting considerations. Nevertheless, the review shows numerous properties north of the Narrows that do not require use of waterways undergoing environmental remediation that meet the OSW Order's criteria, demonstrating that it would not be infeasible or cost prohibitive to site a HVDC VSC converter station to supply the Brooklyn Clean Energy Hub.

The Company further advises, based only upon its own experience performing construction projects in its service territory, that a reasonable estimate of the cost to run a 345 kV AC transmission tie line from a converter station to the Brooklyn Clean Energy Hub is $47 million per mile under-ground (without considering interferences or obstructions that may be encountered). Similarly, the Company believes that a reasonable estimate of the cost to run that same line under water, based on a recent feasibility study, is $20.5 million per mile (excluding any cost to land the underwater cable, which is location specific). Of course, actual costs may vary, depending upon the precise location of the cable route and actual conditions. Due to the possibility of encountering underground obstructions and the challenges associated with digging up New York City streets, the Company anticipates that approaching the Hub from a waterway would be preferable. Distances between the Brooklyn Clean Energy Hub and Bayonne, Greenville Yards and Jersey City in New Jersey generally range between 2 to 6 miles; distances between the Hub and Red Hook, Gowanus, and Sunset Park in Brooklyn range between 2 and 4 miles; the distance between the Hub and the Northern Shore of Staten Island is about 8 miles, and the distance between the Hub and Long Island City is about 4 miles, using the shortest *(i.e.,* water) routes. Because the on-land converter station must be paired with the converter station the offshore wind developer installs in the ocean, the Company does not propose to construct the on-land converter station, and none is included in the Brooklyn Clean Energy Hub project. The Commission stated with respect to this matter that it "understands that the offshore wind developer would be responsible for the costs associated with the converter station and interconnection into the Con Edison Hub, it nevertheless needs this information to gain an understanding of whether the Hub would make the interconnection cost prohibitive." [48]

In sum, based on the results of its real property review, connecting an AC tie line to the Hub should not be "infeasible or cost prohibitive"[49] due to "logistical and/or cost impacts."[50]

VI. COST ALLOCATION AND COST RECOVERY MECHANISM

A. Cost Allocation

Consistent with the Phase 2 Order, the Company proposes to recover its costs incurred for the Brooklyn Clean Energy Hub from all the State's customers on a load ratio share basis, as has occurred for major clean energy projects that will help to achieve CLCPA objectives.

Specifically, as described herein, the Hub is a multi-benefit, cost-effective CLCPA project that provides high-capacity injection and delivery of offshore wind generation, enabling the State to make rapid progress towards achieving the State's 70 percent renewable energy by 2030 and 9,000 MW of OSW mandates. Further, by providing early notice of interconnection locations and "make ready" solutions, the Brooklyn Clean Energy Hub removes interconnection uncertainty, which, as the Commission found in the OSW Order, will improve NYSERDA's 2022 and future wind solicitations. The Brooklyn Clean Energy Hub will therefore facilitate offshore wind

[48] OSW Order at p. 24.

[49] *Id.*

[50] *Id.*

renewable development and improve the environment. Because these CLCPA-related environmental benefits accrue to all New Yorkers, the Phase 2 Order directs that the Commission allocate such costs throughout the State on a volumetrically calculated load ratio share basis. Con Edison thus requests that the Commission determine that the project costs should be recovered pursuant to the Voluntary Agreement (and corresponding rate schedule under the NYISO OATT) that the NYTOs filed with the Commission on January 7, 2022.

B. <u>Cost Recovery</u>

Con Edison requests that the Commission issue an order authorizing cost recovery for the development and construction of the Brooklyn Clean Energy Hub as soon as possible, *i.e.*, by July 14, 2022 because of: (1) the near-term CLCPA need to create viable, favorable locations to connect offshore wind generation to New York's electric grid arising from NYSERDA's anticipated competitive solicitation for offshore wind renewable energy credit purchase contracts this spring; and (2) the amount of time needed to properly engineer, design, permit and construct transmission projects in the downstate region.

Assuming timely approval of the Utilities' proposed Voluntary Agreement by the Commission and filing with and acceptance or approval, as applicable, by FERC, the Company expects the contemplated rate mechanism and the Company's formula rate thereunder to be in place and usable by the Company well in advance of the project's projected 2027 in-service date. However, if the envisioned Voluntary Agreement , corresponding rate schedule and Company formula rate are not accepted and/or approved and effective prior to the Brooklyn Clean Energy Hub's in-service date (or the same is otherwise unavailable to recover Hub related costs), then Con Edison requests that it be authorized to recover the project's costs and revenue requirement initially from its own customers through a surcharge mechanism.[51] In addition, however, such costs should be trued up and reconciled to effect a statewide volumetric load ratio share cost allocation (a) upon acceptance or approval and effectiveness of Voluntary Agreement, NYISO OATT rate schedule and Con Edison FERC formula rate or, (b) as administered by staff of the Commission using a cost accounting framework or mechanism the Commission shall approve. The Company requests that it be granted this cost recovery, but only to the extent that the Voluntary Agreement and rate mechanism, in the forms thereof signed and/or otherwise approved by the Company, the other NYTOs and this Commission, have not been accepted and/or approved by FERC or are otherwise not available for use on the date the Brooklyn Clean Energy Hub enters service.

VII. NEED FOR EXPEDITED REVIEW

The Company seeks the Commission's expedited review and approval of this petition by its July 14th session. The Company needs to commence as soon as possible the engineering, design and construction work, and procurement of long-lead-time equipment related to the Brooklyn Clean Energy Hub to create optimal locations to integrate offshore wind. Because the State has announced it will issue its next OSW request for proposals this spring, with responses due before the end of September, the Company needs approval of this project with assurance of cost recovery as soon as possible to allow wind developers sufficient time to properly plan their projects to respond to the State's solicitation. As the Commission noted in the OSW Order, "time is of the essence."

[51] The carrying charge includes a return on the amount placed in service and related depreciation expense at its current allowed weighted average cost of capital.

VIII. CONCLUSION

For the reasons set forth herein, Con Edison respectfully requests that the Commission review this petition on an expedited basis, and issue an Order no later than July 14, 2022, that:

1. Approves and authorizes cost recovery for the Brooklyn Clean Energy Hub because the project is necessary to achieve CLCPA goals;
2. Determines it appropriate, in light of the statewide benefits the Brooklyn Clean Energy Hub realizes and consistent with the Commission's Phase 2 Order, that the cost of the Brooklyn Clean Energy Hub be allocated statewide on a volumetrically calculated load ratio share basis, and approves the costs of the project to be subject to the terms of the Voluntary Agreement, and recovered under the applicable corresponding rate schedule under the NYISO OATT, when filed and accepted or approved, as applicable, by the Commission and the FERC;
3. If the Brooklyn Clean Energy Hub is in service prior to the effectiveness of the Company's FERC formula rate under the Voluntary Agreement and corresponding rate schedule described above (or if such Voluntary Agreement and rate mechanism are otherwise unavailable for whatever reason to recover any project related costs), then approves and authorizes cost recovery initially from Con Edison's customers through a surcharge mechanism, which shall be trued up and reconciled with a statewide volumetric load ratio share cost allocation as directed by the Commission (a) upon acceptance or approval and effectiveness of the Voluntary Agreement, corresponding rate schedule and Con Edison's FERC formula rate therein or, (b) if (a) shall not occur, then administered by DPS Staff using a CLCPA cost tracker or other accounting framework or mechanism the Commission shall approve; and

4. Directs Con Edison to make an appropriate tariff filing to implement any such surcharge mechanism upon its approval.

Dated: April 15, 2022

Respectfully submitted,

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Exhibit A
Detailed Description of the Brooklyn Clean Energy Hub Project

Detailed Description of the Brooklyn Clean Energy Hub Project

I. Project Description.

The Brooklyn Clean Energy Hub Project will establish a transmission substation between Con Edison's Rainey 345kV Substation and its Farragut 345kV Substation by intercepting existing 345kV feeders 61, 62 and 63. The transmission substation will create six (6) points of interconnection (POIs) for offshore wind generators. The project will also make available an additional two positions at the Farragut Substation for an additional two (2) points of interconnection. In summary, upon completion of the second phase of construction, the project will create POIs for injection of 6,000 MW of OSW: 4,500 MW at the Brooklyn Clean Energy Hub, and 1,500MW at its adjacent Farragut Substation.

The transmission substation will consist of a double-ring bus substation with twenty (20) 345kV circuit breakers, fourteen (14) 345kV feeder positions and five (5) 345/138kV transformer banks. Establishing the transmission substation will include intercepting three existing 345kV feeders (61, 62 and 63) between the Farragut and Rainey 345kV Substations and diverting them into the Brooklyn Clean Energy Hub.

The Company will weather-harden this indoor transmission substation by building it to a flood protection standard of the 2015 FEMA PFIRM 1% annual flood probability (*i.e.,* base flood elevation, plus 3 feet of sea rise and 2 feet of freeboard (FEMA + 5)). The design will include the placement of critical substation systems, such as relay panels and the control room, on the second floor of the building. Mechanical systems will be located on the roof whenever possible.

The project will be completed in two phases. The initial construction phase shall include the design and construction of a double ring bus substation with twenty 345kV circuit breakers, six POIs, four 345/138kV transformer banks and intercepting feeders 61, 62 and 63.

The second construction phase of this project will include adding two more POIs, re-routing feeders B47 and 48 to the Hub, adding a fifth 345/138kV transformer, and re-routing the Seaport and Trade Center supply feeders to the Brooklyn Clean Energy Hub. Specifically, the 345kV transmission feeders B47 and 48 are currently connected to Farragut Substation (from E13th Street); this phase of the project will disconnect the feeders from Farragut and re-establish their transmission system connection at the Hub. The two additional POIs for OSW are created at Farragut Substation by the positions vacated by feeders B47 and 48. Additionally, the Seaport/Trade Center loads that are currently supplied by the Farragut 345 kV Substation will instead be reconnected and supplied by the Brooklyn Energy Hub. The Brooklyn Clean Energy Hub will also be capable of supplying additional five-transformer area load-serving substations.

II. Real Estate

This project will use the (retired) Hudson Avenue Generating Station property in the Vinegar Hill neighborhood of Brooklyn. Various buildings on this property will be demolished to provide space for the construction of the Hub.

III. Permitting

Construction of the Brooklyn Clean Energy Hub will require permits from the New York City Department of Buildings (DOB) and may require permits from other agencies.

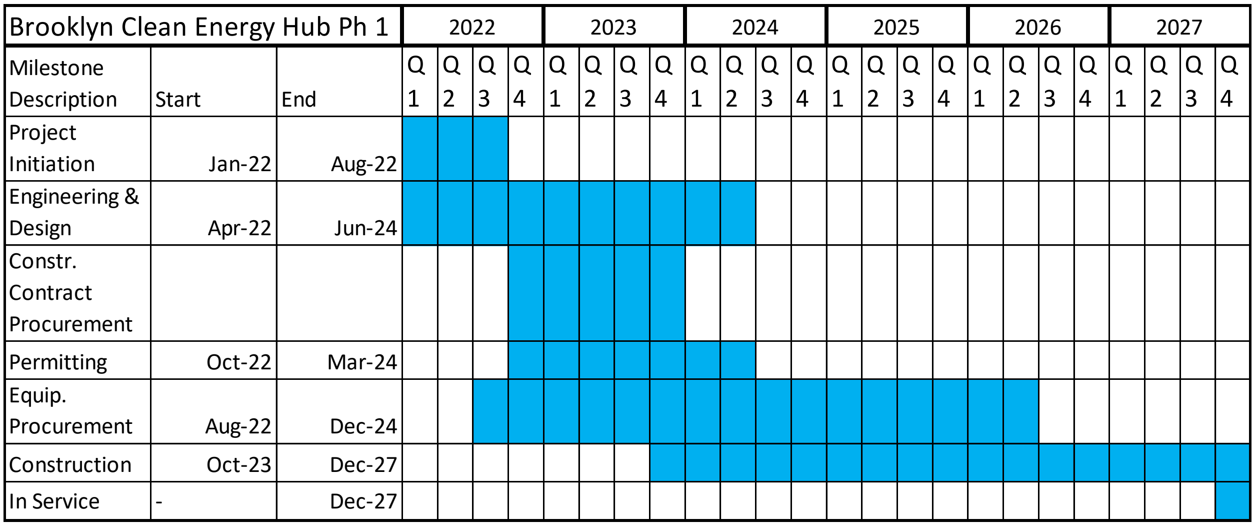
Construction of the transmission feeder portion of the project will be within New York City streets, which requires street opening permits from the New York City Department of Transportation and may require additional state or local permits or approvals.

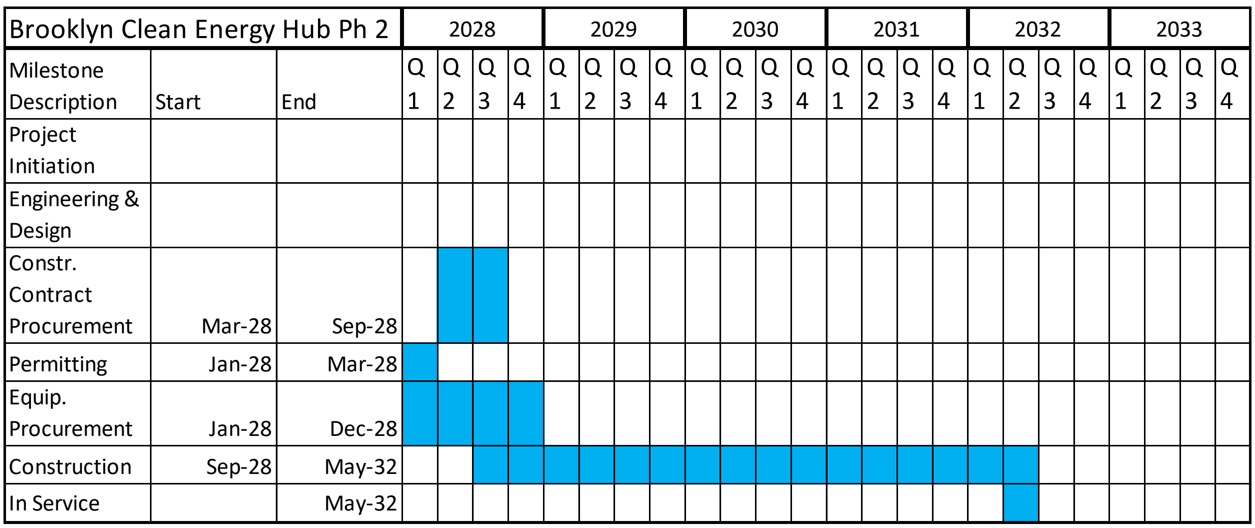
IV. Estimated In-Service Date

The Brooklyn Clean Energy Hub (Phase I) is expected to be in service by December 2027. Phase II of the Brooklyn Clean Energy Hub is expected to be complete by summer 2032. Con Edison planned the new Brooklyn Clean Energy Hub's phased construction to ensure that "make ready" interconnection points are available to offshore wind generation developers sufficiently in advance of the State's 2030 renewable generation and 2035 OSW generation goals established by the CLCPA to enable them to be met.

V. Estimated Project Schedule

Engineering for this project has begun. Long-lead-time equipment procurement for the Hub will begin in 2022, with construction expected to begin later the same year. The anticipated schedule to energize the Brooklyn Clean Energy Hub by 2027 is set forth in the first chart below. The second chart shows the completion of Phase II of the Brooklyn Clean Energy Hub project.





VI. Estimated Project Capital Expense Schedule.

The anticipated expenditures and schedule to complete the Brooklyn Clean Energy Hub is set forth below.

$000s	2022	2023	2024	2025	2026	2027
Labor	$3,213	$6,426	$12,851	$12,851	$11,785	$9,349
M&S	$8,927	$17,854	$35,708	$35,708	$32,744	$25,977
Contract Services	$11,718	$23,435	$46,871	$46,871	$42,980	$34,098
Other	$14,269	$28,539	$57,078	$57,078	$52,340	$41,524
Overheads	$11,717	$23,435	$46,869	$46,869	$42,979	$34,097
Total	$49,844	$99,688	$199,376	$199,376	$182,828	$145,046

$000s	**2028**	**2029**	**2030**	**2031**	**2032**
Labor	$1,478	$1,478	$2,185	$2,185	$643
M&S	$4,106	$4,106	$6,070	$6,070	$1,785
Contract Services	$5,390	$5,390	$7,968	$7,968	$2,344
Other	$6,564	$6,564	$9,703	$9,703	$2,854
Overheads	$5,390	$5,390	$7,968	$7,968	$2,343
Total	$22,928	$22,928	$33,894	$33,894	$9,969

VII. Cost Estimate: $1 billion