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PSEG LONG ISLAND LLC

On Behalf of and as Agent for the

LONG ISLAND LIGHTING COMPANY d/b/a LIPA

Syosset to Oakwood Project

EXHIBIT E-4

ENGINEERING JUSTIFICATION

Exhibit E-4 ENGINEERING JUSTIFICATION

E-4.1 Introduction

The engineering justification for the Project is to increase the capacity of LIPA's existing Lines 138-675 and 138-676 between Woodbury Tap and Oakwood Substation on Long Island. Completion of the Project will increase transmission capacity on Long Island by increasing the rating of two existing lines, allowing more and better use of existing capacity.

E-4.2 Engineering Justification for Proposed Line

The Project is one component of the portfolio of projects selected by NYISO's Board of Directors to satisfy the Commission-declared LI PPTN. The Project includes the components identified by the NYISO's PPTPP that LIPA, as the incumbent transmission owner, has exercised its right to construct under a Development Agreement between LIPA and NYISO. These components and their interplay with the overall LI PPTN are described in more detail below. The Project includes anticipated Network Upgrade Facilities (NUFs) as defined in the NYISO tariff; however, the final scope of those NUFs will not be known until the overall LI PPTN Facilities Study is completed by NYISO.

As part of NYISO's 2020-2021 PPTPP cycle, the Commission reviewed stakeholder proposals for Public Policy Requirements and concluded that the CLCPA constituted a Public Policy Requirement to increase export capability from Long Island to the rest of the state to ensure that proposed offshore wind facilities could transmit power without curtailment due to insufficient transmission capacity.

This Public Policy Requirement was referred to NYISO, which conducted its PPTPP. That process included a competitive evaluation of project proposals from several developers. On June 13, 2023, NYISO selected the LI PPTN Projects as the more efficient or cost-effective solution to meet the identified LI PPTN.

E-4.3 Description of the Interconnected Network

Figure E-4-1 (LI PPTN Projects Configuration) shows the transmission configuration of the entire portfolio of LI PPTN Projects. This Project is outlined in a bold red rectangle, located between the Syosset and Oakwood 138kV substations.[1]

E-4.4 Anticipated Benefits

E-4.4.1 Project Reliability Benefits

Overall, the LI PPTN Projects will increase electric power transmission capability within Long Island and increase transmission capacity with the rest of the state through the creation of new high voltage tie lines to Con Edison and a substantial buildout of electric facilities on Long Island. The LI PPTN Projects greatly increase Long Island's power import and export capability and transmission capability across Long Island, allowing electric power to be moved across the island with greater reliability.

[1] Figure E-4-1 is an excerpt from the LI PPTN Projects' System Impact Study ("SIS"), discussed below. The figure identifies the Stewart Avenue/Uniondale Hub Substations by its former name: East Garden City Substation.

The Project improves reliability by increasing the rating of existing circuits from the Syosset Substation to the Greenlawn and Oakwood Substations, increasing capacity. The increased transfer capability of these circuits will improve reliability and supply to the east. The LI PPTN Projects also contribute to the development of a robust and adaptable transmission grid that will help to facilitate the integration of renewable technologies consistent with New York's Clean Energy Standard (CES).

E-4.4.2 Projected Economic Benefits

The LI PPTN Projects create economic benefits by increasing transfer capability within Long Island and to the rest of the state and reducing transmission congestion on the LIPA/Con Edison interface and within Long Island itself. NYISO's Long Island Offshore Wind Public Policy Transmission Planning Plan report (NYISO LI PPTN Report) estimates the 20-year production cost savings of the LI PPTN Projects in the range of $300 to $600 million (in 2022 dollars), depending on the load forecast and injection areas for offshore wind, and avoided capital cost savings of two to three billion dollars for avoided generation siting within the Long Island Zone.

E-4.4.3 Other Projected Benefits - Climate Leadership and Community Protection Act (CLCPA)

In July 2019, New York State enacted the CLCPA – one of the most aggressive clean energy and greenhouse gas reduction policies in the country. The CLCPA includes, among other goals: a state-wide requirement that 70 percent of electricity consumed in the state by 2030 be produced from renewable energy; the development of 10,000 MW of distributed solar by 2025; 9,000 MW of offshore wind by 2035; 6,000 MW of energy storage by 2030; and 100 percent zero-carbon electricity generation by 2040. These requirements will have a significant impact on the supply and demand of electricity on Long Island and in the rest of New York State. The LI PPTN Projects will contribute to the development of a robust and adaptable transmission grid that will help to facilitate the integration of renewable technologies consistent with the CLCPA.

E-4.5 Proposed Completion Date

The LI PPTN Projects are proposed to be in service by May 2030, the required in service date in the Development Agreement between NYISO and LIPA. The Project has the same in-service date as the other LI PPTN Projects. Delay of the in-service date will require modifying the LI PPTN Projects' Development Agreement. It will delay of the anticipated benefits of the installed facilities on the New York State Transmission System and limit New York State's ability to meet CLCPA objectives.

E-4.6 Appropriate System Studies

The LI PPTN Projects are being studied under NYISO Queue Position #1289 (Q1289) in NYISO Transmission Interconnection Process. An SIS to evaluate the impact of the LI PPTN Projects, including the Project, was performed by Power Grid Engineering Markets on behalf of NYISO.[2]

[2] A copy of the SIS is attached as Attachment A, Interconnection System Impact Study: Propel NY Energy – Alternate Solution 5 (Q1289), to Exhibit E-4 of Propel NY's Article VII Application to construct, maintain, and operate the Propel NY Energy Project. Propel NY's Article VII Application was filed on July 31, 2024 in Case 24-T-0446.

Subsequent to completion of the SIS, the Applicant submitted to NYISO a set of proposed modifications to the LI PPTN Projects, including a proposed modification to the Project along with supporting studies which indicate that the LI PPTN Projects so modified, including the Project, provides the same or greater benefit as the LI PPTN Projects without such modifications and do not change the SIS conclusion that the LI PPTN Projects will not adversely impact the reliability of the New York State Transmission System. The proposed modifications are currently pending final NYISO review and approval.

Figure E-4-1

LI PPTN Projects Configuration

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