Final Supplemental Generic Environmental Impact Statement for the Climate Leadership and Community Protection Act

September 17, 2020

Prepared for:

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List of Exhibits

List of Abbreviations and Acronyms

2015 GEIS	Final Generic EIS (published by the Commission in February 2015)
2016 SEIS	Supplemental EIS (published by the Commission in May 2016)
2018 GEIS	Final Generic EIS (published by the Commission in June 2018)
CEF	Clean Energy Fund
CES	Clean Energy Standard
CLCPA	Climate Leadership and Community Protection Act
Commission	Public Service Commission
DPS	New York State Department of Public Service
EIS	Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
GHG	greenhouse gas
km^2	square kilometers
Master Plan	New York State Offshore Wind Master Plan
MW	megawatts
NPD	non-powered dam
NYCRR	New York Codes, Rules and Regulations
NYISO	New York Independent System Operator
NYSDEC	New York State Department of Environmental Conservation
NYSERDA	New York State Energy Research and Development Authority
REC	renewable energy credit
RES	Renewable Energy Standard
REV	Reforming the Energy Vision
SGEIS	Supplemental Generic Environmental Impact Statement
SEQRA	New York State Environmental Quality Review Act
White Paper	*White Paper on Clean Energy Standard Procurements to Implement New York's Climate Leadership and Community Protection Act*

Executive Summary

In May 2014, the Public Service Commission (Commission) established two major policy initiatives: Reforming the Energy Vision (REV) and the Clean Energy Fund (CEF). The Commission prepared a Generic Environmental Impact Statement (2015 GEIS), pursuant to the New York State Environmental Quality Review Act (SEQRA), to explore the potential environmental impacts associated with the initiatives. The Commission subsequently adopted the REV Framework Order on February 26, 2015, the CEF Order on January 21, 2016, and the REV Track Two Order on May 19, 2016.

In May 2016, the Commission published a Supplemental EIS (2016 SEIS) that analyzed the potential environmental impacts associated with a requirement that 50% of all electricity consumed in New York by 2030 be supplied by renewable resources (the 50 by 30 goal), and establishment of a support mechanism to sustain operations of eligible nuclear facilities. In August 2016, the Commission adopted the Clean Energy Standard (CES) and recognized the development of offshore wind generation as one of numerous avenues required to achieve the State's renewable energy goals.

In June 2018, the Commission published a Generic EIS in response to a New York State Energy Research and Development Authority (NYSERDA) report providing options to procure offshore wind energy (2018 GEIS). In July 2018, the Commission adopted an offshore wind procurement goal of 2,400 megawatts (MW) by 2030 (2018 OSW Order). NYSERDA's first offshore wind solicitation, issued in November 2018 (ORECRFP18-1), garnered a competitive market response.

The Climate Leadership and Community Protection Act (CLCPA), signed by Governor Andrew M. Cuomo in June 2019, increases the State's clean energy goal from 50% renewables to 70% renewables by 2030 (the 70 by 30 goal), increases the offshore wind procurement goal from 2,400 MW by 2030 to 9,000 MW by 2035, and increases the distributed solar energy goal from 3,000 MW by 2023 to 6,000 MW by 2025. The CLCPA complements a number of New York State policies over the past several years that have established goals aimed at substantially increasing the use of renewables and reducing greenhouse gas (GHG) emissions.

According to a NYSERDA petition filed on January 28, 2020, a second statewide solicitation in 2020 has the potential to result in a near-term total procurement of offshore wind capacity beyond the 2,400 MW analyzed in the 2018 GEIS. In January 2020, the New York State Department of Public Service (DPS) prepared a Supplemental Generic EIS (2020 SGEIS) in response to the petition. The SGEIS analyzed the potential environmental impacts associated with the State's procurement of an additional 1,800 MW of offshore wind in the near term, in addition to the previously evaluated 2,400 MW evaluated in the 2018 GEIS. The Commission published the final 2020 SGEIS in April 2020.

On June 18, 2020, the DPS and NYSERDA filed a *White Paper on Clean Energy Standard Procurements to Implement New York's Climate Leadership and Community Protection Act,* detailing recommendations on how the accelerated and expanded renewable energy procurement mandates of the CLCPA could be accomplished, primarily through the modification of the CES to reflect the new clean energy targets. The Whitepaper does not propose a particular generation facility or site, but rather provides the rationale and justification for additional procurements of renewable resources through various program modifications. The Whitepaper also includes an analysis of the costs and benefits of the incremental Tier 1 and offshore wind procurements. The White Paper proposes a Tier 4 program that could result in procurement of up to 3,000 MW of renewable energy sources delivered to New York City, including hydropower. Further, the White Paper proposes a Great Lakes Wind Feasibility Study.

This SGEIS evaluates the environmental impacts associated with the incremental resources needed to comply with the CLCPA. This SGEIS builds upon and incorporates by reference relevant material from the 2020 SGEIS, 2018 GEIS, 2016 SEIS, and 2015 GEIS (collectively, Prior SEQRA Analyses).

Consistent with 6 New York Codes, Rules and Regulations (NYCRR) §617.9(a)(7), an SGEIS is the appropriate mechanism for assessing environmental impacts in this matter. The proposed procurement of additional renewable energy capacity pursuant to the CLCPA represents a change in circumstances from the Prior SEQRA Analyses. This SGEIS, therefore, evaluates the potential effects of the additional procurement of resources required in the CLCPA.

Description of the Proposed Action

The Proposed Action is a continuation of previous initiatives analyzed in the Prior SEQRA Analyses, in addition to the increase in resources needed for implementation of the following CLCPA requirements:

- 70% of electricity from renewable energy by 2030
- 9,000 MW of offshore wind electricity by 2035
- 6,000 MW of distributed photovoltaic solar generation by 2025

The scope of this SGEIS addresses issues either not addressed in the Prior SEQRA Analyses or issues that need further analysis based on the expansion of the State's renewable energy goals pursuant to the CLCPA. Specifically, this SGEIS considered the following factors when determining which resource areas required new or further analysis: changes in the type of renewable resources, increases in scale of development, and new information (e.g., previously unknown impacts on a threatened or endangered species, or technology change of large-scale renewable resource and distributed solar generation). The renewable energy resources analyzed in the Prior SEQRA Analyses and that warrant further analysis in this SGEIS are described below.

Utility-scale solar projects include large commercial-scale solar power plants that feed electricity directly to the grid. The Prior SEQRA Analyses evaluated utility-scale solar and identified potential adverse impacts on land use, visual resources, and birds and bats. State and local communities have become increasingly sensitive to issues such as potential loss of habitat for grassland birds, as well as loss of agricultural land. This SGEIS analyzes the effects of additional utility-scale solar on these resources and considers potential impacts on grassland birds.

Great Lakes offshore wind is expected to contribute to the 70 by 30 goal in addition to oceanic offshore wind. The 2016 SEIS provided some general discussion of potential impacts of offshore wind in the Great Lakes; however, Great Lakes offshore wind was not addressed in the 2020 SGEIS. Consistent with 6 NYCRR §617.6(a), an initial review of the Proposed Action identified the following resource areas as warranting further analysis in this SGEIS: (1) visual resources; (2) sensory disturbance to fish; (3) conflict with use of space for commercial and recreational vessels; and (4) displacement, disturbance, or loss of habitat and mortality/injury to birds and bats.

Hydropower is expected to contribute to the 70 by 30 goals as part of the White Paper's proposed Tier 4 program that would incentivize up to 3,000 MW of renewable capacity. Hydropower generation would be eligible so long as the associated energy does not involve new impoundments and is shown to be additional to the supplier's baseline production of renewable energy. The Prior SEQRA Analyses generally discussed impacts from new impoundments, upgrades to existing facilities, and conversion of non-powered dams. This SGEIS considers the general impacts from additional hydropower upgrades and low-impact run-of-river projects.

Consistent with 6 NYCRR §617.6(a), an initial review of the Proposed Action determined the following renewable energy resources analyzed in the Prior SEQRA Analyses would not experience a change in type or scale of impacts: onshore wind, geothermal energy, and ocean energy. These renewable resources continue to not result in potential significant adverse effect from the change in type or scale of impacts associated with the additional expected renewable resources, and therefore are not analyzed in this SGEIS.

Procurement of 9,000 MW of Offshore Wind Capacity
The 2020 SGEIS concluded that the resources for which potential unavoidable adverse impacts may occur and, therefore, potential cumulative impacts could occur, include: (1) displacement, disturbance, or loss of habitat for marine mammals and sea turtles; (2) sensory disturbance to fish; (3) conflict with use of space for commercial and recreational vessels; and (4) displacement, disturbance, or loss of habitat and mortality/injury to birds. Therefore, this SGEIS considers the effects of the additional development of approximately 4,800 MW of offshore wind on these resource areas.

Procurement of 6,000 MW of Distributed Solar
Distributed solar energy can be located on rooftops or ground-mounted, and is typically connected to the local utility distribution grid. Distributed solar was addressed in both the 2015 GEIS and 2016 SEIS, including impacts on land use, visual resources, and birds were considered. Therefore, this SGEIS considers the effects of the additional development of approximately 3,000 MW of distributed solar on land use, visual resources, and birds.

Large-scale Renewable Energy Resource Forecast
This SGEIS considers forecasted energy demand and existing renewable capacity as a foundation in analyzing the potential impacts of achieving the CLCPA goals. The mix and capacity of renewable energy resources needed to meet the 70 by 30 goal is based on preliminary modeling from NYSERDA. The White Paper provided an updated range of new capacity to meet the 70 by 30 goal that is within the range previously analyzed in this SGEIS and Prior SEQRA Analyses. The Whitepaper also provides a cost-benefit evaluation based on the expected resources estimated in the White Paper.

This SGEIS evaluates a range of utility-scale solar that can maximize the competitive outcome, including up to an incremental 6,300 MW of utility-scale solar to meet the 70 by 30 goal. Procurement of 5,800 MW of offshore wind by 2030 represents a portion of the 9,000 MW by 2035 procurement goal. An additional 3,000 MW of distributed solar capacity is expected to be procured by 2030 beyond the 6,000 MW by 2025 procurement goal. Additionally, the proposed Tier 4 could result in procurement of up to 3,000 MW of renewable capacity sources delivered to New York City, and could include hydropower upgrades, run-of-river projects, and imports from Canada. Renewable capacity procured under Tier 4 would reduce the total amount of Tier 1 renewable capacity needed to meet the 70 by 30 goal.

Environmental Impacts

This SGEIS identifies the types of impacts that could result from the approval and implementation of the Proposed Action. Chapter 2 provides a description of relevant changes to the New York energy industry, including potential design changes to renewable energy systems. Potential impacts of hydropower under Tier 4 are discussed in Section 2.3.3.

Chapter 5 provides a quantitative and qualitative discussion; however, as with the Prior SEQRA Analyses, these discussions do not substitute for project-specific environmental reviews, which may result in the identification of site-specific impacts. The deployment of large amounts of large-scale renewables and distributed solar energy may have adverse environmental impacts. Large-scale solar development may have significant land requirements and may permanently affect existing agricultural land and habitat for grassland birds. Development of new large-scale solar may increase potential impacts to visual resources compared to the Prior SEQRA Analyses. Development of new offshore wind may increase impacts on marine mammals, fish, commercial and recreational fisheries, and birds and bats beyond what was analyzed in the Prior SEQRA Analysis. Impacts on visual resources could result from development of offshore wind in the Great Lakes. Upgrades to existing hydropower and low-impact run-of-river projects could result in similar general impacts compared to what was analyzed in the Prior SEQRA Analysis.

Chapter 6 of this SGEIS, discusses the No Action alternative identified by the Commission as the reasonable alternative to the Proposed Action, wherein the State would not take actions needed to achieve the 70 by 30 goal, would not procure the additional approximately 4,800 MW of offshore wind capacity by 2035, and would not procure the additional 3,000 MW of distributed solar by 2025. In the No Action alternative scenario, the State still expects to take actions to achieve the 50 by 30 goal outlined in the CES by employing a variety of resources in the renewable generation portfolio; procure 4,200 MW of offshore wind in the near-term; and procure 3,000 MW of distributed solar by 2023. However, under the No Action alternative, additional development of renewable resources would still occur to meet the 50 by 30 mandate, and associated impacts on the onshore and offshore environment of any such development would still occur.

Chapter 7 of this SGEIS also considers the unavoidable impacts, irreversible and irretrievable commitment of resources, and effects on energy consumption due to the development of large-scale renewable resources and distributed solar generation. The future construction and operation of new large-scale renewable resource projects that may occur in response to the Proposed Action could result in irreversible and irretrievable commitment of resources. With respect to additional procurement of utility-scale solar, the 2016 SEIS identified the agricultural land as the principle commitment of resources. Responsibly sited utility-scale solar projects can provide long-term preservation of agricultural land as an alternative to commercial development and at the end of the operation life of a project, the land can be returned to its former use. With respect to additional procurement of offshore wind, the 2020 SGEIS identified the marine environment occupied by a project as the principal commitment of resources for construction and operation. In all of these cases, actual impacts and resource commitments are unknown until specific projects are proposed. These resource commitments would be identified in site-specific environmental analyses and avoided or minimized in accordance

with applicable law and regulations, as discussed in the Prior SEQRA Analyses and Chapter 4 of this SGEIS.

The Proposed Action could result in direct benefits in the form of reduction in GHG emissions, additional economic development, workforce employment, the avoidance of adverse health outcomes, and improved transmission and distribution network relative to those described in the Prior SEQRA Analyses. The Proposed Action also has the potential to lead to additional secondary benefits described in the Prior SEQRA Analyses, including further development of new agricultural markets, coastal tourism, indirect jobs associated with construction and operation, purchases of local products and services, and new or increased tax payments by employees and facilities. These direct and secondary benefits are discussed in detail in Chapter 9 of this SGEIS.

1 SEQRA and Description of the Proposed Action

In May 2014, the Public Service Commission (Commission) established two major policy initiatives: Reforming the Energy Vision (REV) and the Clean Energy Fund (CEF). Among the goals of REV and the CEF is to achieve a cleaner economy through greater use of renewable energy and distributed energy resources. Under the CEF-funded NY-Sun program, for example, 3,000 megawatts (MW) of distributed solar is to be installed in the State by 2023.[1] The Commission prepared a Generic Environmental Impact Statement (EIS), pursuant to the New York State Environmental Quality Review Act (SEQRA), to explore the potential environmental impacts associated with the initiatives. The final Generic EIS was published by the Commission in February 2015 (2015 GEIS).[2] The Commission subsequently adopted the REV Framework Order on February 26, 2015,[3] the CEF Order on January 21, 2016,[4] and the REV Track Two Order on May 19, 2016.[5]

In May 2016, the Commission published a Supplemental EIS (2016 SEIS) that analyzed the potential environmental impacts associated with a requirement that 50% of all electricity consumed in New York by 2030 be supplied by renewable resources (the 50 by 30 goal), and establishment of a support mechanism to sustain operations of eligible nuclear facilities.[6] In August 2016, the Commission

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1 NYSERDA. 2019. NY-Sun Initiative Quarterly Performance Report to the Public Service Commission, Quarter Ending June 30, 2019. Accessed January 20, 2019. https://www.nyserda.ny.gov/-/media/Files/Programs/NYSun/2019-Q2.pdf.

2 NYS Department of Public Service. 2015. Final Generic Environmental Impact Statement in CASE 14-M-0101 – Reforming the Energy Vision and CASE 14-M-0094 – Clean Energy Fund. Prepared by Industrial Economics, Incorporated and Optimal Energy, Incorporated. February 6, 2015.

3 NYS Department of Public Service. 2015. CASE 14-M-0101 – Reforming the Energy Vision, Order Adopting Regulatory Policy Framework and Implementation Plan (issued February 26, 2015) (REV Framework Order).

4 NYS Department of Public Service. 2016. CASE 14-M-0094 – Proceeding on Motion of the Commission to Consider a Clean Energy Fund et al, Order Authorizing the Clean Energy Fund Framework (issued January 21, 2016) (CEF Order).

5 NYS Department of Public Service. 2016. CASE 14-M-0101 – Reforming the Energy Vision, Order Adopting a Ratemaking and Utility Revenue Model Policy Framework (issued May 19, 2016) (Track Two Order).

6 NYS Department of Public Service. 2016. Final Supplemental Environmental Impact Statement CASE 15-E-0302 – Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard, et al. Prepared by Industrial Economics, Incorporated and Optimal Energy, Incorporated. May 19, 2016.

adopted the Clean Energy Standard (CES) and Zero-Emissions Credit programs, and recognized the development of offshore wind generation as one of numerous avenues required to achieve the State's renewable energy goals.[7]

In June 2018, the Commission published a Generic EIS in response to a New York State Energy Research and Development Authority (NYSERDA) report providing options to procure offshore wind energy (2018 GEIS).[8] In July 2018, the Commission adopted an offshore wind procurement goal of 2,400 MW by 2030 (2018 OSW Order).[9] NYSERDA's first offshore wind solicitation, issued in November 2018 (ORECRFP18-1), garnered a competitive market response.

The Climate Leadership and Community Protection Act (CLCPA), signed by Governor Andrew M. Cuomo in June 2019, increases the State's clean energy goal from 50% renewables to 70% renewables by 2030 (the 70 by 30 goal) increases the offshore wind procurement goal from 2,400 MW by 2030 to 9,000 MW by 2035, and increases the distributed solar energy goal from 3,000 MW by 2023 to 6,000 MW by 2025. The CLCPA complements a number of New York State policies over the past several years that have established goals aimed at substantially increasing the use of renewables and reducing greenhouse gas (GHG) emissions.

According to a NYSERDA petition filed on January 28, 2020, a second statewide solicitation in 2020 has the potential to result in a near-term total procurement of offshore wind capacity beyond the 2,400 MW analyzed in the 2018 GEIS, due to the rapid expansion of the offshore wind market and the successful inaugural solicitation.[10] In January 2020, the New York State Department of Public Service (DPS) prepared a Supplemental Generic EIS (2020 SGEIS) in response to the petition. The 2020 SGEIS analyzed the potential environmental impacts associated with the State's procurement of an additional 1,800 MW of offshore wind in the near term, in addition to the previously evaluated 2,400 MW of offshore wind by 2030 evaluated in the 2018 GEIS. The Commission published the final 2020 SGEIS in April 2020.[11]

On June 18, 2020, the DPS and NYSERDA filed a *White Paper on Clean Energy Standard Procurements to Implement New York's Climate Leadership and*

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[7] NYS Department of Public Service. 2016. CASE 15-E-0302 and CASE 16-E-0270 – Order Adopting a Clean Energy Standard.

[8] NYS Department of Public Service. 2018. Final Generic Environmental Impact Statement in Case 18-E-0071 – Order Establishing Offshore Wind Standard and Framework for Phase 1 Procurement. Prepared by Ecology and Environment, Inc. May 2018.

[9] NYS Department of Public Service. 2018. CASE 18-E-0071, Order Establishing Offshore Wind Standard and Framework for Phase 1 Procurement. July 12, 2018.

[10] NYS Department of Public Service. 2020. CASE 18-E-0071 – Petition Regarding Offshore Wind Procurement. January 28, 2020.

[11] NYS Department of Public Service. 2020. Final Supplemental Generic Environmental Impact Statement in Case 18-E-0071, Order Establishing Offshore Wind Standard and Framework for Phase 1 Procurement. Prepared by Ecology and Environment, Inc. April 2020.

Community Protection Act[12] detailing recommendations on how the accelerated and expanded renewable energy procurement mandates of the CLCPA could be accomplished, primarily through the modification of the CES to reflect the new clean energy targets. The Whitepaper does not propose a particular generation facility or site, but rather provides the rationale and justification for additional procurements of renewable resources through various program modifications. The White Paper includes an analysis of the costs and benefits of the incremental resources expected to be deployed. The White Paper also proposes a Tier 4 that could result in procurement of up to 3,000 MW of renewable energy sources delivered to New York City, including hydropower. Further, the White Paper proposes a Great Lakes Wind Feasibility Study.

This SGEIS evaluates the environmental impacts associated with the incremental resources needed to comply with the CLCPA. The SGEIS considers, in general and conceptual terms, the effects of increasing the State's renewable goal from 50% to 70% by 2030, increasing the offshore wind procurement goal from 2,400 MW by 2030 to 9,000 MW by 2035, and increasing the distributed solar goal of 3,000 MW by 2023 to 6,000 MW by 2025.

This SGEIS builds upon and incorporates by reference relevant material from the 2020 SGEIS, 2018 GEIS, 2016 SEIS, and 2015 GEIS (collectively, Prior SEQRA Analyses) (see Exhibit 1-1).

Purpose of the New York State Environmental Quality Review Act

SEQRA, as set forth in Article 8 of the Environmental Conservation Law, declares that it is the State's policy to:

"… encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and enhance human and community resources; and to enrich the understanding of ecological systems, natural, human and community resources important to the people of the state."

The purpose of SEQRA is to incorporate the consideration of environmental factors into the planning, review, and decision-making processes of State, regional, and local government agencies at the earliest possible time. Consistent with this intent, SEQRA requires agencies to identify the adverse impacts that could result from their actions and to consider how those impacts might be avoided or minimized. If an agency determines that an action may have a significant adverse impact, then the agency must prepare an EIS.

[12] NYS Department of Public Service. 2020. *White Paper on Clean Energy Standard Procurements to Implement New York's Climate Leadership and Community Protection Act*, CASE 15-E-0302 Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard. June 18, 2020.

Exhibit 1-1 Prior SEQRA Analyses

SEQRA Document	Proposed Action	Goals and Objectives
2015 GEIS CASE 14-M-0101 – Reforming the Energy Vision CASE 14-M-0094 – Clean Energy Fund	Implementation of REV and the CEF initiatives, including the NY-Sun distributed solar 3,000 MW program.	Transform the State's energy demand profile through the introduction of innovative technologies, distribution-level markets and resources, enhanced energy efficiency, and the expansion of clean energy resources on both the distribution and the bulk electric systems.
2016 SEIS CASE 15-E-0302 – Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard CASE 14-M-0101 – Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision CASE 14-M-0094 – Proceeding on Motion of the Commission to Consider a Clean Energy Fund CASE 13-M-0412 – Petition of New York State Energy Research and Development Authority to Provide Initial Capitalization for the New York Green Bank CASE 10-M-0457 – In the Matter of the System Benefits Charge IV CASE 07-M-0548 – Proceeding on Motion of the Commission Regarding an Energy Efficiency Portfolio Standard CASE 03-E-0188 – Proceeding on Motion of the Commission Regarding Retail Renewable Portfolio Standard	Adoption of the CES and establishment of a support mechanism to sustain the operations of eligible nuclear facilities.	Increase renewable electricity supply to achieve the 50 by 30 goal, support construction of new renewable generation in New York State, prevent premature closure of upstate nuclear facilities, and promote the progress of REV market objectives.
2018 GEIS CASE 18-E-0071 – Order Establishing Offshore Wind Standard and Framework for Phase 1 Procurement	Procurement by 2030 of 2,400 MW of offshore wind energy with the ability to deliver energy into New York.	Jumpstart the offshore wind industry in New York to help achieve the State's 50 by 30 goal.

Exhibit 1-1 Prior SEQRA Analyses

SEQRA Document	Proposed Action	Goals and Objectives
2020 SGEIS CASE 18-E-0071 – Order Authorizing Offshore Wind Solicitation in 2020	Near-term procurement of 1,000 MW or more of offshore wind.	Allow for the continued expansion of the offshore wind market in support of achieving the State's 50 by 30 goal.

Key:
CES = Clean Energy Standard
CEF = Clean Energy Fund
MW = megawatts
REV = Reforming the Energy Vision
SEQRA = New York State Environmental Quality Review Act

Preparation of a Supplemental Environmental Impact Statement

The Prior SEQRA Analyses were prepared to address the environmental impacts of previous proposed actions and goals outlined in Exhibit 1-1. SEQRA also addresses circumstances that may require a supplemental EIS, including changes proposed for the project, newly discovered information, or a change in circumstances. As a result of the passage of the CLCPA, an SGEIS is the appropriate mechanism for assessing environmental impacts, and is consistent with 6 New York Codes, Rules and Regulations (NYCRR) §617.9(a)(7). The proposed procurement of additional renewable energy capacity pursuant to the CLCPA represents a change in circumstances from the Prior SEQRA Analyses. This SGEIS therefore evaluates the potential effects of the additional procurement of resources required in the CLCPA.

The Commission, as lead agency, provided notice of completion and acceptance of the Draft SGEIS on June 12, 2020. The public notice provided in Docket 15-E-0302 and the Environmental Notice Bulletin identified the type of EIS, the contact person, and where to obtain physical and electronic copies of the document. Comments on the Draft SGEIS were requested to be filed vie email, e-filing, mail, or delivery by Friday, July 24, 2020. Appendix A provides the responses to comments received on the Draft SGEIS. Revisions made to the Draft SGEIS are summarized in Appendix B.

1.1 Description of the Proposed Action

The Proposed Action is a continuation of previous initiatives analyzed in the Prior SEQRA Analyses, in addition to the increase in resources needed for implementation of the following CLCPA requirements:

- 70% of electricity from renewable energy by 2030;
- 9,000 MW of offshore wind electricity by 2035; and
- 6,000 MW of distributed photovoltaic solar generation by 2025.

The CLCPA is part of New York State's strategy to combat climate change through a modernized electric system that improves efficiency, affordability, resiliency, and sustainability. The CLCPA sets climate and clean energy goals by encompassing climate change impact adaptation, reductions in GHG emissions, and investments in technology, as well as job creation, energy worker transitions, and the protection of disadvantaged communities.

1.2 Purpose of this SGEIS

Consistent with 6 NYCRR §617.9(a)(7), this SGEIS evaluates the potential for significant adverse environmental impacts arising from expansion of the 50 by 30 goal to the 70 by 30 goal, additional procurement of offshore wind by 2035, and additional procurement of distributed solar by 2025. The scope of this SGEIS addresses issues either not addressed in the Prior SEQRA Analyses or issues that need further analysis based on the expansion of the State's renewable energy

goals pursuant to the CLCPA. Exhibit 1-2 summarizes the renewable energy resources evaluated in the Prior SEQRA Analyses.

As previously noted, a supplemental EIS is required to address changes proposed for the project, newly discovered information, or a change in circumstances related to the project. This SGEIS considered the following factors when determining which resource areas required new or further analysis:

- **Change in Renewable Resources:** The CLCPA defines "qualified renewable energy systems" as photovoltaics, wind, hydroelectric, geothermal electric, geothermal ground source heat, solar thermal, tidal energy, wave energy, ocean thermal, or fuel cells which do not utilize a fossil fuel resource in the process of generating electricity. Other renewable resources analyzed in the Prior SEQRA Analyses but not included in the CLCPA definition (i.e., biomass energy and biogas energy) are not evaluated further in this SGEIS.
- **Increase in Scale of Development:** Based on the Prior SEQRA Analyses, expected market trends, and CLCPA technology-specific mandates, it is anticipated that a greater amount of solar resources, distributed solar, and offshore wind at a larger scale will need to be developed to meet the more aggressive CLCPA requirements.
- **Previously Identified Impacts:** The Prior SEQRA Analyses addressed potential impacts associated with specific renewable energy resources. Exhibit 1-2 lists the renewable energy resources and related impact areas analyzed in detail in the Prior SEQRA Analyses. For environmental resource impact areas not listed in Exhibit 1-2, the Prior SEQRA Analyses did not identify potential significant adverse impacts, and, therefore, those are not considered in this SGEIS, except as noted in Section 1.3.1.
- **New Information on Potential Impacts:** This SGEIS considers potential impacts not addressed in the Prior SEQRA Analyses or impacts where new knowledge warrants additional analysis of potential impacts (e.g., changes in renewable resource technology). Due to the large scale required to meet the more stringent CLCPA goals, potential impacts of previously evaluated resources that were not previously apparent will be evaluated.

The following subsections describe the renewable energy resources analyzed in the Prior SEQRA Analyses and that warrant further analysis in this SGEIS.

Exhibit 1-2 Summary of Environmental Resource Areas Analyzed in the Prior SEQRA Analyses

Resource System	2015 GEIS	2016 SEIS	2018 GEIS	2020 SGEIS	Resources Areas Analyzed in this SGEIS
Utility-Scale Solar	▪ Habitat Destruction and Fragmentation (birds and bats) ▪ Visual Resources	▪ Land Use ▪ Visual Resources	N/A	N/A	▪ Land Use ▪ Visual Resources ▪ Birds
Onshore Wind Energy	▪ Land Use ▪ Birds and Bats ▪ Habitat Destruction and Fragmentation ▪ Noise Pollution ▪ Visual Resources ▪ Aesthetics and Cultural Resources ▪ Air Resources	▪ Land Use ▪ Birds and Bats ▪ Habitat Destruction and Fragmentation ▪ Noise Pollution ▪ Visual Aesthetics	N/A	N/A	Not Analyzed Further
Hydropower	▪ General Impact Overview of New Facilities	▪ General Impact Overview of Upgrades and Non-Powered Dams (NPD)	N/A	N/A	▪ General Impacts from Facility Upgrades and Low-Impact Run-Of-River
Biomass Energy	▪ Land Use ▪ Water Use ▪ Air Emissions ▪ Health Impacts	▪ Land Use ▪ Water Use and Quality ▪ Air Emissions ▪ Health Impacts ▪ Waste Impacts	N/A	N/A	Not Analyzed Further
Biogas Energy/Anerobic Digestion	▪ Air Emissions ▪ Water Resources ▪ Odors	General Impact Overview	N/A	N/A	Not Analyzed Further
Geothermal Energy Technologies	General Impact Overview	Not Analyzed Further	N/A	N/A	Not Analyzed Further

Exhibit 1-2 Summary of Environmental Resource Areas Analyzed in the Prior SEQRA Analyses

Resource System	2015 GEIS	2016 SEIS	2018 GEIS	2020 SGEIS	Resources Areas Analyzed in this SGEIS
Ocean Energy	General Impact Overview	Not Analyzed Further	N/A	N/A	Not Analyzed Further
Oceanic Offshore Wind Energy	▪ Birds and Bats ▪ Marine Mammals ▪ Fisheries ▪ Noise Pollution ▪ Visual Aesthetics and Cultural Resources ▪ Air Resources	▪ Habitat Destruction and Fragmentation ▪ Noise Pollution ▪ Visual and Aesthetic Resources ▪ Cultural and Historical Resources	▪ Benthic communities marine mammals and sea turtles, fish, and birds) ▪ Commercial and Recreational Vessel ▪ Cultural Resources ▪ Socioeconomics ▪ Visual and Aesthetic Resources ▪ Air Quality and Climate Change	▪ Marine Mammals and Sea Turtles ▪ Fish ▪ Commercial and Recreational Vessels ▪ Birds	▪ Marine Mammals and Sea Turtles ▪ Fish ▪ Commercial and Recreational Fishing ▪ Birds
Great Lakes Offshore Wind Energy	▪ Not Analyzed	▪ General Impact Overview	▪ Not Analyzed Further	▪ Not Analyzed Further	▪ Visual Resources ▪ Fish ▪ Commercial and Recreational Fishing ▪ Birds and Bats
Distributed Solar	▪ Habitat Destruction and Fragmentation (birds and bats) ▪ Visual Resources	▪ Land Use ▪ Visual Resources	N/A	N/A	▪ Land Use ▪ Visual Resources ▪ Birds

Key:
2015 GEIS = Final Generic EIS (published by the Commission in February 2015)
2016 SEIS = Supplemental EIS (published by the Commission in May 2016)
2018 GEIS = Final Generic EIS (published by the Commission in June 2018)
2020 SGEIS = Final Supplemental Generic EIS (published by the Commission in April 2020)
N/A = not applicable

1.2.1 Renewable Energy Resources Eligible under the 70 by 30 Goal

The potential impacts from a number of renewable energy resources were analyzed in the Prior SEQRA Analyses, and are discussed below in relation to the 70 by 30 goal. Oceanic offshore wind is expected to be a significant contributor to the 70 by 30 goal, and is discussed in Section 1.3.2 in relation to the 9,000 MW offshore wind goal. Distributed solar is discussed in Section 1.3.3 and is expected to contribute to the 70 by 30 goal.

Utility-scale solar projects include large commercial-scale solar power plants that feed electricity directly to the grid, and is expected to be a significant contributor to meeting the requirements of the CLCPA. Solar energy (including distributed solar, utility-scale solar, and thermal solar) was generally addressed in both the 2015 GEIS and 2016 SEIS. Habitat destruction and fragmentation were identified as a potentially significant impact in the 2015 GEIS. Similarly, impacts on land use were addressed in the 2016 SEIS. State and local communities have become increasingly sensitive to issues such as potential loss of habitat for grassland birds, as well as loss of agricultural land. Impacts on visual resources were also considered potentially significant in both the 2015 GEIS and 2016 SEIS. Therefore, this SGEIS considers the effects of additional utility-scale solar related to the 70 by 30 goal on land use, visual resources, and grassland birds.

Utility-scale onshore wind was addressed in the Prior SEQRA Analyses, which considered impacts on land use, birds and bats, visual resources, noise, cultural resources, and air quality. The 2016 SEIS anticipated approximately 6,000 MW of onshore wind would be developed to meet the 50 by 30 goal. Modeling for the 70 by 30 goal anticipates 1,900 MW of onshore wind would be developed due to changes in market conditions and increased development of offshore wind. Given the scale of potential onshore wind under the Proposed Action would not increase beyond what was analyzed in the Prior SEQRA Analyses, and no new concerns have been identified, utility-scale onshore wind is not analyzed further in this SGEIS.

Hydropower is a significant contributor to the State's renewable supply, and additional hydropower could contribute to the 70 by 30 goal under a proposed Tier 4 program to provide up to 3,000 MW of renewable capacity. The White Paper proposal does not include new impoundments (although those under construction at the time the White Paper was filed with the Commission would be eligible), and only incremental production from the supplier's baseline would be eligible.[13] The Prior SEQRA Analyses discussed general impacts associated with new hydropower facilities, upgrades to existing facilities, and non-powered dams (NPD)s. Eligible hydropower generation under Tier 4 could result from optimizing and upgrading infrastructure at existing hydropower projects and low-impact run-of-the river projects. This SGEIS considers the general impacts from

[13] Ibid.

additional hydropower upgrades and run-of-river projects. Preexisting impoundments, including those under construction at the time of the White Paper filing, are not evaluated since the impacts from these resources have already occurred and have been analyzed in site-specific approval processes.

Great Lakes offshore wind is expected to contribute to the 70 by 30 goal in addition to oceanic offshore wind. The 2016 SEIS provided some general discussion of potential impacts of offshore wind in the Great Lakes; however, Great Lakes offshore wind was not addressed in the 2020 SGEIS. Consistent with 6 NYCRR §617.6(a), an initial review of the Proposed Action identified the following resource areas as warranting further analysis in this SGEIS: (1) visual resources; (2) sensory disturbance to fish; (3) conflict with use of space for commercial and recreational vessels; and (4) displacement, disturbance, or loss of habitat and mortality/injury to birds and bats.

Geothermal energy, including geothermal heat pumps, were addressed in the 2015 GEIS. Impacts discussed in the 2015 GEIS were not considered potentially significant. Chapter 2 discusses the potential for additional development of geothermal. Geothermal is not expected to be implemented at a large scale under the Proposed Action, and an increase in capacity would not be expected to result in a change in impacts from the Prior SEQRA Analyses. Given no significant impacts or new concerns have been identified, geothermal is not analyzed further in this SGEIS.

Ocean energy was evaluated in the 2015 GEIS, including potential impacts from six distinct ocean energy sources: (1) waves; (2) tidal range; (3) tidal currents; (4) ocean currents; (5) ocean thermal energy conversion; and (6) salinity gradients. Ocean energy technology continues to remain at the research and development stage. As ocean energy technology is developed for commercial use, further analysis may be warranted. However, given the lack of market and uncertainty around the technology, ocean energy is not expected to be implemented at a large scale under the Proposed Action and, therefore, is not analyzed further in this SGEIS.

1.2.2 Procurement of 9,000 MW of Offshore Wind Capacity

The 2020 SGEIS concluded that the resources for which potential unavoidable adverse impacts may occur and, therefore, potential cumulative impacts could occur, include: (1) displacement, disturbance, or loss of habitat for marine mammals and sea turtles; (2) sensory disturbance to fish; (3) conflict with use of space for commercial and recreational vessels; and (4) displacement, disturbance, or loss of habitat and mortality/injury to birds. Therefore, this SGEIS considers the effects of the additional development of approximately 4,800 MW of offshore wind on these resource areas.

1.2.3 Procurement of 6,000 MW of Distributed Solar

Distributed solar energy can be located on rooftops or ground-mounted, and is typically connected to the local utility distribution grid. Distributed solar

resources and other behind-the-meter resources are expected to contribute to the CLCPA goal by reducing demand for power from the bulk electric system through the installation of on-site systems to meet local electricity needs. Community solar are projects approximately 1 to 2 MW that share similar characteristics with larger utility-scale solar development. In addition to the procurement of 6,000 MW of distributed solar by 2025, additional distributed solar energy could be developed by 2030 to meet the 70 by 30 goal. Distributed solar was addressed in both the 2015 GEIS and 2016 SEIS, including impacts on land use, visual resources, and birds were considered. Therefore, this SGEIS considers the effects of the additional development of approximately 3,000 MW of distributed solar on land use, visual resources, and birds.

1.3 Relationship to Other Plans and Programs

The additional renewable energy resources needed to fulfill the CLCPA goals will occur in the context of a number of additional energy-related programs and plans in New York. Many of these programs are described in the New York State Energy Plan and include, for example, initiatives contemplated under REV, the New York State Offshore Wind Master Plan (Master Plan), CEF, New York Green Bank, and Regional Greenhouse Gas Initiative. Under the "No Action" alternative scenario (see Chapter 6), these current programs are maintained and continue working towards achievement of New York's clean energy goals and directives. Exhibit 1-3 summarizes other potentially related energy initiatives in New York.

Exhibit 1-3 Other Related Energy Initiatives

Program or Plan	Description
Build Ready Program	Advance new "build-ready" renewable energy sites by prioritizing the development of existing or abandoned commercial sites, brownfields, landfills, former industrial sites, and other abandoned or underutilized sites for development.[14]
Clean Energy Communities Program	Recognizes and rewards municipalities for implementing clean energy actions to save taxpayer dollars, create jobs, and improve the environment.[15]
Clean Energy Workforce Development	Supports a broad range of renewable energy and energy efficiency education and training programs for new and existing staff, aimed at creating an experienced workforce to support New York State's growing clean energy economy.[16]

[14] NYSERDA. 2020a. Build Ready Program. Accessed August 23, 2020. https://www.nyserda.ny.gov/All-Programs/Programs/Build-Ready-Program#:~:text=The%20%E2%80%9CBuild%2DReady%E2%80%9D%20Program,for%20private%20renewable%20energy%20developers.

[15] NYSERDA. 2019a. Clean Energy Communities Program. Accessed April 14, 2020. https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Communities.

[16] NYSERDA. 2019b. Clean Energy Workforce Development. Accessed April 14, 2020. https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Workforce-Development.

Exhibit 1-3 Other Related Energy Initiatives

Program or Plan	Description
Commercial and Industrial (C&I) Carbon Challenge	Supports capital investments by large energy customers to reduce carbon through energy efficiency, distributed energy, and other clean energy actions.[17]
Commercial Property Assessed Clean Energy (PACE)	Offers guidance to municipalities adopting Commercial PACE financing.[18]
Energy Storage	Offers funding and technical support to building owners, municipalities, energy storage developers, contractors, and integrators for installing energy storage technologies.[19]
Ground Source Heat Pump Rebate	Offers support for the installation of ground source heat pump systems at residential, commercial, institutional, and industrial buildings. Funding is available only to eligible designers and installers of clean heating and cooling systems that have been approved by the New York State Energy Research and Development Authority (NYSERDA).[20]
K-Solar	New York Power Authority (NYPA) and NYSERDA, in collaboration with the New York State Education Department, and closely tied to Community Solar NY, provide tools, technical expertise (including free solar feasibility assessments), and access to financing to help K-12 schools cost-effectively go solar.[21]
NY Energy Highway	A precursor and complement to the REV initiative, The NY Energy Highway is a far-reaching initiative to modernize New York's statewide energy system, including electric transmission and generation construction, development of renewable energy sources, and upgrades to electric and natural gas infrastructure.[22]
NY Green Bank	NY Green Bank is a state-sponsored, specialized financial entity working in partnership with the private sector to increase investments into New York's clean energy markets, creating a more efficient, reliable and sustainable energy system.[23]
P-12 Schools: Green and Clean Energy Solutions	Provides cost-sharing and direct incentives to help reduce energy loads and assist in the conversion to carbon free fuels. Available to publicly or privately-owned pre-kindergarten through 12th grade schools.[24]
ReCharge NY	Qualifying businesses and nonprofits statewide can potentially lower their energy costs by using specially allocated NYPA power that is set

[17] NYSERDA. 2019c. Commercial & Industrial (C&I) Carbon Challenge. Accessed April 14, 2020. https://www.nyserda.ny.gov/All-Programs/Programs/CI-Carbon-Challenge.
[18] NYSERDA. 2019d. Commercial Property Assessed Clean Energy (PACE) Financing Guidelines. Accessed April 14, 2020. https://www.nyserda.ny.gov/All-Programs/Programs/Commercial-Property-Assessed-Clean-Energy.
[19] NYSERDA. 2019e. Energy Storage. Accessed April 14, 2020. https://www.nyserda.ny.gov/All-Programs/Programs/Energy-Storage.
[20] NYSERDA. 2019f. Ground Source Heat Pump Rebate. Accessed April 14, 2020. https://www.nyserda.ny.gov/All-Programs/Programs/Ground-Source-Heat-Pump-Rebate
[21] NYPA. 2020a. K-Solar. Accessed April 14, 2020. https://www.nypa.gov/innovation/programs/k-solar.
[22] NYPA.2020b. NY Energy Highway. Accessed April 14, 2020. https://www.nypa.gov/innovation/initiatives/ny-energy-highway
[23] NY Green Bank. No date. About NY Green Bank. Accessed April 14, 2020. https://greenbank.ny.gov/.
[24] NYSERDA. 2019h. P-12 Schools: Green and Clean Energy Solutions. Accessed April 14, 2020. https://www.nyserda.ny.gov/All-Programs/Programs/P-12-Green-and-Clean-Energy-Solutions.

Exhibit 1-3 Other Related Energy Initiatives

Program or Plan	Description
	aside by the State government and the NYPA board for economic support. [25]
Renewable Heat NY	Supports the installation of high-efficiency, low emission wood heating technology for residential, municipal, and commercial buildings.[26]
Residential Financing Options	Residential Financing offers two loan options for energy efficiency and renewable energy improvements to New York State homeowners.[27]
REV Campus Challenge	Recognizes and supports colleges and universities in New York State that implement clean energy projects and principles on campus, in the classroom, and in surrounding communities.[28]
REVitalize	Supports community-based organizations, that represent low- to moderate-income communities or environmental justice areas, to plan for, develop, and implement community-scale clean energy projects.[29]
Smart Grid Program	Supports the modernization of New York State's electric grid through innovative technology and distributed energy resources.[30]

In addition, other plans and programs are under development as part of the CLCPA. On May 14, 2020, the Commission initiated a proceeding to develop and consider proposals for implementing the provisions of the Accelerated Renewable Energy Growth and Community Benefit Act with respect to distribution and transmission upgrades, capital expenditures, and planning.[31] The CLCPA also created a Climate Action Council to develop the roadmap of policies needed to achieve the law's mandates.[32]

[25] NYPA. 2020c. ReCharge NY. Accessed April 14, 2020. https://www.nypa.gov/innovation/programs/recharge-ny.
[26] NYSERDA. 2019i. Renewable Heat NY. Accessed April 14, 2020. https://www.nyserda.ny.gov/All-Programs/Programs/Renewable-Heat-NY.
[27] NYSERDA. 2019j. Residential Financing Options. Accessed April 14, 2020. https://www.nyserda.ny.gov/All-Programs/Programs/Residential-Financing-Options.
[28] NYSERDA. 2019k. REV Campus Challenge. Accessed April 14, 2020. https://www.nyserda.ny.gov/All-Programs/Programs/REV-Campus-Challenge.
[29] NYSERDA. 2019l. REVitalize. Accessed April 14, 2020. https://www.nyserda.ny.gov/All-Programs/Programs/REVitalize.
[30] NYSERDA. 2019m. Smart Grid Program. Accessed April 14, 2020. https://www.nyserda.ny.gov/All-Programs/Programs/Smart-Grid-Program.
[31] NYS Department of Public Service. 2020. 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 Accessed August 16, 2020. http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=20-E-0197&submit=Search.
[32] New York State Climate Action Council. Accessed on August 17, 2020. https://climate.ny.gov/Climate-Action-Council.

2 Description of Changes

Consistent with 6 NYCRR § 617.9(b)(5)(ii), this chapter provides information on changes to the State energy industry as it relates to the implementation of the CLCPA. The background information presented in this chapter and in Chapter 3 provides the baseline condition for assessing the potential impacts of the Proposed Action (Chapters 5 through 10). The information presented in this Chapter becomes part of the No Action alternative scenario (see Chapter 6), and may assist in understanding the likely impacts of the Proposed Action.

The Prior SEQRA Analyses provided detailed information on the State's electric industry, which demonstrated a consistent trend of diversifying energy capacity and decreasing net electric usage. This chapter builds upon and incorporates reference material from Chapter 2 of the 2016 SEIS, which focused primarily on trends in electricity demand and the electric system in New York. This SGEIS provides a description of the changes in those conditions relevant to evaluating the potential environmental impacts of the Proposed Action:

- Section 2.1: Current Electricity Demand and Capacity
- Section 2.2: Energy Forecasts
- Section 2.3: Potential Design Changes in Renewable Energy Projects

The information presented in the following subsections is limited and focused on specific factors that may assist in understanding the potential impacts of the Proposed Action. The information presented in Chapter 2 of the 2020 SGEIS regarding changes in the offshore wind market, changes in potential offshore wind projects, and potential design changes in offshore wind projects are largely unchanged and are, therefore, incorporated by reference in its entirety.

2.1 Current Electricity Demand and Capacity

Annual electric use and forecasted future electric demand have generally declined since the 2016 SEIS, in part due to energy efficiency gains currently being implemented as part of the REV and CEF initiatives.[33] As shown in Exhibit 2-1, peak electrical demand reached 31,861 MW in 2018. Forecasts generally show a

[33] NYISO. 2019. Power Trends 2019 Reliability and a Greener Grid. Accessed February 6, 2020. https://www.nyiso.com/documents/20142/6386402/Power-Trends-2019-Media-Briefing-FINAL.pdf/bc903ee2-d571-190e-e2d0-831a16b425a5?t=1556738785048.

decline in peak electrical demand through 2030.[34] According to the New York Independent System Operator (NYISO) as shown in Exhibit 2-2, power resources available to serve New York State totaled 39,294 MW for the summer of 2019, providing ample margin compared to the 2018 peak summer demand.[35]

As discussed in the 2016 SEIS, and illustrated in Exhibit 2-1 and 2-2, the majority of the state's electric demand is located in the downstate areas, while most of the state's power supply is located in upstate areas.[36,37] Since 2016, 1,294 MW of nameplate capacity has been added to the state, of which 1,120 MW was added in upstate New York.[38] The geographical distribution of electricity demand and generation is similar to the distribution presented in the 2016 SEIS and is forecasted to remain consistent through 2030. As described in the White Paper, concerns about the challenge of increasing the penetration of renewable energy in New York City led to the proposed creation of a new Tier 4 within the CES.

Exhibit 2-1 2018 Peak Electricity Demand, by New York Control Area Load Zone

State Sub-Area	New York Control Area Load Zone	2018 Annual Energy Usage (GWh)	Peak Demand (MW)	
			Summer	Winter
Upstate	A (West)	15,900	2,400	2,100
	B (Genesee)	10,100	2,000	1,600
	C (Central)	16, 600	2,700	2,700
	D (North	4,700	600	700
	E (Mohawk Valley)	8,000	1,300	1,400
	F (Capital)	12,400	2,400	2,100
	G (Hudson Valley)	10,000	2,200	1,600
Downstate	H (Milwood)	2,800	600	500
	I (Dunwoodie)	6,100	1,400	900
	J (New York City)	53,400	10,900	7,700
	K (Long Island)	21,300	5,400	3,400
Upstate Subtotal		**77,600**	**13,600**	**12,200**
Downstate Subtotal		**83,600**	**18,300**	**12,500**
Total		**161,100**	**31,900**	**24,700**

Source: NYISO. *2019 Load & Capacity Data Gold Book*; Table I-2: Baseline Annual Energy Historical and Forecast.
Note: Totals do not sum due to rounding.

Key:
GWh = gigawatt hours
MW = megawatt

[34] NYISO. 2019. Load & Capacity Data Gold Book; Table I-1a: NYCA Baseline Energy and Demand forecasts.
[35] NYISO. 2019. Power Trends 2019: Reliability and a Greener Grid.
[36] NYISO. 2019. Load & Capacity Data Gold Book; Table III-3a: Capability by Zone and Type – Summer 2019; Table III-3b: Capability by Zone and Type – Winter 2019-20.
[37] NYISO. 2019. Load & Capacity Data Gold Book; Table I-2: Baseline Annual Energy Historical and Forecast.
[38] NYISO. 2019. Power Trends 2019: Reliability and a Greener Grid; NYISO. 2016. Power Trends 2016: The Changing Energy Landscape.

Exhibit 2-2 2019 Installed Generation Capacity by New York Control Area Load Zone

State Sub-Area	New York Control Area Load Zone	Installed Capacity (MW)[1]		Nameplate Capacity Added Since 2016[2,3]
		Summer	Winter	
Upstate	A (West)	4,000	4,100	<100
	B (Genesee)	800	800	0
	C (Central)	6,600	6,800	100
	D (North	1,900	1,900	<100
	E (Mohawk Valley)	1,000	1,000	<100
	F (Capital)	4,500	5,000	0
	G (Hudson Valley)	3,600	3,800	800
Downstate	H (Milwood)	2,100	2,100	0
	I (Dunwoodie)	0	0	0
	J (New York City)	9,600	10,500	100
	K (Long Island)	5,200	5,700	<100
Upstate Subtotal		**22,400**	**23,400**	**1,100**
Downstate Subtotal		**16,900**	**18,400**	**200**
Total		**39,300**	**41,800**	**1,300**

Notes:
[1] NYISO. 2019. Load & Capacity Data Gold Book; Table III-3a: Capability by Zone and Type – Summer 2019; Table III-3b: Capability by Zone and Type – Winter 2019-20.
[2] NYISO. 2019. Power Trends 2019: Reliability and a Greener Grid.
[3] NYISO. 2016. Power Trends 2016: The Changing Energy Landscape.
Totals do not sum due to rounding.

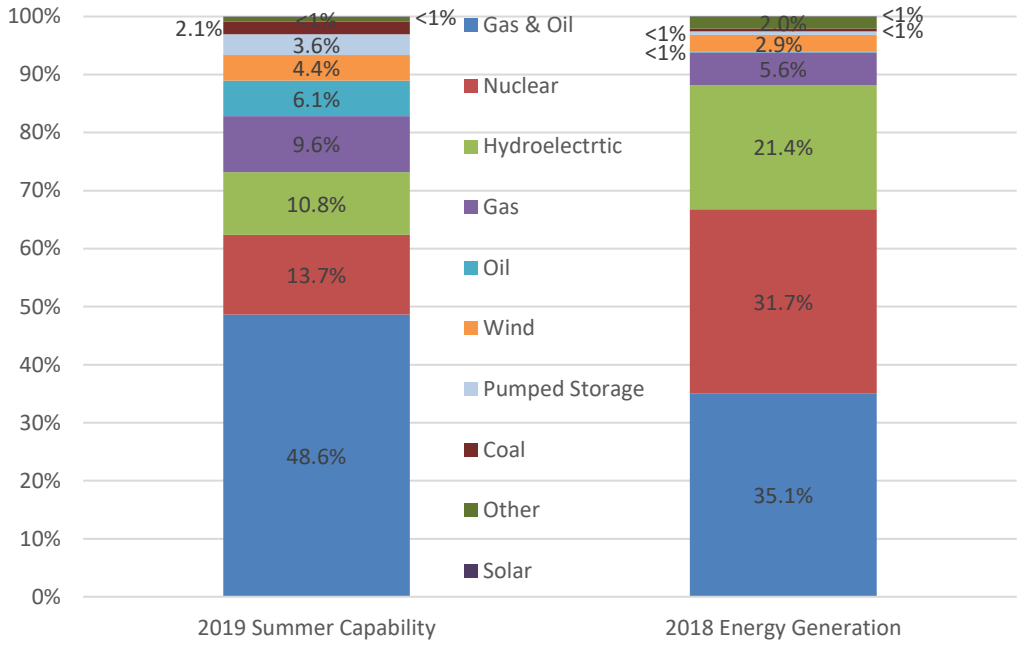
Key:
MW = megawatts

Exhibit 2-3 details New York State's power generation and capacity by fuel type. The majority of the state's total capacity (based on 2019 summer capability) and electric generation continues to come from three fuel types: dual-fuel (gas and oil) facilities, nuclear, and hydropower. Since the 2016 SEIS, the percentage of capacity and generation of solar and wind energy increased modestly while coal and oil capacity decreased. Renewable energy generating capacity accounted for over 6,000 MW in 2019, including 32 MW of utility-scale solar.[39] Distributed solar and other behind-the-meter resources reduce demand for power from the bulk electric system because consumers install on-site systems to meet their electricity needs. Over 454 MW of distributed solar resources contributed to the summer generating capacity at the end of 2019.[40]

[39] NYISO. 2019. Load & Capacity Data Gold Book; Table I-1a: NYCA Baseline Energy and Demand forecasts.
[40] NYISO. 2019. Load & Capacity Data Gold Book; Table I-1c: Summary of NYCA Summer Coincident Peak Demand Forecasts -– MW.

New York State continues to import a portion of its electricity from neighboring control areas to meet demand. New York imported an average 3,200 MW during peak hours in 2017 and 2018, with over 1,300 MW from hydropower sources.[41]

Exhibit 2-3 New York Capability and Generation by Fuel Type



Source: NYISO. 2019 Load & Capacity Data Gold Book; Figure III-2: 2019 NYCA Summer Capability by Fuel Type; Figure III-3: 2018 NYCA Energy Production by Fuel Type.

2.2 Energy Forecasts

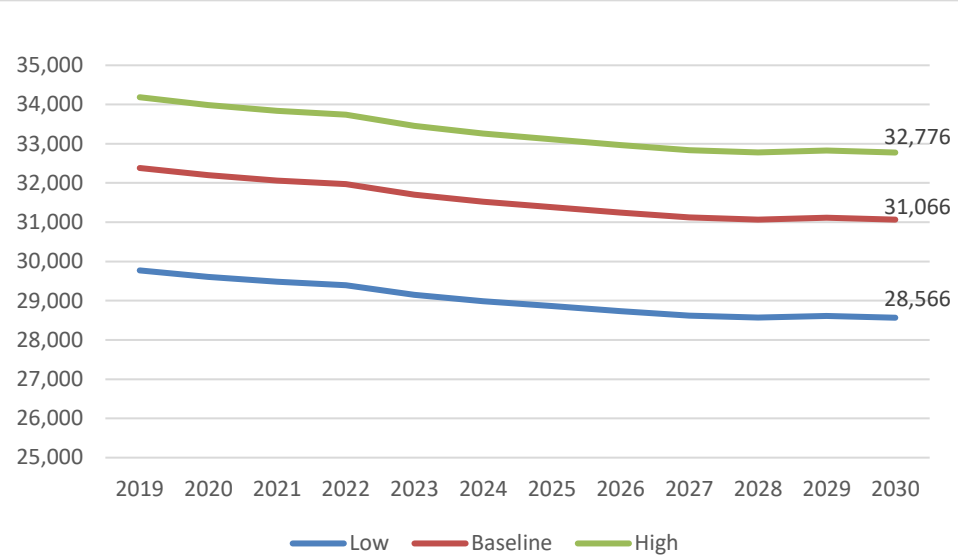
This SGEIS considers forecasted energy demand and existing renewable capacity as a foundation in analyzing the potential impacts of achieving the CLCPA goals. The mix and capacity of renewable energy resources needed to meet the 70 by 30 goal is based on preliminary modeling from NYSERDA.

Exhibit 2-4 presents the forecast for peak energy demand through 2030, including the impacts from electric vehicles, distributed sources (including solar), energy storage units, and energy efficiency and codes and standards. The forecast includes baseline and high and low forecasts that reflect extreme weather conditions. In 2030, the forecasted energy demand is 153,449 megawatt hours and the peak energy demand under the high scenario is 32,776 MW.[42]

[41] Potomac Economics. 2018. State of the Market Report for the New York ISO Markets, Table 11: Average Net Imports from Neighboring Areas, Peak Hours, 2017-2018.

[42] NYISO. 2019. Load & Capacity Data Gold Book; Table I-1a: NYCA Baseline Energy and Demand forecasts.

Exhibit 2-4 New York Peak Energy Demand Forecast (MW) - 2019-2030



Source: NYISO. 2019 Load & Capacity Data Gold Book; Table I-1a: NYCA Baseline Energy and Demand forecasts.

Exhibit 2-5 summarizes the current renewable energy generation in New York, in addition to the offshore wind and distributed solar procurement goals, and the estimate of utility-scale solar capacity required to meet the meet the 70 by 30 goal. This SGEIS is evaluating a range of utility-scale solar that can maximize the competitive outcome, including up to an incremental 6,300 MW of utility-scale solar. Procurement of 5,800 MW of offshore wind by 2030 represents a portion of the 9,000 MW by 2035 procurement goal. Distributed solar capacity by 2030 is expected to exceed the 6,000 MW by 2025 procurement goal by an additional 3,000 MW and would reduce the amount of installed capacity procured through Tier 1.

Subsequent to the filing of the Draft SGEIS, the White Paper included updated estimates on the quantity of new renewable energy sources necessary to meet the 70 by 30 goal, Exhibit 2-6 summarizes modeling from the White Paper relevant to the projections of capacity analyzed in this SGEIS. Exhibit 2-6 shows that utility-scale solar would continue to represent the majority of Tier 1 renewables expected to meet the 70 by 30 goal under each scenario. Since the updated estimates of installed capacity fall within the range of estimates analyzed in this SGEIS, the analysis represents a more conservative estimate of potential environmental impacts. The cost and benefits described in Chapter 9 are included in the White Paper and reflect the capacity estimates in Exhibit 2-6.

Exhibit 2-5 Expected Renewable Capacity

Renewable Energy Source	Contribution to 70 by 30 Capacity (MW)	Total New Capacity Under Proposed Action	Capacity Analyzed in Prior SEQRA Analyses (MW)	Incremental Increase Analyzed in this SGEIS
Existing and Contracted[1]	8,000	N/A	N/A	N/A
Utility-Scale Solar	11,100	9,000 – 13,200[2]	6,865	2,100 – 6,300
Utility-Scale Onshore Wind	1,900	1,900	5,905	N/A
Offshore Wind	5,800	9,000	4,200	4,800
Distributed Solar	6,000[3]	6,000	3,000	6,000
Total CLCPA-Eligible Renewables	**32,800**	**25,900 - 30,100**	**19,970**	**12,900 - 17,100**

Source: NYSERDA. 2019. Clean Energy Standard Annual Progress Report: 2018 Compliance Year Final. December 2019. Accessed April 24, 2020. https://www.nyserda.ny.gov/-/media/Files/Programs/Clean-Energy-Standard/2019/Case-15-E00302-CES-2018-Annual-Progress-Report.pdf.

Notes:

[1] Includes constructed and contracted utility-scale solar, distributed solar, onshore wind, hydropower, and imported renewable energy.

[2] The 2016 SEIS analyzed approximately 2,700 to 6,900 MW of utility-scale solar capacity that could meet the 50 by 30 goal based on varying market conditions. This SGEIS assumes a similar range for utility-scale solar applied to the preliminary modeling from NYSERDA.

[3] An additional 3,000 MW of distributed solar is included under Existing and Contracted.

Key:
CLCPA = Climate Leadership and Community Protection Act
MW = megawatt
N/A = not applicable

In addition, the White Paper proposed creation of a new Tier 4 program for the procurement of environmental attributes associated with renewable energy deliveries into New York City (Zone J). If approved, Tier 4 may result in the procurement of up to 3,000 MW of renewable capacity resources, including hydropower. The procurement under Tier 4 would reduce the amount of installed capacity procured through Tier 1.

Exhibit 2-6 Estimated Tier 1 Installed Capacity to Meet the 70 by 30 Goal (MW)

	Base Case Scenario	High Load Scenario	Low Energy Pricing Scenario	Low Unforced Capacity Value Scenario	Low Resource Cost Scenario	High Resource Cost Scenario
Utility-Scale Onshore Wind	1,785	2,714	1,806	1,878	1,785	1,815
Utility-Scale Solar	10,025	11,767	9,977	9,803	10,025	9,952
Total Tier 1 Renewables	11,810	14,481	11,783	11,681	11,810	11,767

Source: NYS Department of Public Service. 2020. *White Paper on Clean Energy Standard Procurements to Implement New York's Climate Leadership and Community Protection Act*.

2.3 Potential Design Changes in Renewable Energy

2.3.1 Solar Energy

The additional utility-scale solar and distributed solar could occur through several types of changes, including an increase in number of solar panels at a proposed project, an increase in the number of proposed projects, and an increase in the capacity of individual solar panels. The design and size of panels may also increase the number of homeowners and businesses interested in distributed solar.

The efficiency of solar photovoltaic energy generation has increased substantially over the last several decades and is expected to continue, consistent with assumptions from the Prior SEQRA Analyses. The efficiency of solar energy in New York State is currently 14%, and efficiency is expected to increase in the future.[43] If solar efficiency increases at a rate faster than expected, this may increase the state's overall solar capacity, and would likely have a reduced impact on the footprint of individual solar facilities proportional to the increase in efficiency.

2.3.2 Offshore Wind Energy

This subsection incorporates by reference the discussion of changes in offshore wind energy from Chapter 2 of the 2020 SGEIS. As discussed there, the additional capacity of offshore wind energy could occur through several types of changes, including an increase in the number of turbines at a proposed project, an increase in the number of proposed projects, and an increase in the size of wind turbines.

Offshore wind development may also occur in the Great Lakes. Costs and market conditions over the last decade limited the development of offshore wind there, which was only generally discussed in the 2016 SEIS and not considered in the 2020 SGEIS. The proposed Icebreaker Wind Project located in Lake Erie near Cleveland, Ohio, is on track to be the first offshore wind facility developed in the Great Lakes. The 21 MW project will include six turbines with a nameplate capacity of 3.45 MW each and a tower height of 479 feet (146 meters).[44] Completion of the Icebreaker Wind Project is expected to renew interest in offshore wind in the Great Lakes to support the 70 by 30 goal, and, therefore, warrant additional analysis in this SGEIS.

Accessibility to the Great Lakes may also be a limiting factor for the development of offshore wind. Moderately sized heavy-lift vessels that are typically used to install offshore wind foundations and turbines in the ocean are generally too large to safely navigate locks and some inland waterways connecting to the Great

[43] NYISO. 2019. Power Trends 2019: Reliability and a Greener Grid.
[44] U.S. Department of Energy. 2018. Final Environmental Assessment LEEDCo Project Icebreaker Lake Erie, City of Cleveland, Cuyahoga County, Ohio.

Lakes.[45] This could limit the size of turbines in the Great Lakes to less than 4 MW, or require development of a new or adapted fleet of construction vessels.[46]

Suitable locations for offshore wind in the Great Lakes are currently limited by a number of factors, including international boundaries, obstructions, wind speed, and lake depth. It is estimated that 954 square kilometers (km^2) (66%) of New York's Lake Erie waters would be suitable for offshore wind development, and 1,536 km^2 (17.6%) of New York's Lake Ontario waters would be suitable.[47] Currently available monopile, jacket, and gravity foundations could be used for offshore wind projects in the Great Lakes at depths shallower than approximately 197 feet (60 meters). Floating foundation technologies are being developed for use at greater depths in the ocean. However, freshwater ice poses a unique threat to offshore wind turbines due to freezing of the substructure and lateral forces caused by moving ice. Current floating wind turbine technologies have not demonstrated an ability to adequately withstand freshwater ice.[48] This is anticipated to prevent the use of floating turbines and limit development of offshore wind in the Great Lakes to lake depths of 197 feet (60 meters) or less until new technologies emerge. This would still allow for offshore wind development throughout much of New York's Lake Erie waters (up to approximately 10 miles or 16 kilometers from shore), but limit development to within a couple miles of shore within New York's Lake Ontario waters.

2.3.3 Hydropower

Additional hydropower capacity could occur through upgrades to existing facilities, low-impact-run-of-river projects that do not require new impoundments, and imports of hydropower from Canada. The White Paper proposes eligibility of a broad set of hydropower resources under Tier 4; however, any hydropower impoundment not already in existence or under construction as of the date of issuance of the White Paper would not be eligible. The White Paper also recommends that hydropower generation under Tier 4 must be in addition to the supplier's baseline production.

Upgrades to existing projects could include replacing older, less efficient generators with new generators, adding additional generators at an existing powerhouse to increase hydraulic capacity at projects with high spill flows, or adding turbines to capture energy from minimum flow releases. Run-of-river projects are described in the Prior SEQRA Analyses and would rely on natural river flows.

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[45] National Offshore Wind Research and Development Consortium. 2019. Research and Development Roadmap Version 2.0. October 2019.

[46] Ibid.

[47] NYSERDA. 2010. New York's Offshore Wind Energy Development Potential in the Great Lakes: Feasibility Study. Accessed March 16, 2020. https://www.nyserda.ny.gov/About/Publications/Research-and-Development-Technical-Reports/Wind-Reports.

[48] Ibid.

As discussed above, the White Paper proposes that Tier 4 apply only to impoundments already in existence or under construction as of the date of issuance of the White Paper. Based on a review of recent FERC licenses, there are no new hydropower facilities with impoundments in New York State currently under construction. [49] Canadian hydropower projects with impoundment construction dates and in-service schedules that could qualify for Tier 4 include Muskrat Falls (824 MW)[50] and Romaine 4 (245 MW). Since impacts from eligible impoundments have already occurred and have been analyzed in site-specific approval processes, impacts from impoundments are not analyzed further in this SGEIS.

[49] https://www.ferc.gov/sites/default/files/2020-04/active-licenses.xls.

[50] https://muskratfalls.nalcorenergy.com/project-overview/muskrat-falls-hydroelectric-generation-facility/.

3 Environmental Setting

Consistent with 6 NYCRR §617.9(b)(5)(ii), this chapter provides a "concise description of the environmental setting of the areas to be affected, sufficient to understand the impacts of the proposed action and alternatives." This SGEIS incorporates by reference material from the Prior SEQRA Analyses and provides relevant updates to utility-scale solar and offshore wind located in the Great Lakes.

These updates provide information on the environmental setting pertaining to the resources for which the Prior SEQRA Analyses indicated potential unavoidable adverse impacts, including additional acreage or areas needed to meet new alternative energy needs. Based on a review of recent literature, relevant environmental changes since the Prior SEQRA Analyses are discussed below.

3.1 Onshore Setting

3.1.1 Land Cover and Land Use

The 2016 SEIS defined land use as "the management and/or modification of the natural environment (or land) to support human uses." For purposes of this discussion, land cover indicates the physical land type (e.g., forest, cropland, and open space), while land use states how people are using the land.[51] The phrase "land use regulation" means an ordinance or local law enacted by the city, town, village, or municipality for the regulation of any aspect of land use and community resource protection (e.g., zoning), which advises the appropriate use of property or the scale, location, and intensity of development.[52]

The distribution of land cover types changed slightly since the 2016 SEIS. In comparison, 2019 data indicates that land cover types like Shrubland, Open Water, and Wetlands, have decreased while the remaining general land cover types of Cropland/Pasture, Forest and Woodland, Developed Land, and Barren have increased in acreage. Exhibit 3-1 summarizes the 2019 land cover categories and acreages. As shown, the largest land cover type is Forest and Woodland, which represents 60% of the land cover in the state.

[51] National Oceanic and Atmospheric Administration. 2020. Difference between land cover and land use. Accessed on February 20, 2020. https://oceanservice.noaa.gov/facts/lclu.html.

[52] New York State Department of State (DOS). 2011. Guide to Planning and Zoning Laws of New York State. Reprinted 2015. Accessed on February 21, 2020. https://www.dos.ny.gov/lg/publications/Guide_to_planning_and_zoning_laws.pdf.

Exhibit 3-1 New York State Land Cover Summary (2019)

Land Type	Acres	Percent of State Total
Cropland/Pasture	6,118,300	19
Forest and Woodland	18,548,200	60
Developed Land	3,106,700	10
Open Water	971,900	3
Wetlands	2,189,400	7
Barren	74,700	<0
Shrubland	105,500	<0
Total	**31,114,600**	**100**

Source: USDA. 2019 Cropland Data Layer. National Agricultural Statistics Service. February 18, 2020. https://nassgeodata.gmu.edu/CropScape/

Note: Totals do not sum due to rounding.

Many land-based renewable energy projects need open land, which often leads to use of cropland and pastures on the state's farmland. As shown in Exhibit 3-1, over 6.1 million acres of cropland and pasture are present within the state. The characteristics of the state's agriculture have not changed significantly since the Prior SEQRA Analyses. Farmland accounts for nearly one-quarter of the state's total land area.[53] Of this total farmland, approximately 60% is used for crops, and the remainder is in woodland, pastureland, conservation, and other uses. The number of farms in New York declined from 35,000 to 33,438 between 2017 and 2019. Although the number of farms and farm acreage declined, the economic impact from farming increased. Net farm income rose by 21% over the decade, including income from agritourism, which doubled over that time. [54]

New York's Agricultural Districts Law, Article 25-AA, allows counties to set up agricultural districts to protect and promote the availability of land for farming purposes through a combination of landowner incentives and protections that discourage the conversion of farmland to non-agricultural uses. As of 2019, the state had 174 agricultural districts composed of over 9 million acres.[55] Agricultural districts may include residential and commercial land in addition to land that is actively farmed, idle, or forested.

3.1.2 Sensitive Biological Resources

Exhibit 3-7 of the 2016 SEIS lists the federal and State endangered and threatened animal and plant species believed or known to occur in New York, which included 22 federally listed plant species and 88 state-listed animal species. Exhibit

[53] Office of the New York State Comptroller. 2019. A Profile of Agriculture in New York State. August 2019. Accessed at: https://www.osc.state.ny.us/reports/economic/agriculture-report-2019.pdf.

[54] Office of the New York State Comptroller. 2019. A Profile of Agriculture in New York State. August 2019. Accessed at: https://www.osc.state.ny.us/reports/economic/agriculture-report-2019.pdf.

[55] NYS Department of Agriculture and Markets. No date. Frequently Asked Questions Regarding Agricultural Districts. Accessed at: https://agriculture.ny.gov/system/files/documents/2020/01/agricultural_districts_faq.pdf.

3-2 lists the relevant New York State endangered and threatened bird species believed or known to occur in New York that were not identified in Exhibit 3-7 in the 2016 SEIS. Additionally, the New York State Department of Environmental Conservation (NYSDEC) is proposing to revise the State's endangered, threatened, and species of concern list; bird species from the revised list are also included in Exhibit 3-2. The draft list is available for review on NYSDEC's website. The public comment period closed on January 24, 2020.[56]

Exhibit 3-2 Proposed Changes in New York State-Listed and Federally Listed Bird Species Believed or Known to Occur in New York

Species	Federal Status	Current New York State Status	Proposed Change to New York State Status
American three-toed woodpecker (*Picoides tridactylus*)	-	-	T
Bald eagle (*Haliaeetus leucocephalus*)	-	T	SC
Black rail (*Laterallus jamaicensis*)	-	E	No change
Black skimmer (*Rynchops niger*)	-	SC	T
Black tern (*Chlidonias niger*)	-	E	No change
Common nighthawk (*Chordeiles minor*)	-	SC	T
Common tern (*Sterna hirundo*)	-	T	No Change
Eskimo curlew (*Numenius borealis*)	E	E	Off List (Extinct)
Golden eagle (*Aquila chrysaetos*)	-	E	No change
Henslow's sparrow (*Ammodramus henslowii*)*	-	T	No change
Kentucky warbler (*Geothlypis formosa*)	-	-	T
King rail (*Rallus elegans*)	-	T	No change
Least bittern (*Ixobrychus exilis*)	-	T	No change
Least tern (*Sterna antillarum*)	E	T	No change
Loggerhead shrike (*Lanius ludovicianus mearnsi*)	E	E	No change
Northern harrier (*Circus cyaneus*)*	-	T	SC
Peregrine falcon (*Falco peregrinus*)	-	E	SC
Pied-billed grebe (*Podilymbus podiceps*)	-	T	SC

[56] NYSDEC. 2019. "Current and Proposed Status of All Species on Proposed List." Accessed December 10, 2019. https://www.dec.ny.gov/animals/7494.html.

Exhibit 3-2 Proposed Changes in New York State-Listed and Federally Listed Bird Species Believed or Known to Occur in New York

Species	Federal Status	Current New York State Status	Proposed Change to New York State Status
Piping plover (*Charadrius melodus*)	E	E	No change
Red knot (*Calidris canutus rufa*)	T	T	No change
Roseate tern (*Sterna dougallii dougallii*)	E	E	No change
Sedge wren (*Cistothorus platensis*)*	-	T	No change
Short-eared owl (*Asio flammeus*)*	-	E	No change
Spruce grouse (*Falcipennis canadensis*)	-	E	No change
Upland sandpiper (*Bartramia longicauda*)*	-	T	No change
Yellow-breasted chat (*Icteria virens*)	-	SC	T
Horned lark (*Eremophila alpestris*)*	-	SC	No change
Vesper sparrow (*Pooecetes gramineus*)*	-	SC	No change
Grasshopper sparrow (*Ammodramus savannarum*)*	-	SC	No change

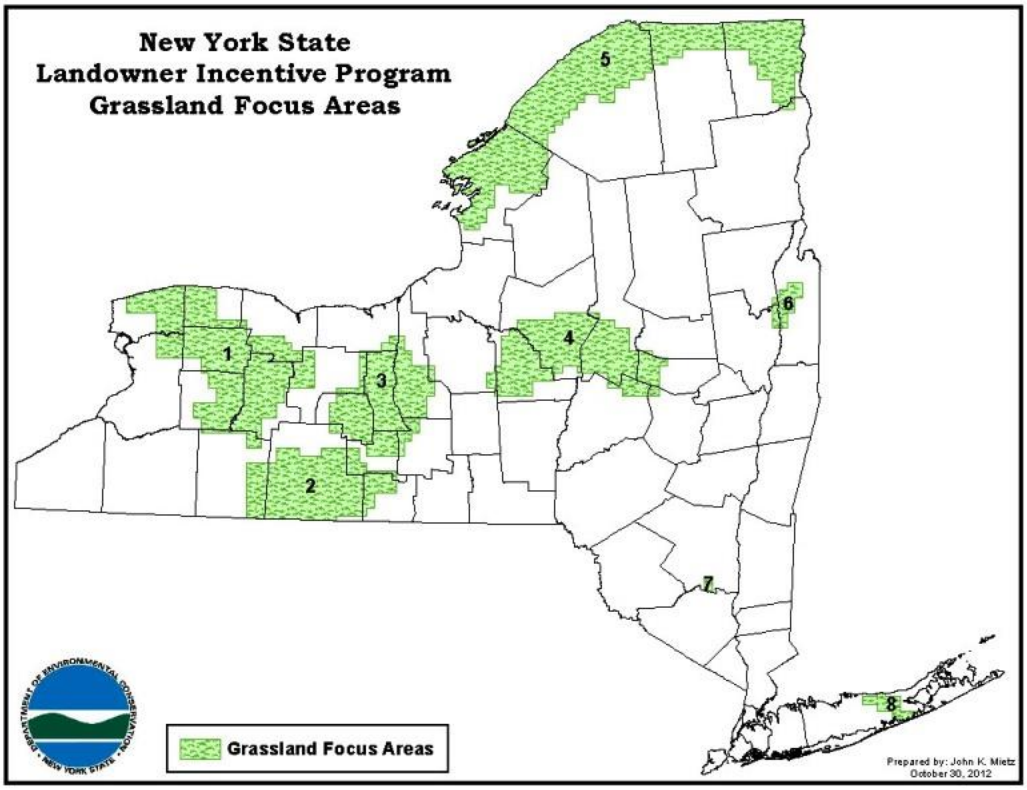
Key:
E = Endangered
T = Threatened
SC = Species of Special Concern
* = Grassland bird species

Grassland bird habitat includes large, open grasslands, which provide treeless spaces needed to forage, nest, and reproduce. Grassland bird populations are currently declining due to habitat loss and fragmentation from development, re-forestation, and agricultural intensification. According to the National Land Cover Database, 4.1 million acres (13%) of land cover in New York State is considered suitable nesting habitat, including grasslands and hayfields.[57] Using land cover data and statewide bird surveys, NYSDEC identified grassland focus areas that have the highest likelihood of sustaining grassland bird populations on a long-term basis and should be targeted for conservation (see Exhibit 3-3). Approxi-mately 1.4 million acres of grasslands and hayfields are present within these grassland focus areas.[58] These grassland focus areas are intended to facilitate land-use planning and decision making for conservation priorities.

[57] U.S. Geological Survey (USGS). 2019. NLCD 2016 Land Cover Conterminous United States, Updated: May 2019. Accessed May 18, 2019. https://www.mrlc.gov/data.

[58] New York State Department of Environmental Conservation (NYSDEC). 2005. Grassland Focus Areas [Raster & vector geospatial data] Updated: 2005, Accessed February 5, 2020. https://www.dec.ny.gov/pubs/32975.html.

Exhibit 3-3 New York State Grassland Focus Areas



3.2 Offshore Setting

The description of the offshore setting focuses primarily on the marine environment, which includes the submerged lands, subsoil, seabed, and water under states' jurisdiction and federal jurisdiction as well as the Great Lakes region of New York. For the Great Lakes region, after consideration of water depth from shore and the presence of canal locks and sea ice, only Lake Erie and Lake Ontario were considered in the analysis as suitable areas for wind energy development.

The following subsections incorporate by reference in its entirety material from Chapter 3 of the 2020 SGEIS with respect to the marine environment under federal jurisdiction, defined by the Bureau of Ocean Energy Management (BOEM) as the North Atlantic Outer Continental Shelf and Mid-Atlantic Outer Continental Shelf, including the associated waters offshore of New York. These subsections also provide relevant environmental setting information for the Great Lakes.

3.2.1 Physical Resources

The Great Lakes Basin, including Lake Erie and Lake Ontario, consist of glacial deposits and sediment material deposited after the retreat of the last glaciers from the area. The type and thickness of the sediment is dependent on its location within the lake. Generally, deeper waters consist of finer sediment (e.g., lake clay and silt), while the coastline consists of coarser sediment (e.g., sand and gravel).

Wave and current activity within each of the Great Lakes drives the movement of sediment throughout.[59]

Lake Erie is the fourth largest lake of the five Great Lakes in North America. It is the southernmost, shallowest, and smallest (by volume) of the Great Lakes.[60] At its deepest point, Lake Erie is 210 feet (64 meters) deep, with an average depth of 84 feet (26 meters). In contrast to Lake Erie, Lake Ontario is the smallest (by circumference) of the Great Lakes and is much deeper with a significantly steeper lake depth gradient.[61] Average water depth in Lake Ontario is 363 feet (111 meters) with a maximum depth of 790 feet (241 meters). Lake Ontario's physical characteristics define the areas that are most feasible for development, and significantly affect the selected technology and installation procedures. Bathymetry, waves, and lake ice affect foundation design in particular. Site access and installation schedules would be affected by seasonal and extreme lake conditions.

The Great Lakes have developmental challenges related to the presence of lake ice. The formation of ice during winter plays a critical role in determining turbine siting and distance from shore for an offshore wind energy project. The amount of ice coverage in each of the lakes is dependent on the severity of the winter. Generally, ice in Lake Erie can stop all vessel traffic for months, which would limit access to an offshore wind project area. Ice forms on Lake Erie in the west and slowly progresses east throughout the early winter. Areas of deeper water are usually the last portions of the lake to freeze. The maximum thickness of ice occurs in mid-February with ice ranging from 16 to 20 inches (40 to 51 centimeters) thick. Ice can last until April and cause significant navigational issues.

Unlike Lake Erie, Lake Ontario is significantly deeper, and largely remains ice-free except during periods when an extreme drop in temperature occurs causing small areas of thin, slushy ice to form within 3 to 9 miles (5 to 15 kilometers) from the coast. Most ice that forms in Lake Ontario occurs in the northeastern section. The maximum thickness of ice occurs during February with ice ranging from 20 to 25 inches (50 to 60 centimeters) thick. The average duration of ice cover ranges from 10 days in the open lake waters to approximately 40 days in the northeast bays.

3.2.2 Sensitive Biological Resources

The biodiversity of New York and the Great Lakes includes many different species of animals, plants, fungi, benthic organisms, and microorganisms. Several changes to status of state and federal listed species occurred since the 2016 SEIS.

[59] NYSERDA. 2010. New York's Offshore Wind Energy Development Potential in the Great Lakes: Feasibility Study. Accessed March 16, 2020. https://www.nyserda.ny.gov/About/Publications/Research-and-Development-Technical-Reports/Wind-Reports.

[60] International Lake Environment Committee Foundation. 2020a. World Lake Database-Lake Erie. Accessed March 17, 2020. http://wldb.ilec.or.jp/Details/Lake/NAM-06.

[61] International Lake Environment Committee Foundation. 2020b. World Lake Database-Lake Ontario. Accessed March 17, 2020. http://wldb.ilec.or.jp/Details/Lake/NAM-07.

Two species of fish believed or known to occur in New York have been federally listed as threatened in the marine environment. They are the giant manta ray (*Manta birostris*) and the oceanic whitetip shark (*Carcharhinus logimanus*). There is no critical habitat designated for these species and they are not state-listed in New York. Additionally, numerous fish species are now regularly stocked in the Great Lakes from artificial propagation. These species are managed by the Great Lakes Fishery Commission and include lake trout (*Salvelinus namaycush*), rainbow trout (*Corhynchus mykiss*), brown trout (*Salmo trutta*), and Atlantic salmon (*Salmo salar*).[62]

The coastlines have a significant population of local and migratory birds. Exhibit 3-2 in the 2018 GEIS lists migratory birds included on the U.S. Fish and Wildlife Service 2008 Birds of Conservation Concern list and other migratory birds that potentially occur in the area of the Great Lakes region and could be affected by offshore wind energy.[63] Numerous other migratory bird species protected under the Migratory Bird Treaty Act may be present in the Great Lakes region; however, as discussed in the 2018 GEIS, those species are not expected to be particularly susceptible to the effects of offshore wind development activities.

Since the Prior SEQRA Analyses, the federally endangered piping plover (*Charadrius melodus*), belonging to the Great Lakes watershed distinct population segment, has had several successful nesting pairs breeding along the eastern shoreline of Lake Ontario.[64,65,66] This is the first time this species has been recorded along the shoreline of Lake Ontario in over 30 years.

Bat species are generally terrestrial animals and are not frequently observed more than a few miles from shore. The federally and state endangered Indiana bat (*Indiana myotis*), and the federally and state threatened northern long-eared bat (*Myotis septentrionalis*) are typically located in forested habitat; however, these species may migrate along portions of the Great Lakes.[67]

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[62] Great Lakes Fishery Commission. 2018. Great Lakes Fish Stocking Database. Accessed March 17, 2020. http://www.glfc.org/fishstocking/.

[63] U.S. Fish and Wildlife Service. 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp. Accessed January 21, 2020. https://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php.

[64] U.S. Fish and Wildlife Service. 2020. ECOS Species Profile – Piping Plover (*Charadrius melodus*). Accessed March 16, 2020. https://ecos.fws.gov/ecp0/profile/speciesProfile?sId=6039.

[65] Audubon. 2016. "Endangered Piping Plover Birds Return to Lake Ontario for First Time in 30 Years". Published January 11, 2016. Accessed March 17, 2020. https://ny.audubon.org/news/endangered-piping-plover-birds-return-lake-ontario-first-time-30-years.

[66] Mazzocchi, I. and E. Truskowski. 2015. Piping Plovers nest successfully on the eastern shores of Lake Ontario. *The Kingbird, New York Ornithological Association, Inc.* 65(4): 285-286.

[23] NYSDEC. 2019. "Current and Proposed Status of All Species on Proposed List." Accessed March 18, 2020. https://www.dec.ny.gov/animals/7494.html.

[67] U.S. Department of Energy. 2018. *Final Environmental Assessment LEEDCo Project* Ice-breaker *Lake Erie, City of Cleveland, Cuyahoga County, Ohio*.

Exhibit 3-4 below represents a comprehensive and current list of federally and New York state-listed species believed or known to occur in the Great Lakes and marine environment. Additionally, as noted previously, NYSDEC is proposing to revise the state's endangered, threatened, and species of concern list.[23] Exhibit 3-4 includes the proposed changes to the status of New York species.

Exhibit 3-4 New York State-Listed and Federally Listed Animal Species Believed or Known to Occur in the Great Lakes and Marine Environment[68,69]

Species	New York Region[1]	Federal Status	Current New York State Status	Proposed Change to New York State Status
Fish				
American eel (*Anguilla rostrata*)	Marine, Great Lakes	-	-	SC
Atlantic sturgeon (*Acipenser oxyrhynchus*)	Marine	E	-	E
Banded sunfish (*Enneacanthus obesus*)	Marine	-	T	No change
Bigeye chub (*Hybopsis amblops*)	Great Lakes	-	-	T
Black redhorse (*Moxostoma duquesnei*)	Great Lakes	-	SC	Off List
Bloater (*Coregonus hoyi*)	Great Lakes	-	-	SC
Comely shiner (*Notropis amoenus*)	Marine, Great Lakes	-	-	SC
Deepwater sculpin (*Myoxocephalus thompsoni*)	Great Lakes	-	E	SC
Eastern sand darter (*Ammocrypta pellucida*)	Great Lakes	-	T	SC
Giant manta ray (*Manta birostris*)	Marine	T	-	-
Gravel chub (*Erimystax x-punctata*)	Great Lakes	-	T	Off List
Ironcolor shiner (*Notropis chalybaeus*)	Marine	-	SC	T
Lake chubsucker (*Erimyzon sucetta*)	Great Lakes	-	T	Off List
Lake sturgeon (*Acipenser fulvescens*)	Great Lakes	-	T	No change
Mooneye (*Hiodon tergisus*)	Great Lakes	-	T	No change
Northern sunfish (*Lepomis peltastes*)[2]	Great Lakes	-	T	E
Oceanic whitetip shark (*Carcharhinus logimanus*)	Marine	T	-	-
Pugnose shiner (*Notropis anogenus*)	Great Lakes	-	E	SC

[68] 83 FR 2916.
[69] 83 FR 4153.

Exhibit 3-4 New York State-Listed and Federally Listed Animal Species Believed or Known to Occur in the Great Lakes and Marine Environment[68,69]

Species	New York Region[1]	Federal Status	Current New York State Status	Proposed Change to New York State Status
Redfin shiner (*Lythrurus umbratilis*)	Great Lakes	-	SC	Off List
Round whitefish (*Prosopium cylindraceum*)	Great Lakes	-	E	T
Sauger (*Sander canadensis*)	Great Lakes	-	-	SC
Scalloped hammerhead shark (*Sphyrna lewini*)	Marine	T	-	-
Shortnose sturgeon (*Acipenser brevirostrum*)	Marine	E	E	No change
Silver chub (*Macrhybopsis storeriana*)	Great Lakes	-	E	Off List
Spoonhead sculpin (*Cottus ricei*)	Great Lakes	-	E	Off List
Streamline chub (*Erymystax dissimilis*)	Great Lakes	-	SC	Off List
Swallowtail shiner (*Notropis procne*)	Great Lakes	-	-	T
Western pirate perch (*Aphredoderus sayanus gibbosus)*	Great Lakes	-	-	T
Marine Mammals				
Blue whale (*Balaenoptera musculus*)	Marine	E	E	No change
Fin whale (*Balaenoptera physalus*)	Marine	E	E	No change
Harbor porpoise (*Phocoena phocoena*)	Marine	-	SC	No change
Humpback whale (*Megaptera novaeangliae*)	Marine	-	E	Off List
North Atlantic right whale (*Eubalaena glacialis*)	Marine	E	E	No change
Sei whale (*Balaenoptera borealis*)	Marine	E	E	No change
Sperm whale (*Physeter microcephalus*)	Marine	E	E	No change
Sea Turtles				
Green sea turtle (*Chelonia mydas*)	Marine	T	T	No change
Loggerhead sea turtle (*Caretta caretta*)	Marine	T	T	No change
Kemp's Ridley sea turtle (*Lepidochelys kempii*)	Marine	E	E	No change
Leatherback sea turtle (*Dermochelys coriacea*)	Marine	E	E	No change

Exhibit 3-4 New York State-Listed and Federally Listed Animal Species Believed or Known to Occur in the Great Lakes and Marine Environment[68,69]

Species	New York Region[1]	Federal Status	Current New York State Status	Proposed Change to New York State Status
Atlantic hawksbill sea turtle (*Eretmochelys imbricata*)	Marine	E	E	Off List

Notes:
[1] The New York region designation for each species is not representative of their entire range of distribution, but only representative of the waters for which offshore wind is being analyzed within the state (i.e., marine environment [to include nearshore and offshore Atlantic ocean] and the Great Lakes [Lake Erie and/or Lake Ontario]).
[2] Formally called longear sunfish.

Key:
E = Endangered
T = Threatened
SC = Species of Special Concern

3.2.3 Commercial and Recreational Uses

The Great Lakes environment provides a variety of commercial and recreational uses including fishing and infrastructure. Commercial and recreational fishing are some of the main activities within the Great Lakes. Fish caught in the lakes include walleye (*Sander vitreus*) and yellow perch (*Perca flavescens*) and almost 4.8 billion pounds of fish were harvested from Lake Erie in 2012.[70,71] Commercial and recreational fishing in Lake Ontario is far less prevalent. Fishing in Lake Ontario occurs along the New York shoreline. Higher concentrations of fishing occurs in Lake Ontario along the eastern shore from Alcan Point to Montario Point.

Infrastructure in the form of submarine cables (telecommunication and power cables), natural gas pipelines, and other infrastructure (e.g., buoys) is either present or planned throughout the Great Lakes environment. Numerous marine cables and submerged pipelines extend from the shoreline with connections between the various islands. Buoys that measure a range of environmental parameters or serve as aids to navigation, mark navigation channels and shipping lane approaches are present in both Lake Erie and Lake Ontario.[72] In addition to cables and buoys, there are anchorage areas, dumping grounds of various sizes for dredged material, and military practice areas. The U.S. Army Corps of Engineers is considering updating local dredged material management plans and restricting the dumping of dredged material into Lake Erie. For Ohio, dumping dredged

[70] Great Lakes Fishery Commission. 2015. Lake Erie Walleye Management Plan 2015-2019. October 2015. Accessed March 17, 2020. www.glfc.org/pubs/lake_committees/erie/LEC_docs/position_statements/walleye_managment_plan.pdf.
[71] The Nature Conservancy. 2018. Commercial Fishing Map. Accessed March 17, 2020. https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/wholesystems/greatlakes/coasts/wle/Pages/Commercial-Fishing.aspx.
[72] National Oceanic and Atmospheric Administration, National Weather Service. 2020. National Data Buoy Center. Accessed March 17, 2020. https://www.ndbc.noaa.gov/.

material will no longer be an option as of July 1, 2020.[73] The state of New York may follow suit.

Underwater activities in the Great Lakes environment consist of shore- and boat-based scuba diving, free diving, and snorkeling. Scuba diving occurs near ship-wrecks, artificial reefs, and other distinct areas of the Great Lakes environment. Surface water activities can consist of swimming, windsurfing, surfing, and kayaking/paddling. These aquatic recreational uses predominantly occur near the coast and are correlated with beach activities.

3.2.4 Vessel Traffic

Existing marine transportation includes a variety of commercial vessel uses, including the operation of vessels for import and export services, construction work, fishing, and cruise ship tourism, as well as recreational vessels. Established vessel traffic routes exist within Lake Erie and Lake Ontario. Transportation routes in Lake Erie tend to follow parallel to the shoreline at varying distances from shore and converge near the Port of Buffalo.[74] Lake Ontario is the primary link between the upper Great Lakes and the Atlantic Ocean as part of the St. Lawrence Seaway and is used extensively by commercial shipping traffic. Major ports in Lake Ontario include Rochester, Alexandria, Oswego, and Niagara-on-the-Lake. The Ports of Rochester and Oswego have deep-draft vessel facilities and are equipped to handle bulk cargo. Recreational vessels may include charter boats used for general boating, fishing, birding, and/or scuba diving. Recreational boating and commercial tour groups (e.g., Niagara Falls on Lake Ontario) are common during the summer months.

[73] Ohio Environmental Protection Agency. 2020. Lake Erie Dredged Material Program. Accessed March 20, 2020. https://epa.ohio.gov/dir/dredge.

[74] NYSERDA. 2010. New York's Offshore Wind Energy Development Potential in the Great Lakes: Feasibility Study. Accessed March 16, 2020. https://www.nyserda.ny.gov/About/Publications/Research-and-Development-Technical-Reports/Wind-Reports.

4 Regulatory Framework and Mitigation of Potential Impacts

Consistent with 6 NYCRR §§617.9(b)(5)(iv) and 617.11(d)(5) of SEQRA, Prior SEQRA Analyses identified federal and state regulations that help ensure, to the maximum extent practicable, avoidance, minimization, or mitigation of adverse environmental impacts that may occur from the Proposed Action. This SGEIS incorporates by reference material from Prior SEQRA Analyses and provides relevant updates to federal and state regulations and guidance concerning renewable energy development activities, as well as updates related to avoidance, minimization, and mitigation strategies. In addition, this SGEIS provides relevant updates to federal and state regulations and guidance concerning offshore wind located in the Great Lakes.

4.1 Federal and State Regulations and Guidance

As described in the Prior SEQRA Analyses, large-scale renewable energy projects are subject to review and decision-making by federal and state agencies. Renewable energy developers will be expected to adhere to these project-specific and site-specific regulations and permitting processes. Regulations and guidance applicable to offshore wind in the marine environment were discussed in the 2020 SGEIS. Site-specific characteristics and project-specific details will ultimately determine the regulations that will apply to each potential development.

4.1.1 Onshore Resources

The regulations identified in the Prior SEQRA Analyses remain in effect without substantive changes for utility-scale solar. The Accelerated Renewable Energy Growth and Community Benefit Act was passed as part of the fiscal year 2020-2021 state budget and will create a first in the nation Office of Renewable Energy Siting to improve and streamline the process for environmentally responsible siting of large-scale renewable energy projects. Renewable energy projects greater than 25 MW will continue to be sited through the Article 10 process until the Office of Renewable Energy Siting establishes the new siting standards.[75] Regulatory requirements for distributed solar energy projects generally vary by the size and type of project. Many communities permit rooftop installations and residential solar projects by right and often a building permit may be the only

[75] NYSERDA. 2020b. New York State Announces Passage of Accelerated Renewable Energy Growth and Community Benefit Act as Part of 2020-2021 Enacted State Budget. Accessed April 17, 2020. https://www.nyserda.ny.gov/About/Newsroom/.

approval required. NYSERDA has developed a unified solar permit that has been adopted by nearly 350 communities to streamline the permitting process for solar systems that are 25 kilowatts or less.[76] Community solar projects are typically around 2 MW and allow individuals (including renters and others who cannot install a system on their own roof) to purchase individual panels or some fraction of the electricity the entire system generates.[77] Community solar projects are generally assessed in accordance with SEQRA and are potentially subject to the same federal and state regulations as the utility-scale solar projects identified in Exhibit 6-3 of the 2015 GEIS.

4.1.2 Offshore Resources

The requirements identified in Exhibit 4-1 in the 2020 SGEIS remain in effect without substantive changes and will continue to help ensure, to the maximum extent practicable, avoidance, minimization, or mitigation of adverse environmental impacts that may occur from the procurement of offshore wind capacity. As discussed in the 2020 SGEIS, most offshore wind projects located in the marine environment are subject to review and decision-making by the Bureau of Ocean Energy Management and other federal agencies. However, offshore wind projects located in New York State jurisdictional waters, including Lake Erie and Lake Ontario, would be subject to SEQRA or Article 10 of the Public Services Law, which provides for siting review of major electric generating facilities of 25 MW.[78] In addition to requirements identified in Exhibit 4-1 in the 2020 SGEIS, offshore wind in the Great Lakes could also be subject to Boundary Water Treaty approval from the International Joint Commission and U.S. Army Corps of Engineers permits under Section 408 as well as Section 401 of the Clean Water Act.

4.2 Avoiding, Minimizing, and Mitigating Potential Impacts

As described in the Prior SEQRA Analyses, the required avoidance, minimization, and mitigation of potential environmental impacts from future renewable energy development would occur on a project-specific basis as part of the permitting process for each project.

Since the Prior SEQRA Analyses, local, state, regional, and federal agencies continue to identify and develop additional measures to avoid, minimize, and mitigate potential adverse impacts from development of renewable energy. These efforts inform current and future guidance, regulations, contracts, and agreements to implement additional suitable measures, as described below.

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[76] NYSERDA. 2019. Designated Clean Energy Communities Map. https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Communities/CEC-Map.

[77] NYSERDA. 2019. *New York Solar Guidebook for Local Governments*. https://www.nyserda.ny.gov/All-Programs/Programs/NY-Sun/Communities-and-Local-Governments/Solar-Guidebook-for-Local-Governments.

[78] New siting standards for projects greater than 25 kW will be developed as part of the Accelerated Renewable Energy Growth and Community Benefit Act.

Under the Proposed Action, the new and previously identified measures would be suitably implemented on a project-specific basis, as required by the necessary state and federal permits and authorizations, in accordance with federal and state laws and regulations. Such measures may be supplemented by non-regulatory initiatives aimed at enhancing developer and stakeholder collaboration to identify and incorporate less impactful approaches to offshore wind facility design, construction, and operation.

4.2.1 Onshore Resources

Since the 2016 SEIS, the New York State Department of Agriculture and Markets has developed guidelines for mitigating construction impacts of solar projects on agricultural land during construction, post-construction restoration, monitoring and remediation, and decommissioning. Similarly, NYSDEC provides best management practices to guide habitat management for grassland birds. Exhibit 4-1 summarizes pertinent aspects of these guidelines designed to minimize and avoid impacts.

4.2.2 Offshore Resources

Many of the guidelines discussed in the Prior SEQRA Analyses related to offshore wind and avoiding and minimizing impacts on, for example, birds and bats, fish, and recreational and commercial fishing, would likely be applicable to Great Lakes offshore wind. Several avoidance and minimization measures were proposed in the U.S. Department of Energy's Environmental Assessment for the Icebreaker Wind Project and are also summarized in Exhibit 4-1.

Exhibit 4-1 New Potential Avoidance, Minimization, and Mitigation Measures for Solar Energy and Great Lakes Wind Development

Resource(s)	Potential Avoidance, Minimization, and Mitigation Measures	References
Solar Energy		
Agricultural Land	Siting - avoiding installation of solar arrays on the most valuable or productive farmland, especially lands containing prime farmland soils or soils of statewide importance. Construction Requirements - ensuring the surface of access roads is level with the adjacent agricultural field surface; installing culverts and water bars to maintain natural drainage patterns; stripping all topsoil from agricultural areas used for vehicle and equipment traffic, parking, and equipment laydown and storage areas; stockpiling topsoil stripped from work areas; burying interconnected cables at a specified depth; removing excess subsoil and rock from the site; constructing temporary or permanent fences around work areas to prevent livestock access; and picking up and properly disposing of pieces of wire, bolts, and other unused metal objects. Restoration Requirements - decompacting disturbed agricultural areas; regrading access roads to allow for farm equipment crossing and to restore original surface drainage patterns; seeding restored agricultural areas with the seed mix specified by the landowner; repairing all surface or subsurface drainage structures damaged during construction; and, following restoration, removing all construction debris from the site. Two-Year Monitoring and Remediation Immediately Following Restoration - mitigation of topsoil deficiency and trench settling with imported topsoil consistent with the quality of topsoil on the affected site; and determination of the appropriate rehabilitation measures if the subsequent crop productivity within affected areas is less than that of the adjacent unaffected agricultural land. Decommissioning - removal of all above-ground structures and restoration of areas previously used for agricultural production.	New York State Department of Agriculture and Markets. 2019. *Guidelines for Solar Energy Projects - Construction Mitigation for Agricultural Lands.* Revised 10/18/2019. Accessed online at: https://agriculture.ny.gov/system/files/documents/2019/10/solar_energy_guidelines.pdf NYSERDA. 2019. New York Solar Guidebook for Local Governments. Accessed on March 31, 2020 at: https://www.nyserda.ny.gov/-/media/NYSun/files/solar-guidebook.pdf

Exhibit 4-1 New Potential Avoidance, Minimization, and Mitigation Measures for Solar Energy and Great Lakes Wind Development

Resource(s)	Potential Avoidance, Minimization, and Mitigation Measures	References
Grassland Birds	The management goal of these best management practices is to maintain the open, grassy conditions necessary for successful breeding by grassland birds and to avoid disturbance to nesting birds. Techniques to be used may include seeding, mowing, and removal of trees and shrubs. Typically, land should be managed for a minimum of 5 years to begin showing benefits for grassland birds: Nesting Restrictions: Grasslands should not be disturbed by mowing, planting, harvesting, driving, or by any other mechanized means from 23 April to 15 August, inclusive (the nesting season) of every contract year. Wintering Restrictions: Excessive disturbance such as frequent high-speed snowmobile, ATV, motorized vehicle operation, or loud noises such as fireworks should be avoided from 1 November to 1 March, inclusive for the protection of wintering raptors. Mowing Window: All mowing must be done between 16 August and 1 October. Between 16 August and 1 November of the first year of management, reduce fragmentation of the grassland by eliminating hedgerows, shrubs, and trees within the boundaries of the Landowner Incentive Program field. Between 16 August and 1 November and to the extent possible, eliminate woody vegetation, especially hedgerows within and bordering the field. Hedgerows split up habitat and function as predator corridors for coyote, foxes, cats, raccoons, etc; thereby degrading the overall quality of the site for breeding.	New York State Department of Environmental Conservation, *Best Management Practices for Grassland Birds*. Available at https://www.dec.ny.gov/pubs/86582.html

Exhibit 4-1 New Potential Avoidance, Minimization, and Mitigation Measures for Solar Energy and Great Lakes Wind Development

Resource(s)	Potential Avoidance, Minimization, and Mitigation Measures	References
Visual Resources	General guidance regarding appropriate considerations to address visual effects for development projects of all types, such as relocation, camouflage/disguise, low profile, downsizing, use of alternative technology, non-specular material, lighting, and screening. Visual Impact Assessment addressing visibility, appearance, lighting, visual change, glare, proposed mitigation including landscaping.	New York State Department of Environmental Conservation. *Program Policy: Assessing and Mitigating Visual Impacts*, DEP-00-2, Division of Environmental Permits, Albany NY. 2018. Public Service Law Article 10. 16 New York Codes, Rules, and Regulations 1000.24(a).
Great Lakes Wind Energy		
Birds and Bats	Develop a Bird and Bat Conservation Strategy to conduct thorough post-construction monitoring of Proposed Project impacts, and undertake adaptive management measures, if necessary. Adjust the pitch of turbine blades up to the manufacturer's cut in speed during late summer when migrating and swarming bats are most active. Use flashing red lights on turbines for bird safety. Where lights on the platforms or bases of the turbines are illuminated and face upward, use bird-safe designs, such as hooded or "smart" lighting, consistent with other pertinent safety guidance on facility lighting.	U.S. Department of Energy. 2018. Final Environmental Assessment LEEDCo Project Icebreaker Lake Erie, City of Cleveland, Cuyahoga County, Ohio. Accessed online at: https://www.energy.gov/sites/prod/files/2018/09/f55/EA-2045-LEEDCo-Final%20EA-2018.pdf. Accessed on March 9, 2020. Federal Aviation Administration. 2018. AC No. 70/7460-1L, Obstruction Marking and Lighting. August 17, 2018. Accessed online at: https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_70_7460-1L_-_Obstuction_Marking_and_Lighting_-_Change_2.pdf. Accessed on March 9, 2020.
Fish	Develop an aquatic and fish sampling plan that lays out testing and analyses that will be conducted before, during, and post-construction.	U.S. Department of Energy. 2018. Final Environmental Assessment LEEDCo Project Icebreaker Lake Erie, City of Cleveland, Cuyahoga County, Ohio. Accessed online at: https://www.energy.gov/sites/prod/files/2018/09/f55/EA-2045-LEEDCo-Final%20EA-2018.pdf. Accessed on March 9, 2020.

Exhibit 4-1 New Potential Avoidance, Minimization, and Mitigation Measures for Solar Energy and Great Lakes Wind Development

Resource(s)	Potential Avoidance, Minimization, and Mitigation Measures	References
Commercial and Recreational Uses	Notify all applicable agencies (e.g., U.S. Coast Guard [USCG] and U.S. Army Corps of Engineers) prior to construction that a construction vessel (or vessels) will be moored and/or traveling within navigable channels. Provide the USCG with the information necessary for the USCG to issue a Notice to Mariners. Follow any navigation restrictions imposed by the USCG. Notify appropriate authorities to include the wind turbines on navigation charts.	U.S. Department of Energy. 2018. Final Environmental Assessment LEEDCo Project Icebreaker Lake Erie, City of Cleveland, Cuyahoga County, Ohio. Accessed online at: https://www.energy.gov/sites/prod/files/2018/09/f55/EA-2045-LEEDCo-Final%20EA-2018.pdf. Accessed on March 9, 2020.

5 Areas of Potential Environmental Impact

5.1 Introduction

Consistent with 6 NYCRR §617.10(a), the Prior SEQRA Analyses reviewed potential impacts from an increase in large-scale renewable resources and distributed solar generation. Potential impacts were considered in the context of regulatory requirements for avoidance, minimization, and mitigation strategies. This SGEIS incorporates by reference material from the Prior SEQRA Analyses and analyzes the potential for significant adverse environmental impacts from the Proposed Action.

As described in Chapter 1, this SGEIS considered the following factors when determining which resource areas required new or further analysis: changes in the type of renewable resources, increases in scale of development, and new information (e.g., previously unknown, impacts on a threatened or endangered species, or technology change of large-scale renewable resource and distributed solar generation). Exhibit 1-2 in Chapter 1 provides a summary of the potential significant adverse impacts that the Prior SEQRA Analyses concluded would occur, therefore, these impacts are considered further with respect to changes that may affect conclusions regarding impacts. Chapter 2 discusses changes in technology or design for large-scale renewable resources and distributed solar generation, as well as the estimated increase in the scale of development. As Exhibit 2-5 explains, the Proposed Action would result in approximately 2,100 to 6,300 MW of incremental utility-scale solar, 4,800 MW of incremental offshore wind, and 6,000 MW of incremental distributed solar. Each subsection in this chapter evaluates these changes and the potential for significant adverse effects.

As with the Prior SEQRA Analyses, these quantitative and qualitative discussions do not substitute for project-specific environmental reviews, which may result in the identification of site-specific impacts not set forth below.

5.2 Utility-Scale Solar Energy

As summarized in Exhibit 1-2, the Prior SEQRA Analyses evaluated utility-scale solar and identified potential adverse impacts on land use, visual resources, and birds. This SGEIS analyzes the effects of additional utility-scale solar on these resources and considers potential impacts on grassland birds.

5.2.1 Land Use

Impacts on land use and land cover would occur from the temporary and permanent conversion of existing land use and land cover for development of utility-scale solar energy. The estimated increase in the development of utility-scale solar required to meet the 70 by 30 goal would result in an increase in the temporary and permanent conversion of land area beyond what was considered in the Prior SEQRA Analyses.

Land cover, as described in Section 3.1.1, has not changed significantly since the Prior SEQRA Analyses. However, the Prior SEQRA Analyses assumed a land use requirement of 2 acres per MW capacity, while current land requirement assumptions from NYSERDA estimate an average requirement of 5 acres per MW capacity is required for utility-scale solar projects.[79]

The additional development of utility-scale solar would result in some minor impacts on land use, including conversion of farmland. As described in Chapter 3, approximately 6.1 million acres in New York are cultivated crop and pastureland. Assuming 5 acres per MW of utility-scale solar capacity, land requirements for the expansion of the 50 by 30 goal to 70 by 30 using additional utility-scale solar represent approximately 0.2 to 0.5% of the state's cropland and pastureland.

As described in the Prior SEQRA Analyses and Chapter 4 of this SGEIS, policies for agricultural land protection, including agricultural districts, and guidelines for mitigation of construction impacts on agricultural land, would avoid, minimize, and mitigate some potential impacts associated with construction and operation of utility-scale solar development. In addition, utility-scale solar projects can provide long-term preservation of agricultural land as an alternative to commercial development, and at the end of the operation life of a project the land can be returned to its former use.[80] Given the minor conversion of land compared to available crop and pastureland, project-specific agency guidelines, and restoration following decommissioning, significant adverse impacts on land use and land cover would not be expected from incremental utility-scale solar development.

5.2.2 Visual Resources

Potential impacts on visual resources from the equipment of utility-scale solar facilities occur primarily from the contrast with surrounding landscape and glare from solar panels. The Prior SEQRA Analyses concluded that best practices including proper siting, screening, and using non-reflective support structures, would avoid or minimize impacts, including glare. The estimated increase in the scale of development of utility-scale solar required to meet the 70 by 30 goal would increase the spatial area in which impacts on visual resources would occur.

[79] NYSERDA. 2019. *New York Solar Guidebook for Local Governments*. Accessed March 31, 2020. https://www.nyserda.ny.gov/-/media/NYSun/files/solar-guidebook.pdf.
[80] Ibid.

As described in Section 3.2, land use and land cover, which make up components of the visual landscape, have not changed significantly since the Prior SEQRA Analyses. As described in Section 2.3, the efficiency of solar could increase from 14% to 20%, which may result in a reduction in the size or number of solar panels at individual utility-scale solar projects.

The additional utility-scale solar would result in some additional spatial area in which a contrast between solar facilities and the surrounding landscape occurs depending on the selected design, topography, existing vegetation, screening, and individual sensitivity. Some large utility-scale solar projects would overlap with a greater portion of the viewshed from a viewing location or be seen from longer distances.[81,82] Use of safety lighting at substations and operations infrastructure would be visible nearby. Siting of utility-scale solar would generally avoid or minimize visual impacts on high density population centers, and screening provided by vegetation and topography would limit visibility to nearby areas. Photovoltaic modules are specifically designed to reduce reflection to maximize the amount of light converted into electricity and visual impacts from glare would be negligible.[83]

As described in Section 4.2 and the Prior SEQRA Analyses, permitting of utility-scale solar requires consideration of visual impacts and measures, such as landscaping or non-reflective materials, to avoid, minimize, and mitigate impacts on visual resources. Given the project-specific agency consultations, the Proposed Action would not be expected to result in significant adverse impacts on visual resources from additional utility-scale solar projects.

5.2.3 Birds

Potential impacts on birds that may result from utility-scale solar development include the loss or fragmenting of habitat, disrupting natural behaviors such as foraging, hunting, and migration patterns; and introducing barriers to the movement of species. The Prior SEQRA Analyses concluded that impacts depend on the size and type of utility-scale solar projects as well as proximity to sensitive species. In addition, development of utility-scale solar under the Proposed Action may result in impacts on grassland birds that were not analyzed in detail in the Prior SEQRA Analyses.

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[81] Sullivan, R.G., L. Kirchler, C. McCoy, J. McCarty, K. Beckman, and P. Richmond. 2012. Visual Impacts of Utility-scale Solar Energy Facilities on Southwestern Desert Landscapes. Presented at the National Association of Environmental Professionals 37th Annual Conference, May 21–24, Portland, OR.

[82] Sullivan, Robert and Jennifer Abplanalp. 2014. *Utility-Scale Solar Energy Facility Visual Impact Characterization and Mitigation Study Project Report*.

[83] Federal Aviation Administration. 2018. *Technical Guidance for Evaluating Selected Solar Technologies on Airports*. Accessed March 28, 2020. https://www.faa.gov/airports/environmental/policy_guidance/media/FAA-Airport-Solar-Guide-2018.pdf.

The increase in utility-scale solar developed under the Proposed Action would result in impacts on some bird species from increased noise, human presence, habitat loss and disturbance of vegetation communities due to site preparation including clearing and tree removal. The increase in vegetation removal from construction of utility-scale solar projects would result in conversion from agricultural land that may be considered grassland habitat to maintained vegetation, displacing individuals from some avian species from migrating, breeding, foraging, and nesting areas. Loss of habitat would displace individuals of some species to other nearby areas with suitable habitat, resulting in increased competition in the nearby habitat. Construction would also result in some partial removal of forested area, removing areas of cover from predators, foraging opportunities, and shelter.[84]

Most grassland bird species are present throughout the state; however, suitable habitat is concentrated in focus areas shown in Exhibit 3-3. Land requirements of additional utility-scale solar, assuming 5 acres per MW capacity, would represent only 0.8 to 2.3% of the approximately 1.4 million acres of suitable nesting habitat within the state's grassland focus areas even if all additional utility-scale solar were conservatively assumed to be constructed there.

Potential effects of construction noise on birds include changes in physiology (e.g., stress, reproductive hormone levels) and behavior (e.g., avoidance, foraging, vocalization, attention).[85,86] However, bird populations can rebound very shortly after even large-scale, extremely noisy events.[87] Given the short-term noise exposure; the potential impacts due to construction noise from utility-scale solar projects would be temporary and negligible.

Impacts on birds would occur at an individual level, however, population level impacts would not be expected to occur for any species. Given the minor conversion of land compared to available grassland areas, the available habitat for relocation, and project-specific agency consultations, significant adverse impacts on grassland birds would not be expected.

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[84] U.S. Department of the Navy. 2016. Final Environmental Assessment for the Lease of Property to Support the Construction and Operation of a Solar Photovoltaic System at Naval Air Station Oceana, Virginia Beach, Virginia.

[85] Sanyal, T., V. Kumar, T.C. Nag, S. Jain, V. Sreenivas, S. Wadhwa. 2013. Prenatal Loud Music and Noise: Differential Impact on Physiological Arousal, Hippocampal Synaptogenesis and Spatial Behavior in One Day-Old Chicks. PLoS ONE 8(7): e67347. https://doi.org/10.1371/journal.pone.0067347.

[86] Bowles, A.E. 1995. Responses of Wildlife to Noise. Pages 109–156 in R.L. Knight and K.J. Gutzwiller, editors. Wildlife Recreationists: Coexistence Through Management and Research. Island Press, Washington, D.C., USA.

[87] Payne, C.J., T.S. Jessop, P-J Guay, M. Johnstone, M. Feore, and R. A. Mulder. 2012. Population, Behavioural and Physiological Responses of an Urban Population of Black Swans to an Intense Annual Noise Event. PLoS ONE 7(9): e45014. https://doi.org/10.1371/journal.pone.0045014.

5.3 Great Lakes Offshore Wind Energy

As summarized in Exhibit 1-2, the Prior SEQRA Analyses did not consider in detail offshore wind in the Great Lakes and resources for which potential adverse impacts would occur. This SGEIS considers the effects of development of offshore wind in the Great Lakes on visual resources, fish, commercial and recreational fishing, and birds and bats.

5.3.1 Visual Resources

Offshore wind energy would affect visual resources along the coast of Lake Erie and Lake Ontario; however, impacts would be dependent on the viewshed and individual sensitivity to changes in the viewshed, and could be minimized with careful siting.

As discussed in Section 2.3.3, offshore wind turbines in New York's Great Lakes waters are expected to be similar in height and capacity to onshore turbines, and offshore turbines would generally be within 10 miles (16 kilometers) of the Lake Erie shore and within 1 to 2 miles (2 to 3 kilometers) of the Lake Ontario shore. The Prior SEQRA Analyses indicated that offshore wind energy would be difficult to see starting at 20 miles (32 kilometers) from shore due to the curvature of the earth and atmospheric conditions. Small offshore wind facilities less than 9 miles (14 kilometers) from shore in a range of weather conditions would generally be a focus of visual attention.[88,89]

Given the limited spatial area for development of offshore wind in the Great Lakes, particularly in Lake Ontario where turbines would be within a few miles of shore, and number of sensitive viewsheds along the lakes, wind development would likely be a major focus of visual attention of individuals on and offshore. Avoidance of sensitive viewsheds and considerations on the number and height of turbines would minimize impacts on visual resources. However, the potential for visual impacts may not be entirely unavoidable.

5.3.2 Fish

Impacts on fish in the Great Lakes would occur from the temporary increase of suspended sediments, noise, and other sensory disturbances from pile driving, excavating, and increased vessel traffic associated with construction. The development of offshore wind capacity in the Great Lakes would result in minor temporary increase of noise and other sensory disturbances from pile driving, excavating, and increased vessel traffic associated with construction, or no

[88] Maslova, N., C. Claramunt, T. Wanga, and T. Tang. 2017. Evaluating the Visual Impact of an Offshore Wind Farm. The 8th International Conference on Applied Energy – ICAE2016.

[89] Sullivan, R. G., L. B. Kirchler, J. Cothren, and S. L. Winters. 2013. Offshore wind turbine visibility and visual impact threshold distances. *Environmental Practice* 15(1): 33–49.

additional impacts depending on the selected wind facility design (e.g., turbine size and spacing).[90]

Freshwater fish species in the Great Lakes have higher tolerances to suspension rates of sediment than marine pelagic fish species.[91] Most fish species would be expected to temporarily relocate to surrounding areas and experience disturbances less frequently or of lower magnitude. If egg and larval fish are present at proposed turbine sites they may not be able to avoid noise impacts or direct impacts on the lake bed.[92] After turbine installation, displaced fish species are likely to return to the area, but the rate of recolonization is poorly understood.[93] Monitoring studies in the Great Lakes have shown that recolonization rates can range from months to years. [94] The spatial distribution of offshore wind projects in the Great Lakes and time of year restrictions would avoid or minimize impacts on fish. Alternative turbine anchoring systems, specifically gravity-based foundations, may substantially reduce the amount of pile driving and associated noise-related disturbance during turbine installation.[95] Given available habitat, potential reductions in pile driving, and project-specific agency consultations, significant adverse impacts on fish in the Great Lakes would not be expected.

5.3.3 Commercial and Recreational Fishing

Potential impacts on commercial and recreational fishing in the Great Lakes would result from area-use conflicts that would result in the displacement of commercial and recreational vessels from fishing grounds, and/or displacement of fish from fishing grounds. Offshore wind energy may limit certain fishing practices, restrict access to fish, or displace fish from traditional fishing areas. To avoid the potential risks associated with fishing within or near offshore wind energy, commercial and recreational fishers may choose to travel farther than they would otherwise, which would increase fuel costs, and potentially reduce the number of landings and catch due to a more limited fishing timeframe. Fish may

[90] U.S. Department of Energy. 2018. *Final Environmental Assessment LEEDCo Project Icebreaker Lake Erie, City of Cleveland, Cuyahoga County, Ohio*.

[91] Ewert, D.N., J.B. Cole, and E. Grman. 2011. Wind energy: Great Lakes regional guidelines. Unpublished report. The Nature Conservancy. Accessed April 1, 2020. https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/michigan/Documents/Ewert_WindEnergy2011.pdf.

[92] U.S. Department of Energy. 2018. *Final Environmental Assessment LEEDCo Project Icebreaker Lake Erie, City of Cleveland, Cuyahoga County, Ohio.*

[93] Ibid.

[94] Gill, A. B. 2005. Offshore renewable energy: ecological implications of generating electricity in the coastal zone. *Journal of Applied Ecology*. 42:605-615.

[95] U.S. Department of Energy. 2018. *Final Environmental Assessment LEEDCo Project Icebreaker Lake Erie, City of Cleveland, Cuyahoga County, Ohio*.

also temporarily avoid construction areas, which may temporarily alter typical fish catch.[96,97]

Sufficient spacing of turbines would allow vessels to navigate around turbines while also maintaining safe distance from other vessels and commercial shipping lanes.[98] Offshore wind energy development may also lead to the conversion of open water to an artificial reef-like habitat. Added structures (i.e. turbine foundations) would create a new hard-bottom habitat similar to an artificial reef, which could cause a shift in species presence and diversity.[99,100] The development of new wind capacity would minimize significant adverse impacts on commercial and recreational fisheries in the Great Lakes environment. However, the potential for impacts on commercial and recreational fisheries may not be entirely unavoidable.

5.3.4 Birds and Bats

Development of offshore wind in the Great Lakes would result in potential offshore impacts on birds and bats from construction and operation of offshore wind including disturbance and displacement due to noise, human presence, vessel traffic, and the presence of newly introduced large structures. Development of wind turbines in the Great Lakes under the Proposed Action would result in direct impacts on birds and bats through collisions with turbines. Many species of birds migrate through the Great Lakes region during spring and fall migrations. However, some land-based species of birds may see the Great Lakes as a geographic obstacle and avoid flying over large bodies of water. Those species that do cross open water typically fly at higher altitudes (mean elevation 188 meters to 644 meters), often above the height of turbine blades, which are expected to be shorter compared to ocean-based wind.[101,102] Because of the tendency of some bird

[96] VanderMolen, J., and E. Nordman. 2014. Offshore Wind Development and the Environment: Potential Impacts for Birds, Fish, and the Coastal Environment. West Michigan Wind Assessment Issue Brief #10. Accessed April 1, 2020. https://www.michiganseagrant.org/wp-content/uploads/2018/08/Wind-Brief-10-Offshore-Wind-and-Environment.pdf.

[97] U.S. Department of Energy. 2018. *Final Environmental Assessment LEEDCo Project Icebreaker Lake Erie, City of Cleveland, Cuyahoga County, Ohio*.

[98] Ibid.

[99] Bergstrom, L., et al. 2014. Effects of offshore wind farms on marine wildlife-a generalized impact assessment. Environmental Research Letters 9. Accessed April 17, 2020. https://iopscience.iop.org/article/10.1088/1748-9326/9/3/034012/pdf.

[100] NYSERDA. 2010. New York's Offshore Wind Energy Development Potential in the Great Lakes: Feasibility Study. Accessed March 16, 2020. https://www.nyserda.ny.gov/About/Publications/Research-and-Development-Technical-Reports/Wind-Reports.

[101] Heist, K.W., N.A. Rathbun, M.T. Wells, E. Olson, and J. C. Gosse. 2018. *Great Lakes Avian Radar Technical Report Lake Ontario Shoreline, Jefferson County, Niagara County, and Wayne County, New York, Fall 2016*. U.S. Department of Interior, Fish and Wildlife Service, Biological Technical Publication FWS/BTP-BTP-R3017-2018.

[102] Goodale, Wing, Iain Stenhouse, PhD, and Kate Williams. 2014. Reducing the Adverse Effects of Offshore Wind Development on Waterbirds in the Great Lakes: A Proposed Four-Step

species to avoid flying over large bodies of water, there are several areas along the eastern shores of Lake Erie and Lake Ontario that are important stopover sites for migratory birds; many of these areas are designated as Audubon Important Bird Areas. Birds and bats may also be attracted to wind turbines and platforms as potential structures to perch or roost, and upward facing lighting could attract nocturnally migrating birds; this would potentially result in collisions with turbines. Minimization of lighting and use of colors in lighting that is less attractive to birds would potentially reduce the number of bird collisions. Adjusting the pitch of turbine blades and slowing the rotation of turbines at lower wind speeds during summer months would reduce the number of bat collisions.[103,104]

The potential for new offshore wind development in the Great Lakes, could result in an increase in displacement of birds, essentially resulting in habitat loss.[105,106] As discussed in Chapter 4, regulatory consultations and preconstruction siting studies would ensure that projects avoid areas of known dense avian use. Impacts on birds would occur at an individual level, however, population-level impacts would not be expected to occur for any species. Given the limited spatial area for development of offshore wind in the Great Lakes, siting of specific projects would require careful avoidance, minimization, and mitigation measures.

5.4 North Atlantic and Mid-Atlantic Offshore Wind Energy

As summarized in Exhibit 1-2, the Prior SEQRA Analyses considered offshore wind in the marine environment and identified resources for which potential adverse impacts would occur. The 2020 SGEIS evaluated impacts of 4,200 MW of offshore wind and concluded that significant adverse impacts the resources evaluated would not be expected. This analysis considers the effects of the procurement of an additional 4,800 MW of offshore wind on marine mammals and sea turtles, fish, commercial and recreational fishing, and birds.

As described in Prior SEQRA Analyses for the marine environment, impacts resulting from offshore wind would occur on marine mammals and sea turtles from increased vessel traffic and sensory disturbance activities, specifically, pile-driving, excavation activities, and vessel traffic during construction. The procurement of an additional 4,800 MW of offshore wind under the Proposed Action would result in additional spatial coverage, sensory disturbance activities, and

Approach. BRI Report 2014-23. Accessed April 6, 2020. https://www.glc.org/wp-content/uploads/2016/10/Great-Lakes-waterbird-vulnerability-to-offshore-wind-FINAL.pdf.

[103] U.S. Department of Energy. 2018. *Final Environmental Assessment LEEDCo Project Icebreaker Lake Erie, City of Cleveland, Cuyahoga County, Ohio*.

[104] Goodale, W., I. Stenhouse, PhD, and K. Williams. 2014. Reducing the Adverse Effects of Offshore Wind Development on Waterbirds in the Great Lakes: A Proposed Four-Step Approach. BRI Report 2014-23. Accessed April 6, 2020. https://www.glc.org/wp-content/uploads/2016/10/Great-Lakes-waterbird-vulnerability-to-offshore-wind-FINAL.pdf.

[105] Ibid.

[106] U.S. Department of Energy. 2018. *Final Environmental Assessment LEEDCo Project* Icebreaker *Lake Erie, City of Cleveland, Cuyahoga County, Ohio*.

associated temporary displacement of marine mammals and sea turtles depending on the selected wind facility design, including turbine size and spacing.

Impacts on fish would occur from the temporary increase of suspended sediments, noise, and other sensory disturbances from pile driving, excavating, and increased vessel traffic associated with construction. The additional 4,800 MW of offshore wind would result in an additional temporary increase of noise and other sensory disturbances from pile driving, excavating, and increased vessel traffic associated with construction, depending on the selected wind facility design. Pile driving for additional foundations would occur in isolated areas during a temporary time-frame. As discussed in the Prior SEQRA Analyses, anticipated advancements in turbine anchoring systems would substantially reduce the amount of pile driving and associated noise impacts.

Potential impacts on commercial and recreational fishing would result from area-use conflicts that would result in the displacement of commercial and recreational vessels from fishing grounds, or displacement of fish from fishing grounds. The procurement of an additional 4,800 MW of offshore wind would result in additional impacts on commercial and recreational fishing. Assuming all of the additional 4,800 MW of offshore wind is sited within the geographic scope of analysis of the Master Plan, the scale-up would represent a total of approximately 3% of the area offshore of New York, leaving the area largely available without conflicts for fishing.

Potential impacts on birds from construction and operation of offshore wind include disturbance and displacement due to noise, human presence, vessel traffic, and the presence of newly introduced large structures. Impacts would also occur to individual birds and bats from direct collision with construction cranes and turbines. The procurement of an additional 4,800 MW of offshore wind would result in an increase in displacement of birds, essentially resulting in habitat loss. The overall spatial coverage of an additional 4,800 MW of offshore wind energy development relative to the potential impact area distributed across the marine environment would not significantly reduce or modify avian habitat.

All potential impacts on marine mammals and sea turtles, fish, commercial and recreational fisheries, and birds as discussed in the Prior SEQRA Analyses would occur under the Proposed Action, as would the avoidance, minimization, and mitigation measures previously described. Given the spatial distribution of offshore wind projects, the available habitat in the marine environment, and agency consultations; significant adverse impacts on marine mammals and sea turtles, fish, commercial and recreational fisheries, and birds would not be expected.

5.5 Distributed Solar Energy

As summarized in Exhibit 1-2, the Prior SEQRA Analyses considered distributed solar energy and identified resources for which potential adverse impacts would occur. This analysis considers the effects of an additional 6,000 MW of

distributed solar under the Proposed Action on land use and visual resources. In addition, this analysis considers potential impacts on avian species, particularly grassland birds.

5.5.1 Land Use

The estimated increase in the development of distributed solar would result in an increase in the temporary and permanent conversion of land area beyond what was considered in the Prior SEQRA Analyses. Distributed rooftop solar would be located on existing structures and would not result in a temporary or permanent conversion of land use or land cover. Community solar projects, which are between 1-2 MW, share physical characteristics with large scale utility solar; they are commonly developed in rural areas, including agricultural land, and are typically ground mounted.[107] Former brownfield and closed landfills may also provide suitable sites for community solar projects. Each megawatt of a distributed solar facility is estimated to require 6 acres of land.[108] Based on projections from NYSERDA, approximately half of the 6,000 MW of distributed solar in 2030 is expected to be community solar.[109] Assuming 6 acres per MW are needed for a typical 1 MW community solar facility, the land area needed for 3,000 MW of community-distributed solar would represent 0.3% of the state's cropland, assuming only cropland and pastureland was used for community solar.[110]

As described in the Prior SEQRA Analyses and Chapter 4 of this SGEIS, policies for agricultural land protection, including agricultural districts and guidelines for mitigation of construction impacts on agricultural land, would avoid, minimize, and mitigate some potential impacts associated with construction and operation of community solar development. With the availability of suitable land for development of distributed solar in New York, project-specific agency guidelines, and the potential to restore land to its previous land use following decommissioning, significant adverse impacts on land use and land cover would not be expected from the additional procurement of distributed solar under the Proposed Action.

5.5.2 Visual Resources

Distributed solar would result in impacts on visual resources from mechanical equipment that contrasts with surrounding landscape. These impacts on visual resources would vary depending on the type of distributed solar developed.

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[107] NYSERDA. 2019. *New York Solar Guidebook for Local Governments- Using Special Use Permits and Site Plan Regulations.* January 2019. Accessed March 31, 2020. https://www.nyserda.ny.gov/All%20Programs/Programs/Clean%20Energy%20Siting/Solar%20Guidebook.

[108] Ibid.

[109] DPS. 2020. Personal communication. Emails between Peter Sheehan (DPS) and Carl Sadowski of Ecology and Environment, Inc., member of WSP, regarding NEM and CDG/VDR estimates through 2030. March 17, 2020.

[110] NYSERDA. 2019. *New York Solar Guidebook for Local Governments*. Accessed March 31, 2020. https://www.nyserda.ny.gov/-/media/NYSun/files/solar-guidebook.pdf.

Rooftop solar projects would generally blend in with existing landscapes and not result in significantly new contrasts. Design considerations, such as symmetrical layouts, can minimize visual impacts of rooftop solar when viewed from nearby.[111,112] Alternatives to traditional rack-mounted solar panels, such as those that resemble roof shingles, are becoming more readily available and would further minimize visual contrasts.[113,114] Community solar projects may be built on undeveloped land or open space which would result in a contrast with the existing landscape. Glare from rooftop solar or community solar projects may occur, but as discussed in Section 5.2.1, photovoltaic modules are designed to reduce reflection to maximize the amount of light converted into electricity.[115] Given the variation in site-specific conditions and avoidance and minimization measures, the procurement of additional distributed solar energy would not be expected to result in significant adverse impacts on visual resources.

5.5.3 Birds

Rooftop solar has negligible impacts on wildlife because solar panels are affixed to existing structures and would not result in a loss of bird habitat. Community solar projects may result in similar potential impacts on birds from utility-scale solar development including the loss or fragmenting of habitat, disrupting natural behaviors such as foraging, hunting, and migration patterns; and introducing barriers to the movement of species. These impacts depend on the size and type of the solar projects as well as proximity to sensitive species. In addition, development of community solar under the Proposed Action may result in impacts on grassland birds.

The impacts on birds from community solar would be similar to utility-scale solar as discussed in Section 5.2.3 and smaller in scale. Land requirements of additional community solar represents approximately 1.3% of the approximately 1.7 million acres of suitable nesting habitat, such as grasslands and hayfields, within the state's grassland focus areas, assuming 6 acres per MW of capacity. Impacts on birds would occur at an individual level; however, population level impacts would not be expected to occur for any species. Given the minor conversion of land

[111] Lu, M.L., A.L. Lin and J. Sun. 2018. The Impact of Photovoltaic Applications on Urban Landscapes Based on Visual Q Methodology. *Sustainability* 2018, 10, 1051; doi:10.3390/su10041051.

[112] BRE National Solar Centre. 2016. Ensuring Place-Responsive Design For Solar Photovoltaics On Buildings. Accessed April 1, 2020. https://www.solar-trade.org.uk/wp-content/uploads/2016/10/CPRE-BRE-Solar-Report-high-res.pdf.

[113] Ibid.

[114] Pickerel, K. 2019. "The latest on solar shingles, solar roofs and solar tiles." Solar Power World. April 16, 2019. Accessed April 1, 2020. https://www.solarpowerworldonline.com/2019/04/the-latest-on-solar-roofs-solar-shingles-and-solar-tiles/.

[115] Federal Aviation Administration. 2018. *Technical Guidance for Evaluating Selected Solar Technologies on Airports*. Accessed March 28, 2020. https://www.faa.gov/airports/environmental/policy_guidance/media/FAA-Airport-Solar-Guide-2018.pdf.

compared to available grassland areas, the available habitat for relocation, and project-specific agency consultations, significant adverse impacts on grassland birds would not be expected.

5.6 Hydropower

As summarized in Exhibit 1-2, the Prior SEQRA Analyses evaluated general impacts from new hydropower facilities, upgrades to existing facilities, and conversion of NPDs. Long-term water quality impacts and methane emissions released from decomposing organic materials are associated primarily with the construction and operation of new impoundments; however, new impoundments would not be eligible under Tier 4. This SGEIS analyzes the general impacts of additional hydropower from upgrades to existing facilities and low-impact run of river projects that would be eligible under the proposed Tier 4.

Upgrades to existing projects could include replacing older, less efficient generators with new generators, adding additional generators at an existing powerhouse to increase hydraulic capacity at projects with high spill flows, or adding turbines to capture energy from minimum flow releases. These upgrades would allow for higher energy generation by increasing spillage or by taking advantage of increased water flow due to climate change. The magnitude of impacts would vary according to the project location and other site-specific characteristics. Replacement of existing equipment would have few if any impacts, while some tree clearing and in-water work could be required for addition of new equipment to an existing facility.

Construction impacts for both upgrades and run-of-river projects would generally be limited to the construction footprint and any areas of temporary disturbance associated with temporary construction access roads or grading. Construction activities could include vegetation removal, grading, excavation, and equipment installation. Loss of habitat could displace individuals of some sensitive animal species to other nearby areas with suitable habitat, resulting in increased competition in the nearby habitat; however, this loss would be small and proportional to the size of new generators and equipment. As described in the Prior SEQRA Analyses and Chapter 4 of this SGEIS, measures to avoid, minimize, and mitigate some potential impacts applicable to construction of hydropower development include implementation of sediment and erosion control plans; spatial and temporal avoidance measures including seasonal restrictions on vegetation clearing to limit effects on sensitive species; vegetation restoration plans to restore areas temporarily disturbed during construction; and monitoring plans to minimize effects of invasive species and water quality impairments.[116,117]

[116] Federal Energy Regulatory Commission (FERC). 2014. Environmental Assessment for a Non-capacity Amendment to License: Clackamas River hydroelectric Project – FERC Project Number 2195-088. March 2014.

[117] FERC. 2019. Environmental Assessment for Hydropower License: Goose River Hydroelectric Project FERC Project number 2804-035. June 2019.

Impacts on invertebrates and fish could occur from the temporary dewatering of stream reaches, increases in turbidity, and noise associated with construction of coffer dams that could be needed for replacement or addition of turbines. Implementation of sediment and erosion control plans would minimize these effects on downstream resources. Noise associated with underwater construction could displace fish in the immediate area to adjacent habitat, leading to temporary increases in competition.

Impacts on invertebrates and fish would occur at an individual level; however, population level impacts would not be expected to occur for any species. Given the potential for mitigation and project-specific agency consultations, significant adverse impacts on fish from Tier 4 eligible hydropower project would not be expected.

5.7 Cumulative Impacts

This SGEIS identifies potential cumulative impacts where such impacts may be "applicable and significant." Cumulative impacts are two or more individual environmental effects that, when taken together, become environmentally significant or may compound or increase other environmental effects. Cumulative impacts can result from individually minor but collectively significant actions that take place over time. For cumulative impacts to occur, incremental impacts must be greater than negligible. Based on the prior analysis, potential unavoidable adverse impacts may occur and, therefore, potential cumulative impacts may occur for land use, visual, and grassland birds.

5.7.1 Land Use

Cumulative impacts may occur on land use and land cover from the temporary and permanent conversion of existing land use and land cover from development of utility-scale solar energy and distributed solar. Exhibit 5-1 provides a summary of the land use requirements of the potential utility-scale solar energy, utility-scale wind energy, and distributed solar in comparison to the available crop and pastureland.

Exhibit 5-1 Cumulative Land Use Requirements

Renewable Energy Source	Acres per MW	Estimated New Capacity (MW)	Total Land Area Requirements	Percent of Cropland/ Pasture-land Cover
Utility-Scale Solar	5	2,100 – 6,300	10,500 - 31,500	0.2 – 0.5
Distributed Community Solar	6	3,000	18,000	0.3
	Total	**5,100 - 9,300**	**28,500 – 49,500**	**0.5 – 0.8**

The cumulative effect of development of the utility-scale solar energy and distributed solar resources under the Proposed Action would require between approximately 28,500 and 49,500 acres of land. This would represent a cumulative use of approximately 0.5 to 0.8% of the state's cropland and pastureland cover. The cumulative effect of development of utility-scale solar could result in removal of forested land. Given the availability of land area within the state, measures to avoid or minimize permanent impacts on agricultural land and forested areas, and agency consultations, significant adverse cumulative impacts on land use would not be expected.

5.7.2 Visual

Cumulative impacts may occur on visual resources from mechanical equipment that contrasts with surrounding landscape from development of offshore wind. Cumulative impacts on visual resources would depend on the selected design, topography, existing vegetation, screening, and individual sensitivity. Communities hosting multiple offshore wind projects could experience cumulative visual impacts due to the long distance at which these projects may be seen. Given the limited spatial area suitable for development of offshore wind in the Great Lakes, and the long distances at which wind turbines can be seen, careful consideration of siting, including avoidance of sensitive viewsheds and considerations on the number and height of turbines, would be needed to avoid cumulative impacts on visual resources. With implementation of measures to avoid or minimize permanent impacts on visual resources, and agency consultations, significant adverse cumulative impacts on visual resources would not be expected.

5.7.3 Grassland Birds

Cumulative impacts may occur on grassland birds from the removal or fragmentation of habitat, or collision from development of utility-scale solar energy and distributed solar. The cumulative effect of development of the large-scale renewable energy and distributed solar resources under the Proposed Action would require approximately 28,500 and 49,500 acres of land. This would represent approximately 2.1 to 3.6% of the suitable habitat for grassland birds within the state's grassland focus areas assuming all solar energy projects locate in grassland bird habitat. As noted in Chapter 4, BMPs would generally minimize impacts in areas of grassland habitat in general. Impacts on birds would occur at an individual level, and are not expected to occur at a population level. With implementation of measures to avoid or minimize permanent impacts on grassland birds, and agency consultations, significant adverse cumulative impacts on grassland birds would not be expected.

6 Alternatives Considered

Consistent with 6 NYCRR §617.9(b)(5)(v) of the SEQRA regulations, this chapter provides a description and evaluation of the range of reasonable alternatives to the Proposed Action that are feasible. This chapter builds upon and incorporates reference material from the Prior SEQRA Analyses.

The Commission has identified the No Action alternative as the reasonable alternative to the Proposed Action. The No Action alternative evaluates the adverse or beneficial changes that are likely to occur in the reasonably foreseeable future, in the absence of the Proposed Action.

In the No Action alternative scenario, the State would still take actions to achieve the 50 by 30 goal outlined in the CES by employing a variety of resources in the renewable generation portfolio; procure 4,200 MW of offshore wind in the near-term; and procure 3,000 MW of distributed solar by 2023. However, under the No Action alternative, the State would not take actions needed to achieve the 70 by 30 goal, would not procure the additional approximately 4,800 MW of offshore wind capacity by 2035, and would not procure the additional 3,000 MW of distributed solar by 2025 and 6,000 MW of distributed solar by 2030. Instead, the State would continue to pursue its 50 by 30 goal and procurement would be limited in the near term.

The No Action alternative may result in less potential development of renewable resources, including offshore wind and distributed solar projects, and perhaps less diversity in generation type, in the State's renewable generation portfolio.

Under the No Action alternative, environmental conditions would not change from the current baseline described in Chapter 3. The impacts on the onshore and offshore environment described in Chapter 5 may be less likely to occur under the No Action alternative, or may occur to a lesser degree. For example, the No Action alternative could result in fewer potential impacts on agricultural land if fewer large-scale renewable resources are developed, or fewer impacts on marine mammals and sea turtles if development of less offshore wind infrastructure (e.g., wind turbines and offshore transmission cables) occurs. Alternatively, more agricultural land may be permanently lost to commercial and industrial development, whereas large-scale renewable development preserves the agricultural use of the land.

However, it should be noted that under the No Action alternative, additional development of renewable resources would still occur to meet the 50 by 30 mandate, and associated impacts on the onshore and offshore environment of any such development would still occur. Under the No Action alternative, additional wind facility development could occur offshore of New York State and its electricity would be procured by other states. As outlined in Chapter 2 of the 2020 SGEIS, offshore wind is a regional resource, and several states throughout the region are taking actions to procure offshore wind, as well as setting aggressive goals and implementing directives for the future procurement of offshore wind. Under the No Action alternative, the increased competition in the offshore wind market introduced by other states in the region may lead to fewer purchase options for the State in the future. Some amount of offshore wind could still be obtained from other states indirectly, although how much is obtained and when the associated offshore wind facility development would occur remains less certain.

The socioeconomic impacts associated with the Proposed Action may be reduced under the No Action alternative. Chapter 9 of this SGEIS discusses these socioeconomic benefits of the Proposed Action, including air quality benefits and job creation. Low-income communities and communities of color have historically been overburdened as a result of air pollution from energy-generating facilities, small stationary sources, and dense traffic.[118] Regarding air quality, the No Action alternative would change or reduce the corresponding health benefits of reduced emissions and could disproportionately affect disadvantaged communities. Similarly, the No Action alternative would change or reduce the anticipated increase in workforce, including new jobs in manufacturing, installation, and operation of renewable energy facilities under the Proposed Action.

[118] NYSERDA. 2009. Environmental Justice Issue Brief New York State Energy Plan 2009, December 2009.

7 Unavoidable Adverse Impacts

Consistent with 6 NYCRR §617.9(b)(5)(iii)(b), the Prior SEQRA Analyses analyzed unavoidable adverse impacts from the Proposed Action. Unavoidable adverse impacts are impacts that, if an action is implemented, cannot be avoided or adequately mitigated. The Prior SEQRA Analyses concluded that, at a generic level, there were no unavoidable adverse impacts that could not be mitigated.

As discussed, this SGEIS incorporates by reference material from the Prior SEQRA Analyses and analyzes the potential for unavoidable adverse environmental impacts from the increase in the State's clean energy goal from 50% renewables to 70% renewables by 2030, procurement of an additional 4,800 MW of offshore wind by 2035, and procurement of an additional 3,000 MW of distributed solar energy by 2025. This SGEIS is not intended to evaluate specific renewable resource projects and their potential site-specific environmental impacts; rather it identifies whether the Proposed Action or alternatives could pose unavoidable adverse impacts at a generic level. As set forth in Chapter 5, there are no unavoidable adverse impacts that could not be mitigated through one or more of the mechanisms discussed in Chapter 4. Similarly, as discussed in Chapter 6, the No Action alternative or an alternative mix of renewable resource present no such unavoidable adverse impacts.

Biomass and biogas energy were previously eligible technologies under the CES; however, these technologies would no longer be eligible to contribute to the 70 by 30 goal under the Proposed Action. While biomass and biogas energy projects could be installed without subsidies under the Proposed Action, the absence of subsidies may result in a decrease in development of biomass and biogas energy compared to what was analyzed in the 2016 SEIS. Although not considered renewable energy systems under the CLCPA, as discussed in the Prior SEQRA Analyses biogas energy projects can reduce emissions of methane and CO_2 emanating from landfill sites, wastewater treatment facilities, and farms. A decrease in development in biogas energy could result in a change in methane and CO_2 from these sources compared to what was discussed in the Prior SEQRA Analyses.

8 Irreversible and Irretrievable Commitment of Resources

Pursuant to 6 NYCRR §617.9(b)(5)(iii)(c), the Prior SEQRA Analyses assessed the irreversible and irretrievable commitments of environmental resources associated with the Proposed Action. An irreversible commitment of resources occurs when an action's impacts would limit future use options if the change cannot be reversed, reclaimed, or repaired. An irretrievable commitment of resources occurs when the used or consumed resource is neither renewable nor recoverable for use by future generations without reclamation. Irretrievable commitments are not necessarily irreversible and can include the loss of production or harvest of natural resources. This SGEIS incorporates by reference material from Prior SEQRA Analyses and provides an assessment of the irreversible and irretrievable commitment of environmental resources from the development of new renewable energy sources.

The Proposed Action would help the state achieve the CLCPA mandate and will increase the development of large-scale renewable resources and distributed solar generation. As described in Prior SEQRA Analyses, the future construction and operation of new large-scale renewable resource projects that may occur in response to the Proposed Action could result in irreversible and irretrievable commitment of resources. With respect to additional procurement of utility-scale solar, the 2016 SEIS identified the agricultural land as the principle commitment of resources. The New York State Department of Agriculture and Markets has developed a number of guidelines for developing utility-scale solar in agricultural areas summarized in Exhibit 4-1. Responsibly sited utility-scale solar projects can provide long-term preservation of agricultural land as an alternative to commercial development and at the end of the operation life of a project, the land can be returned to its former use.

With respect to additional procurement of offshore wind, the 2020 SGEIS identified the marine environment occupied by a project as the principal commitment of resources for construction and operation. The NYSERDA "Offshore Wind Policy Options Paper" (Options Paper) notes that activities to drive market scale are interrelated with scale economies; construction, operating and financing

experience; development of local supply chain; and offshore wind prices.[119] Further, the Options Paper notes that initially, the global supply chain will support development of offshore wind in the Northeast United States. However, as the market is established, development of ports and vessels would occur locally, requiring resource commitments. Existing vessels used for offshore wind construction may be too large to access the Great Lakes; therefore, committing local resources to adapt or create new vessels suitable for construction in the Great Lakes may be necessary.[120] The materials used for construction for large-scale renewable resources and additional distributed solar generation would be consumed and is neither renewable nor recoverable for use at this time, although reclamation techniques may become available. In all of these cases, actual impacts, and resource commitments are unknown until specific projects are proposed. These resource commitments would be identified in site-specific environmental analyses and avoided or minimized in accordance with applicable law and regulations, as discussed in the Prior SEQRA Analyses and Chapter 4 of this SGEIS.

[119] NYSERDA. 2018. "Offshore Wind Policy Options Paper." Accessed March 30, 2020. https://www.nyserda.ny.gov/-/media/Files/Publications/Research/Biomass-Solar-Wind/Master-Plan/Offshore-Wind-Policy-Options-Paper.pdf.

[120] NYSERDA. 2010. *New York's Offshore Wind Energy Development Potential In The Great Lakes: Feasibility Study.* Available at: https://www.nyserda.ny.gov/About/Publications/Research-and-Development-Technical-Reports/Wind-Reports.

9 Growth-Inducing Aspects and Socioeconomic Impacts

Consistent with 6 NYCRR §617.9(b)(5)(iii)(d), the Prior SEQRA Analyses identified and discussed the potential growth-inducing impacts, including potential program costs and benefits, as part of the socioeconomic impacts of the respective proposed actions. Growth-inducing generally refers to "secondary" impacts, or the potential for an action to trigger further development. This SGEIS incorporates by reference material from Prior SEQRA Analyses and provides an assessment of the potential growth-inducing impacts from the Proposed Action.

The CLCPA requires investment of clean energy program resources to benefit disadvantaged communities, and is designed to ensure that individuals working in conventional energy industries are provided with training and opportunities in the growing clean energy economy. The Proposed Action will increase the development of large-scale renewable energy and distributed solar generation, as well as inducing growth in the communities where projects are located.

9.1 Impacts on Growth and Community Character

9.1.1 Onshore Renewable Energy Resources

As noted in the Prior SEQRA Analyses, the potential indirect impacts of large-scale renewable energy and distributed generation are reflected in economic indicators, including the creation of jobs in construction and operation of new facilities, payments to the State and localities, payments for fuel and land leases, and in-state purchase of materials and services. Additional indirect impacts under the Proposed Action are reflected in advancement in renewable technologies and changes in community character.

The Proposed Action would result in increased spending at local businesses and increased use in public services by workers in construction and operation. The increase in construction and operation workers typically results in an increase in demand for goods and services, such as local food and hotel industries, that supply and support developers engaged in construction and operation. Additional induced impacts could result from reinvestment of earned wages from construction and operation workers as well as the businesses that supply them. This reinvestment can occur anywhere within the economy: on household goods, entertainment, food, clothing, transportation, etc. The increases in indirect impacts from

the Proposed Action are not anticipated to vary substantially from what was described in the Prior SEQRA Analyses. However, the Proposed Action would result in a greater number of large-scale renewable energy and distributed generation projects, and some communities may host a greater number of these projects. Depending on the timing of projects within a single community, this could result in greater demand for supporting industries, including hotels, restaurants, and public services. This may also result in an increase in the number of jobs at local businesses. The potential increase in tax revenue to local communities cannot be reasonably quantified; however, the overall increase is anticipated to be greater compared to the Prior SEQRA Analyses in proportion to the increase in the number of renewable energy projects. Communities hosting multiple renewable energy projects would likely see a greater impact on their tax base.

The Proposed Action would be expected to continue to facilitate the advancement of technologies for solar energy. As a result, the region could experience the development of economies of scale for regional solar energy, which would have the effect of advancing applicable technologies, increasing local knowledge, and reducing the cost of renewable energy development and ratepayers' energy costs.

The Prior SEQRA Analyses discussed impacts on community character in terms of the visual and physical impacts from new renewable energy development. These impacts would be site specific, and the increase in renewable energy projects under the Proposed Action would not be expected to result in substantially different impacts from those described in the Prior SEQRA Analyses.

Agriculture remains an important characteristic of many communities and their economies.[121] Communities may be concerned that solar development could result in a loss of valuable and productive agricultural land that could potentially decrease the economic feasibility of agricultural activity in the future.[122] Agricultural land generally provides flat clear terrain with minimal contamination that is ideally suited for renewable energy projects and, therefore, agricultural communities are more likely to host many of the new utility-scale solar projects. As discussed in Section 3.1.1 of this SGEIS, the economic impact of agritourism in the state has grown over the last several years. Conversion of agricultural land to renewable resources could impact the agricultural character of some communities and affect growth of this industry. As discussed in Section 4.2 of this SGEIS, a number of avoidance and minimization measures could be implemented that may minimize changes to a community's character. Utility-scale solar sited on agricul-

[121] New York State Comptroller. 2019. Profile of Agriculture in New York State, August 2019. Accessed February 21, 2020. https://www.osc.state.ny.us/reports/economic/agriculture-report-2019.pdf.

[122] NYSERDA. 2019. New York Solar Guidebook for Local Governments. Accessed March 31, 2020. https://www.nyserda.ny.gov/-/media/NYSun/files/solar-guidebook.pdf.

tural land may limit agricultural opportunities during operation of the solar facility; however, agricultural activities on nearby land would generally not be affected.

Co-location of solar panels and active agricultural uses is a common practice across the country. Solar developers can work with communities to develop complementary agricultural uses, such as grazing animals, pollinators, or shade-resistant crops. Sheep, for example, can be used for vegetation management on solar sites, providing a low-cost way to prevent overgrowth around panels. The addition of sheep pastureland on solar sites could potentially expand the production of locally produced lamb, sheep dairy products, and wool.

9.1.2 Offshore Wind

Consistent with the growth-inducing effects identified in the 2018 GEIS and 2020 SGEIS, an increase of 4,800 MW of offshore wind generation capacity by 2035 is expected to lead to a proportional increase in development of emerging technologies, coastal tourism, employment associated with construction and operation, purchases of local products and services, and tax payments by employees and facility owners. The Proposed Action would likely result in the state realizing economies of scale at an accelerated rate compared to that described in the 2020 SGEIS.

9.2 Potential Program Costs

The development of additional large-scale renewable resources and distributed generation under the Proposed Action would result in an increase in potential program costs compared to the Prior SEQRA Analyses. The increase in potential program costs would depend on the mix of renewable energy sources, as well as market conditions. Generally, the cost of large-scale renewable resource and distributed generation is expected to decrease.

The Prior SEQRA Analyses estimated the gross program cost for development of tier 1 renewables (i.e., new renewable energy projects) to meet the 50 by 30 goal would be $2.4 billion. The potential benefit was estimated at $4.3 billion, which would result in a net program benefit of $1.9 billion through 2030.[123] Program costs for NYSERDA's Phase 1 Procurement of offshore wind contracts were estimated between a net cost of approximately $0.4 billion and a net benefit of approximately $1.9 billion. Estimates of net costs for offshore wind declined nearly 40% between the Options Paper and NYSERDA's Phase 1 Procurement.

As discussed in Section 2.3.1 of this SGEIS, the efficiency of solar photovoltaic is expected to continue to increase, which is expected to result in lower costs for solar energy. The cost of residential solar declined 36% between 2012 and 2019

[123] NYSERDA. 2016. Clean Energy Standard White Paper Cost Study. April 8, 2016. Accessed April 8, 2020. http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=15-e-0302.

while the cost per watt of non-residential solar decreased by 35% during the same period.[124] Average wind energy project costs decreased by approximately 40% between 2009 and 2010. However, this decline followed an increase in average costs between 2000 and 2008 due to a decline in the value of the U.S. dollar and increased materials, energy, and labor costs.[125]

Estimates from the White Paper indicate the base case for Tier 1 procurements from 2021 to 2026 would lead to a levelized impact on electricity bills of less than 0.5% (or $0.35 per month for the typical residential customer) and a lifetime program cost of $1.3 billion.

The base case incremental offshore wind procurements from 2021 required to reach the 9,000 MW goal would lead to a levelized impact on electricity bills of less than 1.1% (or $0.81 per month for the typical residential customer) and a lifetime cost of $3.5 billion. Of these offshore wind procurements, an incremental 3,000 MW procured from 2021 is projected to be installed in time to contribute to the 70 by 30 goal. This is estimated to lead to a levelized electricity bill impact of less than 0.9% (or $0.68 per month for the typical residential customer) and a program cost of around $2.7 billion.

9.3 Potential Program Benefits

The development of additional large-scale renewable energy and distributed generation under the Proposed Action would result in an increase in potential program benefits. As described in the Prior SEQRA Analyses, renewable energy development is expected to provide significant beneficial impacts from a reduction in GHG emissions and related beneficial impacts on public health and employment in the renewable energy sector.

Greenhouse Gas Emissions

The White Paper estimated the development of Tier 1 renewable energy sources to meet the 70 by 30 goal would avoid 11.8 million short tons of carbon, which would equal approximately $7.7 billion in net carbon benefits over the lifetime of the projects. Factoring in reductions in other types of air pollutants not quantified here, would further increase the net benefit of these procurements.

The offshore wind procurement goal of 9,000 MW would avoid 15.3 million short tons of carbon, which would equal approximately $9.6 billion in net carbon

[124] NYSERDA. 2019. NYSolar Map, Local Cost of Solar ($/Watt) by Sector. Accessed April 16, 2020. https://nysolarmap.com/.

[125] U.S. Department of Energy. 2018. 2018 Wind Technologies Market Report. Accessed February 7, 2020. https://www.energy.gov/sites/prod/files/2019/08/f65/2018%20Wind%20Technologies%20Market%20Report%20FINAL.pdf.

benefits over the lifetime of the project.[126] The incremental 3,000 MW of offshore wind procured from 2021 is estimated to result in $4.0 billion in net carbon benefits. The carbon benefits represent an avoidance of costs related to climate change, such as changes in net agricultural productivity, human health, property damages from increased flood risk, and changes in energy system costs.

The development of large-scale renewable resources and distributed solar generation would support the objectives of the CLCPA and the State to combat climate change which would benefit sensitive species. An emerging threat to grassland bird species is the warming of global temperatures.[127] The National Audubon Society's North American Grasslands and Birds Report stated that solutions to carbon emissions are needed to protect grassland birds.[128] As discussed in Section 3.1.2, several grassland species are on the New York State threatened and endangered species list (see Exhibit 3-2).

Public Health Benefits

An increase in the development of renewable energy under the Proposed Action is anticipated to result in improved air quality beyond what was expected in the Prior SEQRA Analyses. This increase in air quality would in turn result in increased health benefits.

Employment

In 2018, the state employed 22,023 people in renewable energy generation.[129] Projections for 2019 predicted an increase to 24,410 people employed in the renewable energy generation. Of these, 11,603 were employed in the solar energy, and 3,491 were employed in wind energy.[130]

The National Solar Jobs Census indicates utility-scale solar projects in the United States have an average capacity of 19.5 MW and require an average of 3.3 jobs per MW for solar installation and project development. Residential solar and non-residential solar projects require more jobs per MW (38.7 and 21.9 jobs per MW, respectively) than utility-scale solar due to their smaller size. Operations and

[126] NYSERDA. 2016. Clean Energy Standard White Paper Cost Study. April 8, 2016. Accessed March 17, 2020. http://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=15-e-0302.

[127] National Audubon Society. 2019. Survival by Degrees: 389 Bird Species on the Brink. Accessed April 16, 2020. https://www.audubon.org/sites/default/files/climatereport-2019-english-lowres.pdf.

[128] Wilsey, C.B., J. Grand, J. Wu, N. Michel, J. Grogan-Brown, B. Trusty. 2019. North American Grasslands and Birds Report. National Audubon Society, New York, New York, USA.

[129] Employment data captured all employees from qualifying clean energy firms that spent any portion of their time supporting the research, development, production, manufacturing, distribution, or installation of clean energy products and services.

[130] NYSERDA. 2019. New York Clean Energy Industry Report. Accessed April 16, 2020. https://www.nyserda.ny.gov/About/Publications/New-York-Clean-Energy-Industry-Report.

maintenance responsibilities make up approximately 5% of jobs in the solar industry.[131]

The Proposed Action would increase the anticipated need for renewable energy support services (primarily repair and maintenance, administrative support, and facilities management), sales and distribution, and professional support services. Renewable energy support services have had the highest growth rates across the clean energy value chain in New York in recent years, with an increase in employment in 2017 and 2018 of 11.0% and 7.7%, respectively. Professional services, which include consulting, engineering, finance, legal, and other professional support services, accounted for the second-largest number of jobs in the clean energy value chain.

As noted in the Prior SEQRA Analyses, studies have generally found that renewable energy deployment increases gross jobs in and related to the renewable energy sector. The 2019 U.S. Energy and Employment Report for New York projects a 8.3% increase in electric power generation job growth in the state over a 12-month period.132 New York has one of the fastest growing solar markets in the country and 2019 was New York's most productive year for solar installations with 460 MW of solar installed.133 The additional utility-scale and distributed solar associated with achieving the 70 by 30 goal will likely continue to drive additional job growth and economic growth beyond these projections.

Other Benefits

The Prior SEQRA Analyses identified a number of other program benefits from large-scale renewable resources and distributed generation, including:

- Reduced Transmission and Distribution Losses – An increase in distributed solar near the load is expected to result in a reduction in line losses.
- Optimized Electricity Network – Distributed solar could allow for better optimization of generation systems and the transmission and distribution network.
- Reduced or Avoided Transmission and Distribution Infrastructure – Decentralization of the state's electricity system could reduce the need for expanded grid capacity.

[131] The Solar Foundation. 2018. National Solar Jobs Census 2018. Accessed April 16, 2020. https://resources.solarbusinesshub.com/images/reports/206.pdf.

[132] Energy Futures Initiative. 2019. U.S. Energy and Employment Report New York Energy and Employment 2019. Accessed March 4, 2020. https://static1.squarespace.com/static/5a98cf80ec4eb7c5cd928c61/t/5c7f41aeeef1a1d1dc9b005d/1551843758692/NewYork.pdf.

[133] New York State Energy Research Development Authority (NYSERDA). "Statewide Solar Projects". Accessed March 4, 2020. https://www.nyserda.ny.gov/All-Programs/Programs/NY-Sun/Solar-Data-Maps/Statewide-Projects.

- Reduced Congestion Costs – Locating renewable energy generation near congested areas can alleviate the transmission and distribution constraints causing congestion and associated costs.
- Increased Reliability and Power Quality – Locating renewable energy generation near the load may result in more reliable transmission, distribution, and generation, fewer power interruption events, and faster facility repairs following extreme weather events.

10 Effects on Energy Consumption

Consistent with 6 NYCRR §617.9(b)(5)(iii)(e) of the SEQRA regulations, this chapter considers impacts of the Proposed Action on the use and conservation of energy. For electric generating facilities, SEQRA requires a demonstration that the facility will satisfy electric generating capacity needs or other electric systems needs in a manner reasonably consistent with the most recent State Energy Plan. This chapter builds upon and incorporates by reference material from the Prior SEQRA Analyses.

As described in Chapter 1, the CLCPA sets climate and clean energy goals, encompassing climate change impact adaptation, reductions in GHG emissions, and investments in technology, as well as job creation and energy worker transitions and the protection of disadvantaged communities. As a result, the use and conservation of energy in the state is undergoing a transition facilitated by the CLCPA and supported by the State Energy Plan. Achieving the mandate that renewable sources provide 70% of the electricity consumed in New York by 2030, the increased offshore wind procurement goal by 2035, and the increased distributed solar energy goal by 2025 would increase the supply of large-scale renewable resources and distributed generation as well as increase the resiliency of energy supplies.

As described in Prior SEQRA Analyses, increased use of large-scale renewable resources is expected to increase the proportion of renewable energy in the total generation mix, although it is not expected to influence the amount of energy consumed. The Proposed Action would affect the State's electric generation portfolio and foster development of large-scale renewable resources. The Proposed Action would expand renewable energy as a source of New York's overall electric generation mix and ensure at least 70% of the energy used in New York is sourced from renewables. The CLCPA is anticipated to spur innovation, allowing market participants to develop new strategies and solutions to continue to provide cost-effective renewable energy for consumption.

As described in the 2015 GEIS, additional distributed generation is likely to reduce consumption of grid-supplied power, and make electric load more dynamic and responsive to wholesale market price signals, potentially improving

overall system efficiencies.[134] Achieving the CLCPA target of additional distributed photovoltaic solar generation by 2025 would represent an increase of approximately 422% from 2019 distributed energy generation.

[134] New York Independent System Operator. 2017. "Distributed Energy Resources Roadmap for New York's Wholesale Electricity Markets," A Report by the New York Independent System Operator January 2017. Accessed March 19, 2020. https://www.nyiso.com/documents/20142/1391862/Distributed_Energy_Resources_Roadmap.pdf/ec0b3b64-4de2-73e0-ffef-49a4b8b1b3ca.

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Responses to Comments on the Draft Supplemental Generic Environmental Impact Statement

Commenter	Comment Letter Number – Comment Number	Comment	Response
National Fuel	1-1	On June 12, 2020, the New York State Public Service Commission (Commission) issued a Notice of Completion of Draft Supplemental Generic Environmental Impact Statement (DSGEIS) in the above-referenced proceeding (Notice). The Commission, as lead agency, completed and accepted the DSGEIS in connection with its proposed actions regarding the implementation of the renewable energy provisions of the Climate Leadership and Community Protection Act (CLCPA). The Commission's Notice invited written comments on the DSGEIS, to be received on or before the close of business on Friday, July 24, 2020. National Fuel Gas Distribution Corporation (National Fuel or Company) appreciates this opportunity to provide the comments below in response to the DSGEIS.	Comment noted.
National Fuel	1-2	National Fuel is a natural gas-only utility that provides safe and reliable service to more than 530,000 customers in the western portion of New York State. The Company supports New York's energy and environmental goals through its emissions reduction initiatives; its Conservation Incentive Program alone has eliminated more than 1.17 million metric tons of CO_2 equivalent emissions in the State since 2008. National Fuel has also contributed to the reduction of CO_2 emissions by promoting the conversion to natural gas from higher emitting fuel sources (i.e., coal, fuel oil, diesel fuel, gasoline, propane, etc.), and the Company believes that natural gas and natural gas infrastructure can continue to make important contributions to the achievement of the State's energy and environmental policy objectives. Specifically, the existing natural gas distribution system in New York can be used to facilitate the development and use of innovative emissions reduction solutions such as renewable natural gas (RNG) and hydrogen/power-to-gas (P2G). The DSGEIS does not consider RNG and P2G, and should be further supplemented with an analysis of their potential contributions to the achievement of the CLCPA's objectives. National Fuel and other New York utilities are evaluating the expansion of RNG technologies and the incorporation of RNG into their service offerings. As it proliferates, RNG will reduce the emissions profile of energy deliveries to customers and will simultaneously capture naturally	At a generic, non-site-specific level, this SGEIS identifies potential impacts and associated mitigation measures resulting from the incremental procurement of qualified renewable energy systems under the CLCPA. With respect to natural gas, as noted in Section 1.2, the CLCPA defines "qualified renewable energy systems" as photovoltaics, wind, hydroelectric, geothermal electric, geothermal ground source heat, solar thermal, tidal energy, wave energy, ocean thermal, or fuel cells which do not utilize a fossil fuel resource in the process of generating electricity. Natural gas and technologies such as RNG and P2G are not included as qualified renewable energy systems under the CLCPA and, therefore, outside the scope of analysis of this SGEIS.

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		occurring bio-methane, such as that released from decomposing wastes. By some estimates New York has an estimated RNG technical production capacity of 271 Bcf. This abundant potential for RNG development puts the State in a strong position to utilize RNG as an emissions reduction tool in multiple sectors4 and in a fashion that captures fugitive methane emissions from landfill and agricultural operations. Harnessing RNG as a fuel option will advance the likelihood of the State achieving its energy and environmental goals while ensuring continued availability of reliable and affordable energy supplies. Natural gas pipeline and related infrastructure will be critical to collecting, storing and delivering RNG throughout New York. The DSGEIS fails to consider another important emissions reduction technology, P2G, which can serve as a link between the power grid and the inherent flexibility of the natural gas system, helping to unlock new options for energy conversion, delivery and storage. The P2G concept uses surplus renewable electric power to generate a form of "renewable gas," such as hydrogen or renewable synthetic methane that can be injected into the existing natural gas infrastructure. The natural gas pipeline and underground facilities then provide transmission and storage capacity to deploy the renewable gas where and when it is needed the most, enhancing the power system while also providing a new source of renewable gas. By storing and delivering renewable gas using existing natural gas pipeline and storage facilities, an elegant solution is presented to the thorny challenges associated with storing renewable electricity. The stored energy is not physically restricted to the fixed site of generation where batteries are typically located. In effect, the natural gas system serves as a power-by-pipes alternative to the transmission grid, alleviating network congestion and transporting energy via alternative delivery pathways. Separating the location of storage and generation of energy results in higher overall integrated energy system efficiency. Pursuing P2G and RNG technologies can help avoid the environmental impacts identified in the DSGEIS. In Chapter 3, the DSGEIS notes that the State is home to significant biodiversity and a number of sensitive habitats,	

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		and acknowledges the challenges that New York's high concentration of state and federally-listed rare, threatened and endangered species of flora and fauna present to the siting of utility-scale renewable projects. Ecosystem-focused siting concerns frequently hinder timely and cost-effective deployment of renewable energy projects. Impacts typically associated with utility-scale renewable energy projects generally would not be an issue with deployment of RNG and P2G projects, as the primary infrastructure to distribute these renewable resources already exists and would not require the kind of significant ecosystem disturbances associated with utility-scale renewables such as solar and wind. Development of biofuel and RNG-based energy also offers the advantage of low intensity environmental impacts for equipment upstream of distribution facilities, because such systems can be sited in areas with existing infrastructure capable of supporting such activity. These systems, if built in areas in close proximity to the sources of high-quality, relatively concentrated, fuel stocks where collection systems already exist (e.g. landfills, wastewater treatment facilities, and concentrations of institutional facilities with predictable volumes of food waste streams, to name a few), can be developed with insignificant incremental environmental impacts that are more than offset by the valuable carbon reductions they can achieve. The New York State Energy Research and Development Authority (NYSERDA), whose Acting President is co-chair of New York's Climate Action Council (CAC or the Council), commissioned Energy + Environmental Economics (E3) to develop a strategic analysis of New York's decarbonization opportunities. E3's report on that topic was recently presented at the Council's June 24, 2020 meeting. The CAC indicated that E3's report is intended to serve as a starting point to inform the work of the Council and its advisory panels in their deliberations, as they develop the strategies and pathways that will be needed to achieve the goals of the CLCPA.E3's Presentation includes several important findings that highlight the need for New York to develop and utilize a broad portfolio of energy options, including RNG and P2G. Both "starting point" pathways discussed by E3 in its Report envision the use of advanced biofuels to achieve the CLCPA's emission reduction goals, and throughout its Report and	

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		Presentation E3 identifies bioenergy/fuels like RNG and P2G as potential contributors to emission reductions in multiple sectors, including power, transportation, buildings and industry. RNG/P2G projects also likely would not be subject to the same types of procedural delays that utility-scale renewable projects have faced. Chapter 4 of the DSGEIS notes that until the Office of Renewable Energy Siting (ORES) is established and fully functional, siting of utility-scale renewable projects will continue to proceed through the Public Service Law's challenging Article 10 process. ORES will need time to staff and ramp up, so the improved project approval process that ORES is intended to provide may be difficult to achieve in the short term. In light of E3's conclusions and the obvious potential emissions reduction benefits of RNG and P2G, National Fuel recommends that the Commission delay acceptance of the DSGEIS as final in order to further supplement it by incorporating an analysis of RNG and P2G. Chapter 6 of the DSGEIS examines only the "No Action" alternative to exclusive reliance on utility-scale solar and wind. RNG and P2G should be considered as viable and minimally-impacting alternatives. A further supplemental DSGEIS should be prepared that objectively analyzes RNG and P2G as complementary strategies to utility-scale solar and wind energy. Language included in Chapter 7 of the DSGEIS and the Prior SEQRA Analyses also supports consideration of RNG and P2G in a further supplementation of the DSGEIS, where it indicates that "biogas energy projects can significantly reduce emissions of methane and CO_2, emanating from landfill sites, wastewater treatment facilities, and farms" and "[a] decrease in development in biogas energy could result in an increase in methane and CO_2 compared to what was discussed in the Prior SEQRA Analyses." For the foregoing reasons, National Fuel respectfully requests that the Commission refrain from accepting the DSGEIS as final and, instead, further supplement it to include analysis of the matters discussed in these comments. E3 also recognizes that as the share of intermittent resources like wind and solar grow substantially, studies have suggested that complementing those	

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		resources with firm, zero-emission resources such as bioenergy, synthesized fuels such as hydrogen and other resources could provide a number of benefits. E3's Report and Presentation conclude with the important acknowledgement that flexibility along multiple dimensions is key to maintaining reliability and reducing cost, particularly when faced with the difficult challenge during winter periods of high heating loads and very low renewable energy production. During those periods E3 indicates that a combination of resources is advisable, including RNG or synthetic fuels such as hydrogen, among others.	
Sierra Club	2-1	In response to the Commission's June 12, 2020 Resolution Accepting Draft Supplemental Generic Environmental Impact Statement (DSGEIS) as Complete, the Sierra Club submits the following comments on behalf of its more than 800,000 members nationwide and more than 50,000 members in New York State. Responsible development of renewable energy has the potential to mitigate significant environmental and public health harms in New York and the Sierra Club strongly supports moving forward expeditiously with implementation of the 70 percent by 2030 renewable energy requirements in the Climate Leadership and Community Protection Act (CLCPA). Moreover, the Sierra Club appreciates the multiple rounds of environmental review of the State's clean energy programs that the Department of Public Service has undertaken including development of a Generic Environmental Impact Statement for Reforming the Energy Vision and the Clean Energy Fund1 and a Supplemental Environmental Impact Statement for the initial Clean Energy Standard of 50 percent renewable energy by 2030.2 Many aspects of the 70 x 30 Clean Energy Standard (CES) appropriately build off of analyses in these prior documents.	Comment noted.
Sierra Club	2-2	The White Paper released on June 18, 2020, however, proposes a new CES tier (Tier 4) that would dramatically increase New York's reliance on imports of Canadian hydropower, a resource addition not previously analyzed. As discussed below, because increased reliance on Canadian hydropower could result in a significant adverse environmental and climate impacts and because it is not currently analyzed in the DSGEIS or any of the prior environmental impact statements, the Commission must defer action on Tier 4 until this analysis is undertaken in a meaningful way.	To align with the DPS and NYSERDA "White Paper on Clean Energy Standard Procurements to Implement New York's Climate Leadership and Community Protection Act" (White Paper), additional discussion has been added to Section 2.3.3 regarding the proposed Tier 4 and Section 5.5 has been added to

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			discuss potential impacts from new hydro-electric energy. It is anticipated that a portion of the 3,000 MW of renewable energy that could be procured under Tier 4 would include hydroelectric energy imports from Canada. New impoundments would not be eligible under Tier 4. Impacts on terrestrial wildlife would occur from the temporary construction activities for development of hydropower. Impacts on invertebrates and fish would occur from the temporary dewatering of stream reaches, increases in turbidity, and noise associated with construction of new dams for run-of-river projects. Mitigation measure would avoid or minimize impacts. Impacts and mitigation measures would also be analyzed at the project-specific level.
Sierra Club	2-3	Hydroelectric power can have significant adverse environmental and climate impacts. Impoundments transform natural landscapes into reservoirs. Many natural landscapes function as carbon sinks, and their inundation not only causes a loss of these natural sinks, but also results in a large and ongoing flux of greenhouse gas emissions including in the form of both carbon dioxide (where organic matter decomposes in the presence of oxygen) and methane (where decomposition occurs with limited oxygen). Recent studies challenge the notion that hydropower is a low-carbon resource, particularly on the time scales relevant to the CLCPA and the current climate crisis. Although the White Paper proposes to close Tier 4 to impoundments not already in existence or under construction as of the date of the White Paper, it is silent as to its treatment of expansions of existing impoundments, which could have significant environmental and climate impacts. Moreover, the White Paper's proposed GHG baseline would do little to discourage development of new impoundments to address future increases in Québec's load. The North American Energy Reliability Corporation (NERC) projects that load in NPCC-Québec will grow by	See response to Comment 2-2 regarding the proposed Tier 4 and the role of hydropower in meeting the 70 by 30 goal. As discussed in the White Paper, NYSERDA and DPS recommend that hydropower's eligibility under Tier 4 should be limited, in recognition of negative environmental impacts, including methane emissions that may undermine their efficacy as a mitigation tool. Specifically, the White Paper recommends that Tier 4 be closed to any hydropower impoundment not already in existence or under construction as of the date of issuance of the White Paper and that generation associated with Tier 4 is in addition to the supplier's baseline production. The prior SEQRA Analyses discuss at a generic level, environmental impacts from store-and-

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		0.6% per year over the next 10 years. Hydro-Québec could serve this load using new impoundments or expansions of existing impoundments while sending its existing hydropower to New York, defeating the climate beneficial purpose of the Renewable Energy Standard. No analysis has been undertaken of whether Hydro-Québec can serve anticipated native load growth from its existing system while importing large quantities of additional hydropower into New York, particularly in view of its recent contracts with Massachusetts electric distribution companies to deliver an additional 9.45 TWh from its system into New England.	release projects with impoundments and run-of-river hydroelectric projects. As discussed in Section 2.3.3, hydroelectric projects under the Tier 4 would be limited to projects with impoundments already in existence or under construction as of the date of issuance of the White Paper. Indirect impacts under the Proposed Action may contribute to development of new generation capacity to respond to changes in demand, however there would be many factors that incentivize new development, including renewable energy standards outside of New York State that will drive development of new hydropower. Impacts and mitigation measures would also be analyzed at the project-specific level.
Sierra Club	2-4	None of the environmental analyses of New York's clean energy programs has considered the possibility of increased deliveries of hydropower from Canada and what this would mean from an environmental or climate perspective. Both the 2015 Generic EIS and the 2016 Supplemental EIS focused exclusively on in-state non-power dams and in-state retrofits and upgrades to existing hydro facilities. The DSGEIS suffers the same flaw. While acknowledging the possibility that "[a]dditional hydropower supplies could result from optimizing and/or upgrading infrastructure at existing hydroelectric projects and converting non-powered dams into energy producing dams," the DSGEIS states that "implementation of the Proposed Action is not expected to result in a large increase in new hydropower sources" and that "[t]he amount of hydropower imported from sources in Canada is not anticipated to increase significantly under the Proposed Action." It further states that "[r]esource areas impacted by hydropower are not anticipated to experience a potentially significant adverse effect from the change in type or scale of impacts associated with the 70 by 30 goal and, therefore, are not analyzed further in this SGEIS." Given that the recently proposed Tier 4 is expressly intended to increase the amount of	See response to Comment 2-2 regarding the proposed Tier 4 and the role of hydropower.

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		hydropower imported from sources in Canada and that the DSGEIS confirms that the environmental implications of this have not been analyzed, Commission must defer action on Tier 4 until this analysis is undertaken in a meaningful way.	
Alliance for Clean Energy New York, Inc.; NYOffshore Wind Alliance	3-1	The Alliance for Clean Energy New York ("ACENY") and the New York Offshore Wind Alliance ("NYOWA") respectfully submit the following comments regarding the Supplemental Generic Environmental Impact Statement ("SGEIS") for the Climate Leadership and Community Protection Act. Background The Climate Leadership and Community Protection Act ("CLCPA"), passed by the Legislature and signed by Governor Andrew M. Cuomo in 2019, increased the State's clean energy mandate from 50% renewable electricity to 70% renewable electricity by 2030 (the "70 by 30" mandate); increases the offshore wind deployment mandate from 2,400 MW by 2030 to 9,000 MW by 2035; and increases the distributed solar energy mandate from 3,000 MW by 2023 to 6,000 MW by 2025. The CLCPA complements a number of New York State policies over the past several years that have established goals aimed at substantially increasing the use of renewable energy and reducing greenhouse gas (GHG) emissions, especially from the electricity sector. ACE NY and NYOWA strongly support the CLCPA and are committed to assisting the State in developing the policy strategies to achieve its mandates.	Comment noted.
Alliance for Clean Energy New York, Inc.; NYOffshore Wind Alliance	3-2	The SGEIS evaluates the environmental impacts associated with the incremental resources needed to comply with the CLCPA and builds upon and incorporates by reference relevant material from four prior Environmental Impact Statements. ACE NY and NYOWA agree that a Supplemental Generic Environmental Impact Statement (SGEIS) is the proper mechanism for examining the potential impacts of implementation of the CLCPA and this SGEIS properly focuses on the incremental impact of achieving seventy percent renewable electricity generation by 2030 vs. the previous target established by the Clean Energy Standard of fifty percent by 2030.	Comment noted.
Alliance for Clean Energy New York, Inc.; NYOffshore Wind Alliance	3-3	As a foundational matter, it makes sense that this SGEIS builds upon the 2016 SEIS that analyzed New York's achievement of the 50% renewable electricity goal, the 2018 GEIS regarding the goal of deploying 2,400 MW of offshore wind to contribute to the 50% renewable electricity goal; and	Comment noted.

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		the 2020 SGEIS regarding additional offshore wind deployment conducted in response to NYSERDA's 2020 petition, as well as earlier analyses regarding New York's Reforming the Energy Vision initiative and establishment of the Clean Energy Fund. We recognize and support that this SGEIS is an addition to New York's robust body of work developed in response to the State Environmental Quality Review Act (SEQRA) requirements described in the Executive Summary as "prior SEQRA analyses." We also support that the scope of this SGEIS includes additional increments of offshore wind, utility scale solar, and distributed solar to correspond to the elements of the CLCPA.	
Alliance for Clean Energy New York, Inc.; NYOffshore Wind Alliance	3-4	We find that the SGEIS largely aligns with the existing policy framework for achieving renewable electricity mandates as well as the proposed framework for achieving the incremental renewable energy that is required by the CLCPA, as proposed in the White Paper on Clean Energy Standard Procurements to Implement New York's Climate Leadership and Community Protection Act and its Appendix A – Cost Analysis, filed June 18, 2020 in Case 15-E-0302. However, absent from the analysis is an examination of the potential impacts of the proposed Tier 4, which represents a new policy structure for deploying renewable electricity directly to New York City. The SGEIS states "[t]he amount of hydropower imported from sources in Canada is not anticipated to increase significantly under the Proposed Action. Resource areas impacted by hydropower are not anticipated to experience a potentially significant adverse effect from the change in type or scale of impacts associated with the 70 by 30 goal and, therefore, are not analyzed further in this SGEIS." This conclusion may no longer hold true in light of the recent proposal by the Public Service Commission ("PSC") and the New York State Energy and Development Authority ("NYSERDA") to establish a new Tier 4 for renewable energy delivered into New York City. As proposed, the new Tier 4 would most likely support and incentivize delivery of Canadian hydropower into New York City (i.e. the New York Independent System Operator's Zone J). While the proposal is proposed at a size of 3,000 megawatts ("MW"), it is unknown what that may mean in terms of additional imported energy from jurisdictions surrounding New York, whether Canada or our neighboring	See response to Comment 2-2 regarding the proposed Tier 4 and the role of hydropower.

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		states. This new aspect of the Clean Energy Standard may or may not have significant environmental impacts or economic consequences. Consequently, the SGEIS should address the new proposed Tier 4 and examine the potential impacts associated with its implementation, including potential increase in the importation of Canadian hydropower or other potential impacts.	
NY Renews	4-1	NY Renews is a coalition of over 200 environmental, justice, faith, labor and community groups across New York State that advocates for good jobs and climate justice. NY Renews was a prominent proponent of the Climate Leadership and Community Protection Act (the "CLCPA" or the "Act"), the Nation's only climate law that provides for a just clean energy transition. We appreciate this opportunity to submit comments on the New York State Public Service Commission's ("PSC" or the "Commission") Draft Supplemental Generic Environmental Impact Statement for the Climate Leadership and Community Protection Act ("DSGEIS").	Comment noted.
NY Renews	4-2	NY Renews supports swift action to establish a renewable energy program as directed by the CLCPA. This is a necessary step towards implementing several of the CLCPA's binding requirements, including the mandates that 70% of all electricity consumed in New York State by 2030 be supplied by renewable resources, 9,000 MW of offshore wind be procured by 2035, and 6,000 MW of distributed solar energy be installed by 2025. NY Renews further supports the PSC's overall conclusion that meeting the CLCPA's binding requirements for increasing procurement of renewable energy will not create adverse impacts that could not be mitigated.	Comment noted.
NY Renews	4-3	The CLCPA, however, does not simply mandate swift and aggressive reductions to greenhouse gas emissions and ramping up of renewable energy. The Act also requires that all state agencies and commissions consider the impacts of their decisions on disadvantaged communities and prioritize reductions of co-pollutants and greenhouse gases in these communities. The DSGEIS contains little to no discussion of disadvantaged communities, and provides only a cursory statement as to the benefits that will flow to disadvantaged communities from decreasing the state's reliance on energy that is generated by fossil fuels.	See response to Comment 1-2 regarding the scope of the SGEIS. The CLCPA includes creation of a Climate Action Council to develop the roadmap of policies needed to achieve the law's mandates with respect to disadvantaged communities. The Climate Action Council will consider implementation of CLCPA requirements to invest 35% of clean energy program resources to benefit dis-advantaged communities and ensure that

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			individuals working in conventional energy industries are provided with training and opportunities in the growing clean energy economy. . In a petition recently addressed by the Commission, NYSERDA proposed an expansion of the NY-Sun program intended to advance access to solar energy for LMI customers, environmental justice communities and disadvantaged communities." In its May 14, 2020 Order Extending and Expanding Distributed Solar Incentives, the Commission approved NYSERDA's proposal to allocate $135 million for additional incentives for projects benefitting LMI customers, affordable housing, and environmental justice and disadvantaged communities as well as at least $65 million of MW Block and Community Added incentives supporting the projects that receive those additional incentives.
NY Renews	4-4	As the Commission is well aware, disadvantaged communities have been and continue to be disproportionately impacted by the use of fossil fuels. Pollution from the energy sector contributes to New York State's ongoing air quality challenges, which overwhelmingly harm communities of color and other disadvantaged communities. Polluting facilities, including those that burn fossil fuels to generate electricity, are often sited in communities of color and low-income communities, causing disparities in New Yorkers' exposure to health-harming air pollution. Nevertheless, the DSGEIS fails to examine in any meaningful way the financial and human health costs that would result if New York fails to meet the CLCPA's mandates. For example, in its discussion of the no action alternative of not meeting the CLCPA's binding requirements for renewable generation, the DSGEIS devotes almost no attention to the benefits to disadvantaged communities that would be unrealized in the event that the State does not meet the 70 x	Additional discussion has been added to Chapter 6 indicating the No Action Alternative could result in fewer benefits to disadvantaged communities. As noted in the White Paper, the environmental and health benefits of reducing pollution from fossil fuel-fired generators will be shared broadly but will likely have its greatest benefit in those communities that disproportionately bear the burden of that pollution today. See response to Comment 4-3 regarding the CLCPA's relationship to other programs that would benefit disadvantaged communities.

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		30 mandate. Although the DSGEIS mentions, in passing, that the no action alternative would reduce air quality benefits, there is no discussion of how those adverse consequences would disproportionately affect disadvantaged communities. Giving such short shrift to the burden and costs that would remain for disadvantaged communities from the status quo is at odds with the CLCPA and other state policies that require prioritizing potential impacts borne by communities most overburdened by pollution in evaluating the effects of proposed policies.	
NY Renews	4-5	Further, the White Paper on Clean Energy Standard ("CES") Procurements to Implement New York's Climate Leadership and Community Protection Act, dated June 18, 2020, proposes a new CES tier ("Tier 4"). We understand that Tier 4 is not currently analyzed in the DSGEIS or in any of the prior CES environmental impact statements. NY Renews asks that the new Tier 4 also be analyzed for its environmental impacts.	See response to Comment 2-2 regarding the proposed Tier 4 and the role of hydropower.

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NY Renews	4-6	Separately, NY Renews also notes a completely unsupported and, indeed, incorrect assertion made by the Commission in the DSGEIS about the purported benefits of biogas energy. As the attached report makes clear, the benefits of biogas are largely illusionary. Biogas energy projects almost universally have a net negative overall greenhouse gas impact—i.e., they contribute more to the problem than they solve. And contrary to the suggestion in the DSGEIS, methane emissions from sources of biogas are not inevitable. As such, it is clear that biogas is at odds with any policies to decarbonize the energy sector. Biogas also threatens to entrench the State in relying on existing infrastructure and could impede the technological and economic development needed to meet the CLCPA's goal to eliminate all anthropogenic greenhouse gas emissions by 2050. In addition, biogas production can have significant adverse effects on disadvantaged communities that the DSGEIS completely ignores. For example, farms producing biogas, a source noted in the DSGEIS, can be significant sources of air and water pollution in overburdened communities. "Climate 'solutions' that perpetuate or exacerbate local pollution are incompatible with the principles of a just and equitable transition." In finalizing the SGEIS, the Commission, therefore, should remove the final two sentences on page 7-1 and repudiate the PSC's prior findings that biogas energy projects are viable solutions to reducing greenhouse gas emissions.	See response to Comment 1-2 regarding qualified renewable energy systems. Natural gas, biomass, and biogas are not qualified renewable energy systems under the CLCPA. Analyses of potential impacts from biogas energy on disadvantaged communities is beyond the scope of this SGEIS. Although biomass and biogas energy are not included in the Proposed Action, the loss of incentives to reduce emissions from certain sources could result in a change in emissions. Language in Chapter 7 specifies that the source of potential emission reductions related to biogas energy are landfill sites, wastewater treatment facilities, and farms.
NY Renews	4-7	NY Renews requests that the DSGEIS be amended to include analyses that: (1) consider the impacts of the proposed action on disadvantaged communities, (2) affirm how the proposed action will prioritize reductions of co-pollutants and greenhouse gases in these communities and confer the benefits required by the CLCPA	See response to Comment 4-3 regarding disadvantaged communities. Revisions to Chapter 6 Alternatives Considered clarify that the No Action Alternative could result in fewer benefits to disadvantaged communities.

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NY Renews	4-8	(3) evaluate the financial and human health costs that would result if New York fails to meet the CLCPA's mandates and	Additional discussion has been added to Section 9.2 and Section 9.3. regarding potential benefits and costs of implementation of the 70 by 30 goals
NY Renews	4-9	(4) consider the environmental impacts of the new Tier 4, as described above.	See response to Comment 2-2 regarding the proposed Tier 4 and the role of hydropower.
NY Renews	4-10	The DSGEIS should also remove the final two sentences on page 7-1 and correct previous findings that depict biogas energy projects as climate solutions.	See response to Comment 4-6.
Law Office of Gary A. Abraham; Save Ontario Shores, Inc.	5-1	The subject of these comments is a Draft Supplemental Generic Environmental Impact Statement (Draft GEIS) prepared by Department of Public Service staff (DPS) to consider the potential impacts of the shift in New York's energy policy from a goal of achieving 50% of zero-emissions in the state's power sector by 2030 (the "50X30" goal) to a 70% goal (the "70X30" goal). New York's Clean Energy Standard (CES) mandated the 50X30 goal. The Climate Leadership and Community Protection Act (CLCPA) was signed into law in 2019 and mandates that 70% of electric power demand in 2030 be met by renewables, and 100 percent be from "zero emissions" sources in 2040. The CLCPA also "mandates a minimum of 6 gigawatts (GW) of distributed solar capacity (such as on rooftops) by 2025 (there is now 1.5 GW), and 9 GW of offshore wind capacity by 2035 (there is now none, though the state is actively working to build several wind farms off Long Island). There will be more onshore wind as well, but the CLCPA does not specify how much." The Draft SGEIS purports to evaluate the impacts of these CLCPA targets.	Exhibit 2-5 in Section 2.2 identified approximately 1,900 MW of onshore wind that may be developed to meet the 70 by 30 goal. Exhibit 2-6 provides additional detail on estimates of onshore wind capacity based on the White Paper. See response to Comment 1-2 regarding the scope of the SGEIS. As noted in Section 1.2, the scope of this SGEIS addresses issues either not addressed in the Prior SEQRA Analyses or issues that need further analysis based on the expansion of the State's renewable energy goals pursuant to the CLCPA. Table 1.2 listed the prior environmental impacts statements evaluating onshore and offshore wind and summarizes the types of impacts previously analyzed to demonstrate the scope of this SGEIS.
Law Office of Gary A. Abraham; Save Ontario Shores, Inc.	5-2	The scope of the Draft SGEIS is too narrow. Changes in the anticipated contribution of hydropower and wind power are deemed outside the scope of the study for the sole reason that the CLCPA does not identify targeted additions of generation capacity from these sources. As a result, only the impacts of "approximately 2,100 to 6,300 MW of incremental utility-scale solar,4,800 MW of incremental offshore wind, and 6,000 MW of	Section 1.2.1 explains that the scale of potential onshore wind under the Proposed Action would not increase beyond what was analyzed in the Prior SEQRA Analyses. Exhibit 2-5 identifies the prior projections for anticipated wind energy capacity. With respect to

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		incremental distributed solar" are considered. (p. 5-1). The Draft SGEIS treats the Clean Energy Standard and its 50X30 goal as a program it need not revisit, and CLCPA with its 70X30 goal as a different program, the subject of this Draft SGEIS. This approach to environmental impact review is at odds with the prohibition against segmentation. The cumulative impacts are those attributable to the two programs combined. An alternatives analysis should consider alternatives to cumulative impacts.	hydropower, see response to Comment 2-2 regarding the proposed Tier 4 and the role of hydropower. With respect to segmentation, this SGEIS considers the incremental environmental and cumulative impacts not previously analyzed in regards to the expected increase in procurement of renewable energy systems from the proposed expansion of the 50 by 30 goal to the 70 by 30 goal. All environmental and cumulative impacts analyzed in the Prior SEQR Analyses are incorporated by reference in this SGEIS.
Law Office of Gary A. Abraham; Save Ontario Shores, Inc.	5-3	Thus, the Draft SGEIS remains incomplete without consideration of changes in technology since 2016, and recent findings addressing the transmission capacity required to utilize the build-out of large-scale renewables in particular. Excluding these subjects artificially diminishes the impacts considered.	Section 1.2 discusses the following factors considered when determining which resource areas required new or further analysis: change in renewable resources, increase in scale of development, previously identified impacts, and new information on potential impacts. Section 2.1 of the SGEIS notes that the majority of the state's current electric demand is located in the downstate areas (load zones H-K), while most of the state's power supply is located in upstate areas. However, the need for distribution and transmission to achieve the CLCPA climate protection targets is outside of the scope of this SGEIS. The Commission is considering development and implementation plans for future investments in the electric grid. On May 14, 2020, the Commission initiated a proceeding to develop and consider proposals for implementing the provisions of the Accelerated Renewable

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			Energy Growth and Community Benefit Act with respect to distribution and transmission upgrades, capital expenditures, and planning.
Law Office of Gary A. Abraham; Save Ontario Shores, Inc.	5-4	The scope of the Draft GEIS also excludes the impacts of advancing the CLCPA targets on the cost of energy. The goals of the State Energy Plan include "improving the reliability of the state's energy systems . . . insulating customers from volatility in market prices" and "reducing the overall cost of energy in the state". NY Energy Law § 6-102(5).	Revisions to Sections 9.2 and 9.3 provide additional information regarding potential costs and benefits of implementation of the 70 by 30 goal. The White Paper estimate that from 2021 to 2026 the levelized impact on electricity bills of the White Paper proposals would be less than 0.5% (or $0.35 per month for the typical residential customer), and net benefit of around $7.7 billion over the lifetime of the projects would occur. The analysis considered a portfolio of large-scale renewables that was developed using a supply curve model.
Law Office of Gary A. Abraham; Save Ontario Shores, Inc.	5-5	Except for energy storage, all the CLCPA targets would increase intermittent renewables. Intermittent renewable energy does not improve the grid's reliability. Additional measures to ensure reliability as a result of injecting intermittent power into the system are required. These measures are not required for non-intermittent nuclear, hydropower, or high-efficiency low-emissions gas-fired power plants.	See response 5-3 regarding transmission reliability. The New York Independent System Operator ensures the reliability of the bulk power system in the State. Before resources are allowed to interconnect into the bulk power grid, studies are completed to evaluate the effect on reliability. If upgrades to the grid such as substation enhancements, additional balancing resources, or storage are needed, the New York Independent System Operator requires the developer in most cases to pay for the upgrades before interconnection is allowed. At the time a specific project is proposed, the environmental impacts of any associated back-up generation would be studied.

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Law Office of Gary A. Abraham; Save Ontario Shores, Inc.	5-6	Wind projects also impose additional costs on ratepayers for electricity in New York (although they may reduce market volatility), because they require utilities to purchase renewable energy credits (RECs) from wind power generators, and the cost of RECs is passed on to ratepayers.	See response to Comment 5-4 regarding potential program costs.
Law Office of Gary A. Abraham; Save Ontario Shores, Inc.	5-7	Surprisingly, the Draft SGEIS does not consider the impact of the various CLCPA targets on actual anticipated emissions reductions. Because substantial large-scale renewable energy projects have commenced operations since the "Prior SEQRA Analyses" (generally covering the period up to 2016), data is available to determine the actual annual generation rates of these projects. However, no consideration is given to that data, and efficiencies for large-scale renewables appear in particular to be inflated. In addition, different technologies result in different emission rates depending on the nature of their lifecycles and the supply chains they require. Technology produced principally domestically requires less transportation-related emissions than technology that relies on overseas mining, manufacturing and transport. The "carbon footprint" of different technologies is not considered in the Draft SGEIS. Finally, the Draft SGEIS limits its scope to the impacts of renewable generation, considered in isolation from the ability of the energy system to fully utilize the energy generated, the modifications to the system that will be required to do so, and the cost and emissions impacts of coordinating transmission with generation additions. This is a serious limitation that, together with others identified here, renders the Draft SGEIS incomplete.	The construction, operation, and decommissioning of traditional energy projects (e.g., oil, natural gas, and coal) and renewable energy projects would result in varying amounts of GHG emissions that could affect the overall carbon benefits estimated in the White Paper. However, there would be many factors that would affect emissions, such as project location, technology, and material and equipment sourcing. Given these variables and the required site-specific information, estimating lifecycle costs and benefits would be speculative.

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Law Office of Gary A. Abraham; Save Ontario Shores, Inc.	5-8	To determine whether the 70X30 goal will be achieved with the CLCPA targets should require an evaluation of the efficiency of the technologies being considered. Several factors diminish the efficiency of large-scale renewables, beyond the low efficiencies assumed by NYISO for its planning purposes. First, intermittent renewables cannot be utilized on a state-wide or regional electrical grid without relying on more gas-fired fast-starting power plants than would otherwise be operating, in order to back up renewables when the sun is not shining or the wind is not blowing. Because of their relative inefficiency when operated as fast-starting sources, natural gas power plants necessarily generate more air pollution than high-efficiency combined cycle gas plants. The combined utilization of wind and single-cycle fast-ramping natural gas plants will therefore cause more emissions than a combined cycle gas-fired power plant by itself. These emissions would not be generated but for the operation of wind and solar farms. Thus, although renewables operate without directly generating any direct greenhouse gas emissions, it is not the case that their operation results in no emissions from the combustion of fossil fuel. "[C]onventional generation must remain available to backstop intermittent renewable resources to maintain system reliability". In supplemental comments in July 2016, NYISO pointed out that "additional energy and ancillary service requirements [are] necessary to maintain system reliability with the level of intermittent resource penetration required by the CES".	See response 5-3 regarding transmission reliability. See response to Comment 5-5 regarding grid interconnection and reliability.
Law Office of Gary A. Abraham; Save Ontario Shores, Inc.	5-9	Second, in order to develop "sufficient intermittent renewable capacity . . . to produce the equivalent amount of energy as high-capacity resources such as hydro or nuclear units", NYISO reports that intermittent renewable facilities must be substantially overbuilt, further diminishing their effectiveness. This result occurs because an "installed reserve capacity" must be maintained by NYISO in order to manage peak demand. Peak demand occurs infrequently— several hours per year at different times. However, if peak demand is not managed on a systems basis, blackouts and brownouts occur during times of peak demand. According to NYISO, to maintain reliability, New York's installed reserve margin will need to be increased from its current level, which "has generally ranged between 15% and 18% in recent years", to "between 40% and 45%" based on "the	See response to Comment 5-3 regarding transmission reliability. See response to Comment 5-5 regarding grid interconnection and reliability. The estimated quantity of new renewable energy required to meet the 70 by 30 goal considered capacity factors of different distributed and utility-scale resources.

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		expected 14,910 MW of additional renewable resources" required to achieve the 50 X 30 goal considered in the 2016 SEIS. Most of the burden of the additional IRM will need to be supplied by large-scale wind and solar. If zero-emissions hydropower were utilized to achieve the required IRM, only 283 MW of additional non-renewable capacity would be required to ensure system reliability, imposing less than one percent more burden on the grid's installed capacity margin. Third, to avoid or minimize bird and bat fatalities, wind farms must often be curtailed. For example, the Article 10 Siting Board has consistently ordered wind energy facilities be curtailed for the period between one half-hour after sunrise and one half-hour before sunset, during summer months when wind speeds are low, to minimize bat collisions. To avoid or minimize noise impacts on residents, wind farms must often be curtailed by limiting the time of operations, or by using "noise reduced operations", involving either serrated wind turbine blades or angling blades or both. Either method results in reduced power generation.	
Law Office of Gary A. Abraham; Save Ontario Shores, Inc.	5-10	How new transmission lines would affect future entry and exit decisions by generators is an important part of evaluating the impacts of the CLCPA targets. Up to now, generation siting has been untethered to the state's future transmission needs, and this has diminished the effectiveness of the projects that have been sited. But if the sites for new generation capacity continue to be determined by private developers without regard to the state's needs, the effectiveness of that capacity will continue to be limited. Similarly, without knowing where generation capacity might be sited in the future, the contribution to the CLCPA emissions reduction goal of additional transmission capacity will be limited, and difficult to identify. NYISO has observed that "planning for the system transformation necessary to facilitate the growth of clean energy resources in New York" is in its infancy. Generation capacity has been concentrated upstate, but without regard to whether its proximity to existing or new feasible transmission capacity is available at the site locations to fully utilize the generation. The bulk transmission system in New York is seriously constrained, as all of the utility-scale wind and solar farms sited upstate are bottled upstate, that is, their generation cannot be transported to the State's	See response 5-3 regarding transmission reliability.

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		load center in the southwest. Two "public policy" transmission projects have been approved east of Albany and south in the Hudson River valley, but these will be insufficient to relieve upstate-downstate transmission congestion. In addition, "if state polices shift more investment to offshore wind and energy storage in downstate areas, the benefits from the recommended projects will be reduced."	
Law Office of Gary A. Abraham; Save Ontario Shores, Inc.	5-11	The state has also approved an additional 1,000-1,250 MW of imported renewable capacity, by means of the Champlain Hudson Power Express transmission project. The impact of this project on planning does not appear to be considered. See p. 1-11 ("The amount of hydro-power imported from sources in Canada is not anticipated to increase significantly under the Proposed Action."). The addition of 1,000-1,250 MW of imported hydropower to the downstate zone will further diminish the benefits of upstate-downstate transmission congestion relief, and may make new transmission capacity uneconomic, with the result that few or no new transmission proposals would emerge. If "[t]he future construction and operation of new large-scale renewable resource projects that may occur in response to the Proposed Action could result in irreversible and irretrievable commitment of resources", (p. viii), the state should take this opportunity to ensure those resources are not wasted, and the direct benefits described in the Prior SEQRA Analyses are realized. The "bottled" status of the upstate electric grid exacerbates the efficiency problems identified earlier. Because new renewable electric generation must for the foreseeable future be consumed upstate, and demand upstate is flat or declining, upstate generators must be curtailed to accommodate renewable electricity when it is generated. However, zero-emissions hydropower and nuclear power cannot be curtailed, nor can the most efficient gas-fired power plants, combined cycle plants that use waste heat from gas-fired turbines to generate steam to a second set of turbines. According to NYISO, this leaves only older renewable energy facilities as candidates for curtailment. Under the wholesale market rules NYISO administers, the least economic generator is curtailed first. Renewable energy facility income is based substantially on payments for renewable energy credits ("RECs"). Because RECs contracts generally have ten-year terms, older New York renewable projects' contracts have	The policy issues triggered by the CLCPA are considered separately and are not appropriate subject matters for the SGEIS. See response to Comment 5-3 regarding transmission reliability.

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		expired, making them less economic than new renewable projects. The result, according to NYISO, is that new renewable projects will curtail older renewable projects. To that extent, little or no emissions reductions would result. Each of these problems reduce the emissions reductions in the New York energy system that can be anticipated by building out large-scale renewables. These problems will not be resolved without planning for new transmission capacity, to unbottle the system. Because the state has just begun to develop a comprehensive plan to address the transformation of the energy system, no one can say whether constrained and curtailed additions to the state's renewable generation fleet will continue to be sited ahead of new transmission capacity, or whether the siting of transmission and generation will, for the first time, be coordinated. It is not logical to expect that generation siting wherever developers can secure land rights will be effective in achieving the state's energy goals. Transmission planning may recommend that new generation be directed to the locations where the new transmission capacity is sited. However, in the Draft SGEIS, like the Prior SEQRA Analyses, foreseeable transmission constraints on the utilization of new renewable capacity upstate, and at least generic alternatives for transmission and generation coordination are not considered.	
Law Office of Gary A. Abraham; Save Ontario Shores, Inc.	5-12	Both the RGGI market for RECs and power purchase agreements guarantee that renewable project sponsors receive a certain level of revenue for each MWh generated, without regard for how many MWh are actually utilized, and without regard to emission reductions attributable to generation. This approach to financing renewables creates "a perverse incentive for renewable resources to generate regardless of system conditions in order to maximize their revenues". Overbuilding renewable generation to ensure system reliability will result in increased curtailment orders from NYISO, and insulates renewables from market signals, de-linking generation from emissions reduction outcomes that are efficient and effective. "This market insulation distorts the incentive for renewable resources to properly locate their facilities in areas of highest value and respond to dispatch instructions", according to NYISO. Without appropriate incentives, siting more large-scale renewable power projects will "shift risk from developers to consumers." Consumers will suffer incrementally as a consequence of	The policy issues triggered by the CLCPA are considered separately and are not appropriate subject matters for the SGEIS. See response to Comment 5-4 regarding the White Paper cost and benefits analysis.

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		the manner in which renewable projects are financed. "Consumers could be forced to pay the bundled PPA [power purchase agreements] price [or the price of RECs] regardless of the resources' performance in the electric market, e.g., how frequently the resource is selected to operate." Market-based incentives for renewables are more efficient and effective than targeted generation goals isolated from their systems context. Accordingly, NYISO believes the state "should avoid any material reliance on bundled PPAs [power purchase agreements] to achieve the Clean Energy Standard goals." The same should be true for RECs, which are equally insulated from the electric market. SOS does not dispute that large-scale renewable energy projects assist the State in meeting the 70X30 goal. However, if such projects can, under present and foreseeable geophysical constraints, be expected to avoid no more than a de minimis amount of greenhouse gas emissions, the Draft SGEIS should consider those constraints in its impact analysis, at least on a generic basis. The failure to do is a serious flaw in the Draft SGEIS.	
Law Office of Gary A. Abraham; Save Ontario Shores, Inc.	5-13	In addition to the low efficiency with which large-scale renewables operate, the cost effects for the public of managing their intermittency, requiring (among other things) overbuilding to achieve additional installed reserve capacity, is not considered. Intermittent renewable sources have low value within the market for electricity, with at least conceptually predictable adverse effects on ratepayers. This low value is reflected in the fact that "renewable resources may submit large negative offers [into the wholesale market] to ensure their dispatch regardless of market prices, system conditions, or their actual marginal cost of generation. This behavior exacerbates the potential for very low and even negative energy prices, which in the long run increases the cost to consumers." NYISO has concluded that reliance on the CES targets for various renewable generation technologies "untethered to a generator's wholesale market participation" will increase costs to ratepayers over time. Well over a decade ago, the Public Service Commission expressed a similar concern, stating that a generator's entry into the wholesale market would be deemed in the public interest "[s]o long as the wholesale generation market is effectively competitive". Market-insulated incentives "reduc[e] incentives to follow	The policy issues triggered by the CLCPA are considered separately and are not appropriate subject matters for the SGEIS. Revised Section 9.2 includes additional discussion regarding potential program costs.

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		dispatch instructions" and thereby "undermine the efficiencies gained by fully integrating wind resources into the NYISO's economic commitment and dispatch software. . . . This outcome runs counter to the State's renewable goals."	
Law Office of Gary A. Abraham; Save Ontario Shores, Inc.	5-14	To avoid this outcome, NYISO recommends alternative incentives for intermittent renewables, compared to "bundled PPAs [power purchase agreements], as well as contracts for differences ("CFDs") and utility-owned generation ("UOG"), in comments on Large Scale Renewables ("LSR") procurement options [being considered] in this docket. The NYISO pointed out that each of these three mechanisms—PPAs, CFDs, and UOG—would insulate renewable resources from competitive price signals, cause inefficient market outcomes, and raise reliability concerns." RECs and RACs are also out-of-market incentives that pick winners and thereby suppress the emergence of effective competitive alternatives. For example, large dairy farms are a substantial source of greenhouse gas emissions in New York. Aerobic digesters at some large dairy farms were installed 15 years ago with NYSERDA incentives but, after these incentives were replaced by PSC's "value-stack" approach to net metering, digesters are no longer profitable. The carbon negative service of digesters, which has come to an end in New York, could be recaptured with technology-neutral incentives. The Draft SGEIS does not consider such alternatives.	The policy issues triggered by the CLCPA are considered separately and are not appropriate subject matters for the SGEIS.
Law Office of Gary A. Abraham; Save Ontario Shores, Inc.	5-15	According to the Draft SGEIS, "Projections for 2019 predicted an increase to 24,410 people employed in the renewable energy generation. Of these, 11,603 were employed in the solar energy, and 3,491 were employed in wind energy." (p. 9-5). However, these numbers are almost all attributable to the construction period, generally one year. Permanent full-time jobs created by these projects are required to be reported annually by local industrial development authorities, which almost always sponsor such projects as a necessary element of their financing. IDA reports around the state show that "full-time equivalent" jobs are created in very low numbers, about one FTE per 30 MW capacity. The NYSERDA numbers are not a reasonable basis for estimating the long-term impacts of large-scale renewables on jobs.	The revised Section 9.3 includes a footnote to clarify reported state employment numbers do not represent full-time equivalent positions and the operations and maintenance positions represent just 5% of jobs in the solar industry.

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Law Office of Gary A. Abraham; Save Ontario Shores, Inc.	5-16	For wind farms in particular, the loss of forested land and its carbon sequestration benefits is often substantial. In the Alle-Catt matter, for example, the Siting Board found that 1,550 acres of mature forest would need to be cleared for interconnection lines, wind turbine sites, and access road to the sites and the transmission system. At 350 MW of design capacity, this means nearly 4.5 acres of forest is lost for each MW. If 1,900 MW of large-scale wind is needed to achieve the 70X30 goal, and these projects are sited in partly forested areas like the Alle-Catt project, the negative carbon services of 8,550 acres of forest will be lost. If each forested acre removes three tons of CO_2 annually, 25,650 tons of CO_2 will be lost to the atmosphere every year, and will continue for some time after the typical 30-year lifetime of renewable projects has passed. Large-scale solar projects may also remove forested acres. This impact is not considered. The state's goal of reducing emissions is societal and global in reach, since the effects of emissions reduced by New York's power sector must be evaluated in light of its effect on the planet's atmosphere. Accordingly, to determine their climate benefit, the lifecycle emissions of alternative technologies must be evaluated. For example, manufacturing of cement emits one ton of CO_2 into the atmosphere for each ton of cement product. Wind farm proposals often include a cement batch plant located within the project area, because of the large volume of cement needed and the cost of otherwise transporting cement. Large-scale solar farms also require substantial amounts of cement.	The Prior SEQRA analyses discussed at a generic, non-site-specific level, potential impacts and associated mitigation measures that could be caused by the types of activities that could result from the incremental procurement of renewables to satisfy the CLCPA goals, including the removal of trees for some aspects of a project. See response to Comment 5-7 regarding lifecycle costs and benefits.
Law Office of Gary A. Abraham; Save Ontario Shores, Inc.	5-17	Mining of raw materials needed for solar panels, wind turbines, storage batteries may be more or less extensive compared to alternative technologies, including smaller-scale distributed generation and energy demand reduction measures such as heat pumps. More extensive mining in countries distant from the U.S. would require greater transportation-related emissions than domestic mining or alternative measures that do not require any additional mining. Indeed, different alternatives involve more or less extensive supply chains. The Draft SGEIS does not consider the emissions impacts of these unavoidable differences among alternative means to achieve the 70X30 goal. Conclusion SOS looks forward to commenting on	See response to Comment 5-7 regarding lifecycle costs and benefits.

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		an expanded Draft SGEIS that fills the information and evaluation gaps identified above.	
Bill Nowak, NY-GEO	6-1	It is important that NY is coming to grips with what it will take to meet our 40% by 2030 and 65% by 2050 GHG emission reduction goals. The staff white paper goes a long way toward quantifying the renewable generation capacity we will need now that the CLCPA is in place. I fully support building at least the level of solar and wind projects proposed in the white paper. It is important to be ready for the revised GHG emissions calculations when the more accurate, updated and on-point methane leak provisions required by the CLCPA are integrated with these plans. We will find gas-based emissions from the building sector are far more significant than currently credited. In all likelihood the projection that only 21% of the primary building stock will be heated by air and ground source heat pumps by 2030 will leave us well short of the need to cut 40% of GHG emissions by 2030. I urge the Commission to take a second look at the 10,334 GWh additional load projection for heat pumps in light of the CLCPA methane provisions. I would then urge the Commission to take a deeper look for additional sources of renewable electricity generation. The proposal for a feasibility study on Great Lakes Wind as outlined in the White Paper is an important step in that direction. The wind on Lakes Erie and Ontario is a significant resource that should not be left untapped. The study should identify sites for development as rapidly as possible. 2030 is not far away and the need for more renewable electricity will not stop in 2030.	See response to Comment 1-2 regarding qualified renewable energy systems. See response to Comment 5-4 regarding the White Paper cost and benefits analysis. The regulatory structure and economic issues included in the Whitepaper are beyond the scope of this SGEIS.
John De Marco	7-1	Wind turbines do not belong in Lake Ontario. Industrializing one of the natural wonders of the world for what will be a trivial amount of energy is reckless and short sighted. These turbines will be so expensive to install they will not be cost competitive for years. Besides this the minimal and unreliable amount of power produced is not worth the impact on the Great Lakes both ecologically and economically. This impact on the environment	The White Paper recommends development of a Great Lakes Wind Feasibility Study. See response to Comment 1-2 regarding the scope of the SGEIS. With respect to impacts on the environment and tourism, as noted in Chapter 4, the design and operation of specific offshore wind projects would be subject to

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		and tourism will be real, felt most by the surrounding communities, and not worth the trade off.	review by multiple federal, state, and local agencies. Chapter 5 discusses the potential impacts on visual resources, fish, and commercial and recreational fishing. This SGEIS acknowledges that siting of specific projects would require careful avoidance, minimization, and mitigation measures.
Lisa Zern	8-1	I am begging you to be mindful of your consideration of large scale wind turbines along the shores of Lake Erie and Lake Ontario. I own a property along the shores of Lake Ontario in the town of Yates near Lyndonville, NY. It is a place that I consider heaven. I spend my summers there as I am a teacher in Florida. There is not a more peaceful, beautiful place in the world to recharge and relax. We enjoy the calmness or wildness of the water. We enjoy the wildlife of the water and its shores. Recently there have been 2 eagles that visit a tree by our place almost every morning. The fishing in Lake Ontario is amazing. We recently caught and ate salmon from the lake. It was delicious. I am all for environmental changes, but they need to be the right ones. Wind turbines do not create enough electricity to make them sustainable. They are an eye sore and cause damage to the surrounding lands and can cause health problems to people and animals. Solar farms are less obtrusive and create more electricity even in overcast weather. I encourage solar, please not wind. If you want to come stay at my cottage and experience the heaven that Lake Ontario is, please you are more than welcome. Please say NO to wind turbines along the fragile, beautiful shores of the Great Lakes. There are better options.	See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind Feasibility Study and analysis of potential impacts of offshore wind in the Great Lakes.
Mr. John B Riggi, Town Councilman	9-1	As a resident and elected official of Lake Ontario shoreline of Yates, NY and a long-time opponent of APEX Clean Energy's proposed Lighthouse Wind Project, I believe that I am qualified to speak and comment on this matter. I am sorely disappointed by the State's headlong rush to destroy so much of what is valued by all of us, in the incredible resource we enjoy with our Great Lakes, Ontario and Erie. Effectively, the Governor is interested in siting offshore wind turbines within 2 miles of the southern shore of Lake Ontario. The myriad and significant issues that would arise from an ill-advised initiative such as this one would include: Potential toxin	See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind Feasibility Study and analysis of potential impacts of offshore wind in the Great Lakes. As noted in the Prior SEQRA Analyses, avoidance of contaminated sediments would be determined through sediment sampling and testing that occurs in detailed facility siting

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		release from lake bed disturbances during construction and nacelle leaks after construction Shipping lane restrictions Migratory bird flyway disruptions Significant disruption of lake sport-fishing Significant disruption to pleasure boating activities Significant night time light pollution from aircraft navigation lighting installed on turbines .	investigations. Any new offshore wind energy projects will have to comply with federal requirements to prepare and implement an Oil Spill Response Plan during construction and operations, if applicable, to prevent and/or minimize the occurrence of accidental spills of hazardous materials and take measures to prevent unauthorized discharge of pollutants into offshore waters. Siting of specific projects would require careful avoidance, minimization, and mitigation measures.
Mr. John B Riggi, Town Councilman	9-2	As Lakeshore towns, we understand more than most the importance of these resources and the complete folly of destroying this resource in the name of electrical generation by an obsolete technology that currently generates nor more than 0.10% of the states electrical needs daily. Frankly, much more appropriate options for clean energy production are hydro and nuclear. In fact, nuclear plants can be very easily placed Downstate where the energy is needed with out destroying prime agricultural land upstate.	See response to Comment 1-2 regarding qualified renewable energy systems. Nuclear energy is not included as a qualified renewable energy system under the CLCPA and is, therefore, outside the scope of analysis of this SGEIS. See response to Comment 2-2 regarding the proposed Tier 4 and the role of hydropower in meeting the 70 by 30 goal.
Mr. John B Riggi, Town Councilman	9-3	Interestingly and not surprisingly, Sustainable Westchester does not agree, as they state in their recent missive to the state: "Tier 4 resource eligibility should be expanded to NYCA zones H and I deliveries. The same remarks stated above about New York City apply to Westchester County: a Tier 1 land-based renewable generation cannot be built in the County because of the same lack of developable sites for largescale solar systems or wind farms. In order to increase the penetration of renewable energy in Westchester County, the only solution for the communities is to contract a supply with upstate renewable generation and have it delivered in the County." So, Sustainable Westchester, believes that there are no sites in ALL of Westchester County and New York City and that rural, Western New York should bear the brunt of power generation for the Downstate area. Lesson to Sustainable Westchester: Just because there are not skyscrapers on rural Western New York Land does not mean that land is vacant and unused. Fully 100% of all rural land in Western New York is	See response to Comment 5-4 regarding the White Paper cost and benefits analysis. See response to Comment 1-2 regarding the non-site-specific scope of this SGEIS.

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		utilized in growing food for Downstate as well as providing a clean environment for constituents and wildlife in kind. There are better energy solutions than destroying our Great Lakes.	
Georgette Stockman	10-1	Sustainability should not come at the cost of the Great Lakes ecosystem. The lakes hold 20% of the world's fresh water supply and should be considered a protected resource, not an industrial site for turbines. Wind and solar remain sources of intermittent power, requiring fossil fuel backup and/or battery storage, which is a danger in itself. Without the transmission lines that would provide a way for power to flow downstate to meet the enormous appetite of those communities, there is no justification for locating turbines in the lakes, other than to satisfy the demands of the industry.	See response to Comment 9-1 regarding potential impacts on water quality. See response to Comment 5-3 regarding transmission reliability.
Steven J Royce	11-1	I am writing in opposition to the possible installation of wind turbines in the waters of New York's Great Lakes. The ecology of the lakes would be negatively impacted, and the scenic views for which the lakes are known and which draw tourists to the shores of the lakes are unmatched and would be destroyed. Let me ask a question of those who think so little of the Great Lakes that industrialization seems a great idea. Would you also support industrial wind turbine or solar field installations in the Adirondack Forest? If not, why not? Certainly there are sufficient wind and sunshine resources there to make such ideas practical. Are the scenic value and ecology of one natural asset worth so much more than another? The Downstate area has no concern whatsoever for those of us in rural New York. They are the ones wasting the energy (does Times Square really need to be lit up all day and night?) and demanding more. Let them deal with offshore turbines, solar fields on Long Island.	See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind Feasibility Study and the analysis of potential impacts of offshore wind in the Great Lakes.
Steven J Royce	11-2	Nuclear power also needs to be a long-term solution for carbon-free power generation. There are better ways than destroying our countryside. STOP thinking that our natural wonders and resources are yours for the taking.	See response to Comment 1-2 regarding qualified renewable energy systems. Nuclear energy is not included as qualified renewable energy system under the CLCPA and, therefore, outside the scope of analysis of this SGEIS.
Christine Bronson	12-1	I find it a superb irony that posts on this page claim to be fighting for the survival of our environment while supporting the idea of industrial wind	See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind

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		turbines in Lakes Erie and Ontario. While the planet may be warming, as I write this there are thousands of migratory songbirds and raptors that cross these lakes. Thousands of songbirds migrate across at night. My Barker, NY lakeshore residence has been the locus of a study done by Old Bird, Inc. of Ithaca, NY, which tracked thousands of songbirds by microphone, crossing at night. This study documented the migration every spring from 2015, 2016, 2017 and 2018. Those recordings and the identification of each species is online for those who are curious. Raptors have been tracked, as well, (see Braddock Bay Raptor Research) moving along the south shore of Lake Ontario, where NYS proposes placing huge IWTs within a two- to three-mile margin of the shoreline, precisely where these raptors fly. These birds will not be killed by climate change at some random future point; they'll be slaughtered as soon as these wind turbines are erected. Those who like to boast their environmental "cred" on this DPS Comment page also need to face the fact that wind developers now get a federal "pass" to slaughter eagles by buying permits for eagle "takes". Unfortunately no one will be counting the carcasses (as wind developers are now compelled on land) around the bases of these wind turbines as they float in the lake waters. As for the song bird mortality, the numbers of birds lost over water will be anyone's guess, until it becomes obvious that there is a scarcity observed on land.	Feasibility Study and analysis of potential impacts of offshore wind in the Great Lakes. Section 5.3 and the Prior SEQRA Analyses discuss the potential impacts on birds, including displacement, disturbance, loss, or conversion of habitat, and injury and mortality. As discussed in Chapter 4, regulatory consultations and preconstruction siting studies would ensure that projects avoid areas of known dense avian use. Impacts on birds would occur at an individual level; however, population-level impacts would not be expected to occur for any species. Siting of specific projects would require careful avoidance, minimization, and mitigation measures.
Christine Bronson	12-2	Renewable energy? How about looking no further than a hydroelectric power plant at Niagara Falls which has been in operation since the 1960s. It is clean, efficient, and renewable. What's more, it takes up a small footprint compared to the miles and miles of lake floor disturbance which will occur if industrial wind turbines are constructed on the lakes. The hydroelectric plant at Niagara Falls is being intentionally powered down in favor of trendy and inefficient renewables such as wind power, which is heavily subsidized by tax dollars, and the reason that future electric bills will skyrocket in New York State. [See Ken Giardin's articles Empire Center for Public Policy that deal with this issue of the staggering cost.]	New hydroelectric energy is expected to contribute to the 70 by 30 goal under Tier 1 and a proposed Tier 4. According to NYSERDA, new and existing hydroelectric by itself would not be sufficient to meet the 70 by 30 goal.
Christine Bronson	12-3	The electricity is needed in the New York Metropolitan area. Why build these IWT monstrosities in far-flung upstate New York, where transmission lines must also be built to transmit this power to that area? That requires	See response 5-3 regarding transmission reliability.

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		further construction and devastation of a rural upstate New York, unwillingly sacrificing for the power gluttons downstate.	
Christine Bronson	12-4	Presently lithium batteries are considered to store the energy generated by renewables. These lithium batteries are as large as tractor trailers, and are known to be extremely hazardous. Given the requirement of scores of these truck-sized batteries, consider that land requirement. Again, Western New York residents who live in towns that have established zoning for health and safety have gone on record as objecting to the placement of these huge batteries close to their homes and schools, not to mention their placement in fields that could be used for agriculture or recreation.	Battery storage and associated impacts were discussed at a generic level in the 2015 SEIS. In 2018, the Commission published a final GEIS pursuant to SEQRA, to explore the potential environmental impacts associated with the procurement of 3,000 MW of battery storage (CASE 18-E-0130 – In the Matter of Energy Storage Deployment Program). Any new battery storage projects would be required to comply with State and local safety requirements.
Christine Bronson	12-5	I again state my objection to any industrial wind turbines being placed in the waters of Lake Erie and Lake Ontario, as it poses a severe blow to the environment and ecology of those bodies of water.	Comment noted.
Dr. Alice Sokolow	13-1	Included is my concern for a repeated Generic EIS without a FINDINGS STATEMENT. Findings Statement should set forth specific conditions or criteria under which future actions will be undertaken or approved, including requirements for any subsequent SEQRA compliance" such as the need for a supplemental environmental impact statement (SEIS).The existence of a Finding Statement for Hydrofracking, and the lack of Findings for Renewables, with the same impacts for the very same areas. Furthermore, there is overt segmentation within and among all the PROGRAMS, as well as multiple omissions.	Pursuant to 6 NYCRR 617.11, the Department of Public Service will prepare and submit to the Commission a findings statement, after a final EIS has been filed and before the agency makes a final decision. See response to Comment 5-2 regarding segmentation.
Dr. Alice Sokolow	13-2	A. Use of a Generic Environmental Impact Statement: The Department's regulations to implement SEQRA authorize the use of a generic environmental impact statement (EIS) to assess the environmental impacts of separate actions having similar types of impacts. Additionally, a generic EIS and its findings "should set forth specific conditions or criteria under which future actions will be undertaken or approved, including requirements for any subsequent SEQRA compliance" such as the need for a supplemental environmental impact statement (SEIS). The course of action following a final generic EIS depends on the level of detail within	See response to Comment 13-1 regarding preparation of a findings statement. 6 NYCRR 617.10 indicates a supplement to the final generic EIS must be prepared if the subsequent proposed action was not addressed or was not adequately addressed in the generic EIS and the subsequent action may have one or more significant adverse environmental impacts. Section 1.2 discussed the following

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		the generic EIS, as well as the specific follow up actions being considered. http://www.dec.ny.gov/docs/materials_minerals_pdf/ fsgeis2015ch3.pdf	factors considered when determining which resource areas required new or further analysis: change in renewable resources, increase in scale of development, previously identified impacts, and new information on potential impacts.
Dr. Alice Sokolow	13-3	B. NEED for Findings Statement: For Renewables in reference to GEIS's and Supplemental, I cannot find any FINDINGS STATEMENTS. The CLCPA and its subdivisions of 94-c, HCA AND EJ will require a FINDINGS STATEMENT. The 2016 SEIS for ONSHORE Wind was based upon the 2015 GEIS which was based upon studies previous to 2011. The NYSERDA Siting guidelines for Siting Onshore Wind were partially updated in 2016. I did not find a FINDINGS STATEMENT. The current SGEIS 2020, should consider all of the studies provided under ARTICLE 10 and examine them under this SEQR since ARTICLE 10 was not based on a GEIS with FINDINGS nor did it include site specific SEQR. If significant adverse impacts of the subsequent action are identified, and they are not adequately addressed in the generic EIS, then a site- or project-specific SEIS must be prepared. Under the regulations, generic EISs and their findings should identify the environmental issues or thresholds that would trigger the need for a SEIS. http://www.dec.ny.gov/docs/mate-rials_minerals_pdf/ fsgeis2015ch3.pdf	See response to Comment 13-1 regarding preparation of a findings statement for this SGEIS.
Dr. Alice Sokolow	13-4	C. HYDROFRACKING FINDINGS STATEMENT 2015 Commissioner Martens: 1. All of the negative environmental impacts delineated in the Finding Statement for the SEVEN YEAR GEIS for Hydrofracking were the same as Onshore Wind with few exceptions 2. The exceptions -Hydrofracking-fracking fluid content and underground pipeline as pertains to public health and safety. Onshore Wind-public health and safety such as noise and infrasound, adequate setbacks, ice throw and much more significant Bird/Bat Impact. Missing are Safe setbacks for Noise parameters Infrasound has NOT been determined by DOH paralleling fracking fluid.	See response to Comment 13-1 regarding preparation of a findings statement for this SGEIS.

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		3. No Action/Alterative allowed for HYDROFRACKING; not for Renewables. 4. Exclusionary Zoning was used for HYDROFRACKING, but not for Renewables FOR THE SAME AREAS. Local government entities, through the use of zoning and municipal development tools, can define and influence community character. The recent New York Court of Appeals decision in the matters of Wallach v. Town of Dryden and Cooperstown Holstein Corp. v. Town of Middlefield found that ECL Section 23- 0303(2) does not preempt communities with adopted zoning laws from prohibiting the use of land for high-volume hydraulic fracturing drilling. As a result of this ruling, high-volume hydraulic fracturing is expected to be prohibited by numerous municipalities throughout the state. 5. What was glaringly the same and treated so differently Same areas with the same environmental impacts - The Marcellus Shale formation has attracted attention as a significant source of natural gas production. The Marcellus Shale extends from Ohio and West Virginia into Pennsylvania and New York. In New York, the Marcellus Shale is located in much of the Southern Tier and adjoining areas, stretching from Chautauqua and Erie Counties in the west to the counties of Sullivan, Ulster, Greene and Albany in the east. One has to wonder what Renewable backup energy will be and why certain areas are targeted. One can almost just substitute onshore wind for hydrofracking in the FINDINGS STATEMENT word for word including the pad, initial economic impact and waning economy afterwards, all the way through to involvement and number of agencies as well as cost involved with certifying, monitoring, regulating them.	
Dr. Alice Sokolow	13-5	6. BOTH ARE LAND INTENSIVE INDUSTRIAL DEVELOPMENT that would impact areas that have previously not been subject to significant development. The degree of change in community character that would occur from high-volume hydraulic fracturing activities would be primarily dependent on the manner in which the community identifies itself, as well as the community's natural physical features, history, demographics and socioeconomics, and culture. The severity of impacts on community character in rural communities would be greater for those areas where development is focused in a particular location or region.	Section 9.1 discussed the potential for changes to community character from the development of renewable energy systems. In addition to economic benefits, changes in community character can result from the visual and physical impacts from new renewable energy development. These impacts would be site specific. The SGEIS acknowledges that conversion of agricultural land to renewable

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			resources could impact the agricultural character of some communities and affect growth of this industry. As described in Prior SEQRA Analyses, the large-scale structures and machinery that make up a wind facility can contrast with the landscape, particularly in undeveloped areas. The Prior SEQRA Analyses concluded that many factors can influence the visual impacts of utility-scale onshore wind, including location, local topography, season, time of day, height of turbines, size of blades, number of turbines, and individual subjective preference.
Dr. Alice Sokolow	13-6	7. Where is the Analysis of each Sustainability Area and Plan and how they have met their goals, as well as their plans to meet them in the future? How do their plans OVERLAP the best sites for renewables and how much offsets the area should receive?	It is unclear what the commenter is referring to in this statement.
Dr. Alice Sokolow	13-7	8. In addition, the economic impact of NYSERDA using SBC funds should be clarified. The SBC funds are disproportionately placed on upstate NY, the same area that requires new transmission to service renewables downstate and is overly, on its way to exceeding its goals. How are the funds collected from NYPA and LIPA and other municipal service areas? There are discrepancies that economically impact certain areas more than others. Where is the analysis? Add on top of this the PPA's for nuclear put on specific areas so the State continues its Green Path until 2029 and then what?	See response to Comment 1-2 regarding the scope of the SGEIS. The evaluation of System Benefits Charge funds is, therefore, outside the scope of this evaluation.
Dr. Alice Sokolow	13-8	D. The accelerated addition of renewables under CLCPA causes a need to review other issues under SEQR. 1. The short term accelerated increase in GHG's from all the construction, cement, emissions and their impact on communities and ultimately our State. The Department acknowledges the need for, and will continue to foster, the transition from fossil fuels to non-emitting clean energy sources in order to reduce greenhouse gas (GHG) emissions overall. However, increased availability of low-cost natural gas has the potential to reduce the	See response to Comment 1-2 regarding qualified renewable energy systems. See response to Comment 5-4 regarding the White Paper cost and benefits analysis. See response to Comment 5-7 regarding lifecycle costs and benefits.

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		implementation of various types of renewable energy and energy efficiencies. While natural gas may serve as a "bridge" or "transitional fuel" towards greater utilization of nonemitting clean energy sources, increased natural gas development could extend the use of fossil fuels, or delay the necessary deployment of clean energy. Consequently, the reliance on natural gas resources for the State's energy needs should be balanced with the use of non emitting sources into the future. WHAT MUST BE MEASURED is the GHG EMISSIONS of each project and program! For Onshore Wind, the GHG Emission in the first year can be as much as the savings for the WHOLE PROJECT Lifetime. The CLCPA cleverly omits the first year! This should fall under SEQR and be examined to see if the GHG of the first year is or is not environmentally significant for the impacted area as well as the State. NYSERDA completed this for OFFSHORE Wind construction only.	
Dr. Alice Sokolow	13-9	2. The simultaneous end of life impact (around 2040-2045) for all these onshore wind projects. They are not temporally varied for continuous output. Where is the plan? Recommissioning without protecting public health and safety leads to TAKINGS (i.e., increasing height and MW without further evaluation –coined a technical improvement) PROVEIT! This needs to be included in SEQR.	See response to Comment 5-2 regarding onshore wind. Recommissioning or upgrading of existing onshore wind facilities would require additional environmental review.
Dr. Alice Sokolow	13-10	3. Brattle included renewable gas back up. There is nothing about this in SEQR? Form? Location? Where and when we need it.	See response to Comment 1-2 regarding qualified renewable energy systems. Biogas is not included as qualified renewable energy systems under the CLCPA and is, therefore, outside the scope of analysis of this SGEIS.
Dr. Alice Sokolow	13-11	4. The development of renewables and transmission out of state as in Cassadaga Winds and the impact on the CLCPA needs to be included AS WELL AS impact on the Commerce Law and surrounding area.	See response to Comment 2-2 regarding the proposed Tier 4 and the role of hydropower. See response to Comment 5-3 regarding transmission reliability.
Dr. Alice Sokolow	13-12	5. The irreversible loss of resources/ consequences of all the onshore wind farm "spots" on the Map of NYS and the potential leaching of toxins of cement bases not removed from ag land and grassland.	As noted in Chapter 4 and Prior SEQRA Analyses, renewable energy projects greater than 25 MW will continue to be sited through the Article 10 process until the Office of Renewable Energy Siting establishes the new

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			siting standards. Article 10 of the New York State Public Service Law requires a Decommissioning and Restoration Plan that includes a proposed financial security mechanisms for funding decommissioning and restoration. The plan must address safety and removal of hazardous conditions, environmental impacts, aesthetics, salvage and recycling, potential future uses of the site, and the useful life of the facility. For wind-powered generation facilities, the Decommission and Restoration Plan must include provisions for turbines, foundations, and electrical equipment. In general, the goal of decommissioning is the safe and efficient removal of all energy facility components and reclamation of the site to conditions as close to pre-construction characteristics as possible, including restoration of native vegetation, habitat, and land use. Projects sited though SEQR may be required to develop a decommissioning plan by the local jurisdiction.
Dr. Alice Sokolow	13-13	6. The need for a plan to recycle turbine blades and solar panels. This is a big environmental impact and cost.	See response to Comment 13-12 regarding the requirement for a Decommission and Restoration Plan. The plan must describe efforts for the salvaging and recycling of materials as part of decommissioning.
Dr. Alice Sokolow	13-14	7. The Environmental Justice that is overlooked for the limited income members who do not live in EJ served areas.	6 NYCRR 487.3 defines an environmental justice area as a minority or low-income community that may bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

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			The study area is required to consider the geographic area of at least a one-half mile radius around the location of a proposed major electric generating facility in which the population is likely to be affected by at least one potentially significant adverse environmental impact. The Prior SEQRA Analyses discuss potential impacts on environmental justice communities at a generic level.
Dr. Alice Sokolow	13-15	8. Mitigation of OFFSHORE did not include freshwater bodies that are uniquely a source of drinking water, shared under a Joint Treaty in a bird migratory path requiring absolute detailed curtailment regimes as well as a NEPA.	See response to Comment 9-1 regarding potential impacts on water quality and response to Comment 12-1 regarding potential impacts on birds and bats. Section 4.1.2 notes that offshore wind in the Great Lakes could also be subject to Boundary Water Treaty approval from the International Joint Commission.
Dr. Alice Sokolow	13-16	9. PSC should explain how we will be protected from monopolization and the Bonneville Effect of having to pay for are newable source not to produce as well.	It is unclear what the reference to the "Bonneville Effect" means, however when a large number of new renewable resources are deployed in areas with pre-existing low-cost resources, dispatch rules may prevent the preexisting resources from being deployed. However, some of the effects of renewables deployment in New York pursuant to the CLCPA would most likely be felt downstate where energy prices are high and few renewable resources are deployed due to, among other things, population densities.
Dr. Alice Sokolow	13-17	10. The Sustainability Plans updated in 2019 under NYSERDA OVERLAPS the CLCPA in multiple areas and should be evaluation together under SEQR to not give the appearance of SEGMENTATION. The Climate Leadership and Community Protection Act (CLCPA) SGSEIS	See response to Comment 1-2 regarding the scope of the SGEIS. See response to Comment 13-7. See response to Comment 5-2 regarding segmentation. Additional discussion

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		is a combination of separate SEQRs for one plan. NYSERDA does have other Renewable Energy Programs that will also impact the CLCPA SGEIS. The BUILD-READY PROGRAM This effort is a component of the larger New York State announcement made today (CLCPA) with the issuance of nation-leading land-based and offshore wind solicitations. We are excited to share with you that Governor Andrew M. Cuomo announced today another major step to advance the state's nation-leading climate agenda with the issuance of the offshore wind and landbased solicitations. In support of this announcement, NYSERDA has launched a Request for Information (RFI) to engage with local communities across New York State to consider prospective sites for largescale renewable energy project development. This opportunity marks an important next step in advancing "Build-Ready" projects under the State's new siting law, helping to jumpstart New York's economy. It also accelerates progress towards New York State's goal of 70 percent of the State's electricity to come from renewable sources by 2030. REGIONAL SUSTAINABILITY PLANS Example of the Finger Lakes Sustainability Plan http://www.gflrpc.org/uploads/5/0/4/0/50406319/appendices-pt-3.pdf The 2019 UPDATED Sustainability include ENERGY USE, EFFICIENCY,CSC, Community Aggregates, Solar and policing thereof. The High-Impact Actions include: 1. Benchmarking Adopt a policy to report the energy use of municipal buildings on an annual basis. Large population communities, as defined on page 7, may adopt legislation requiring the annual disclosure of energy use in large private buildings. 2. Clean Energy Upgrades Achieve a 10 percent reduction in the greenhouse gas emissions from municipal buildings through energy efficiency upgrades and renewable energy. 3. LED Street Lights Convert at least half of the municipal cobra-head-style street lights within the jurisdiction to energy-efficient LED technology. 4. Clean Fleets Install at least one EV charging station with two Level 2 charging ports and/or other alternative fuel infrastructure or deploy at least one alternative fuel vehicle in the municipal fleet.	has been added to Section 1.3 summarizing the CLCPA's relationship with other energy related plans and programs.

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		5. Solarize, Clean Heating and Cooling, or Solar for All Campaign Undertake a Solarize, Clean Heating and Cooling, or Solar for All campaign to increase the number of customers that are benefiting from clean energy in the jurisdiction. Eligible Clean Heating and Cooling technologies include ground source heat pumps, air source heat pumps, solar heating and cooling, or biomass. 6. Unified Solar Permit Adopt the New York State Unified Solar Permit to streamline the approvals process for local solar projects. 7. Energy Code Enforcement Training Train code compliance officers in best practices in energy code enforcement through a structured training program provided by NYSERDA. 8. Climate Smart Communities Certification Earn Climate Smart Community (CSC) Certification through compliance with this robust, comprehensive rating system. 9. Community Choice Aggregation Transition to a cleaner, more affordable energy supply by facilitating the aggregated purchase of a 100% renewable electric supply for residential and small commercial customers within the jurisdiction. 10. Energize NY Finance Allows property owners in participating communities to finance the cost of clean energy upgrades to their commercial or non-profit property. The Climate Leadership and Community Protection Act (CLCPA) SGSEIS is a combination of separate SEQRs for one plan. NYSERDA does have other Renewable Energy Programs that will also impact the CLCPA SGEIS. The BUILD-READY PROGRAM REGIONAL SUSTAINABILITY PLANS.	
Dr. Alice Sokolow	13-18	11. CEF Matter Number 16-00681, In the Matter of the Clean Energy Fund Investment Plan needs to be better included in this SEQR. NYSERDA aims to partner with local governments and communities to enable them to make energy choices in their communities, government operations, homes, businesses, and community institutions. Local governments and communities often lack the funding, staff capacity, and information needed to prioritize and implement the highest impact clean energy actions. NYSERDA will	Clean Energy Fund Investments is outside the scope of this SGEIS.

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		engage with local governments and communities to focus on addressing these issues. Under this RFI, NYSERDA's Build-Ready Program is proactively seeking nominations from elected officials, community members, private companies, or other interested parties for potential sites to consider as Build-Ready projects.	
Dr. Alice Sokolow	13-19	12. FERC Decision of July 22, 2020 https://www.wind-watch.org/news/2020/07/18/ferc-overhaulscarter-era-law-promoting-renewable-power/	Comment noted.
Dr. Alice Sokolow	13-20	13. Research not addressed for Onshore Wind from Article 10 Cases are numerous and are not addressed in this SEQR. Just a few are: https://www.wind-watch.org/documents/how-does-wind-project-performance-change-with-age-in-theunited-states/ https://www.wind-watch.org/documents/renewable-energy-development-threatens-many-globallyimportant-biodiversity-areas/ https://www.wind-watch.org/documents/industrial-wind-turbine-seismic-source/ https://www.wind-watch.org/documents/prevalence-of-wind-farm-amplitude-modulation-at-longrange-residential-locations-2/. At least 120 more can be found under Case 15-F-0122.	The referenced articles address a range of issues including performance of onshore wind energy over time, encroachment of important critical habitats, and noise impacts. See response to Comment 5-2 regarding onshore wind.
Thomas Crumlish	13-1	I DO NOT support this project. I am an engineer working on the power generation business. Although wind power sounds good on paper it does little to replace existing energy sources. If you look at the install life of the turbines, the environmental damage to erect them, the potential environmental damage to operate them over our drinking water, the cost to decommission them after their useful life of 25-30 years, they are a bad idea. Built over land they are marginal at best, built over our drinking water supply is a horrible idea. I'm sure the NYS studies will say otherwise.	See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind Feasibility Study and analysis of potential impacts of offshore wind in the Great Lakes. See response to Comment 9-1 regarding potential impacts on water quality.
Laura Krolczyk	14-1	Offshore wind on the Great Lakes will provide much needed jobs and green energy for NY State.	Comment noted.
Bryan Ball	15-1	With global warming it is critical that we start exploring other green energy alternatives. Offshore wind on the Great Lakes will be a welcome addition to my state's alternative energy efforts.	Comment noted.
Kenneth Rogers	16-1	New York is on a fossil fuel diet. We need to hit our goals. Wind energy is far preferable to polluting the environment. We want the wind farm!	Comment noted.

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Mary Stevens	17-1	Whether you believe in science or not climate change is a going to drastically change our ability to live our lives over the next 12 years. The major contributor to climate change is the burning of fossil fuels, which releases greenhouse gasses into the atmosphere. However, we can slow the effects of climate change by decreasing the amount of fossil fuels that we use. By increasing our clean energy use we can decrease the amount of coal and oil we use which are non-renewable resources and will run out eventually anyways. Therefore, if the great state of New York's raises its clean energy production not only will we decrease the catastrophic effects of climate change but we will also ensure that once we burn through coal and oil reserves that we are not energy-less.	Comment noted.
Antoinette Follett	18-1	As a former Buffalo resident, I'm very concerned about clean energy. I support offshore wind energy on Lake Erie as the best source of energy for the region. Our country and the State of New York need to do more to support clean renewable energy sources.	Comment noted.
Geoffrey Drayton, Teach Virtual	19-1	There is little doubt that renewable energy, clean energy is what is required to sustain the planet we live on. In fact I would highly recommend that every student learn the benefits of renewable energy and how we can slow the effects of climate change - here they can learn to make their own windmill https://www.den-drite.me/content/view/contentid/5ef204d2318abf6a74eb9bca.	Comment noted.
Holly Helenbrook, N/A	20-1	Global warming is destroying the environment. We must use more renewable energy. I support offshore wind on Lake Erie.	Comment noted.
Sarah Baird	22-1	I fully support offshore wind development projects. Global warming is an environmental, health, and security issue, and we need local distributed power production. Wind is a great and viable option and should be fast tracked to save our communities and preserve our precious western NY.	Comment noted.
Diana Cihak	23-1	Thank you for considering this important project that will add more MW Of clean renewable energy to the NYS power grid. Wind is an important component to the mix of renewables that are needed in order to meet our goals of a clean energy economy here in NY. And the time to do that, and try to reign in the devastating effects of climate change, is now. We need offshore wind. Our future depends on it.	Comment noted.

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Miranda Kolbe	24-1	I am writing to express my support for off shore wind power on Lake Erie. We need to develop environmentally sustainable power sources to keep our world safe for ourselves and the next generation.	Comment noted.
Christopher Prentiss	25-1	I believe that Erie County needs to take steps in the right direction to combat climate change. We have amazing natural resources we need to tap into to create cleaner energy. Ignoring this would be detrimental to future generations.	Comment noted.
Andrew McGuire	26-1	Renewable sources of energy like wind farms are a key weapon we should be utilizing in the fight against climate change. I fully support this project.	Comment noted.
Eric Walker	27-1	I welcome the suggested study of offshore wind in the Great Lakes. My hope is that it can be coordinated with organized labor which represents a large number of allied professions and would likely see a significant increase in both utilization of its skilled trades people as well as its workforce pipeline. This could be particularly useful to the WNY region in the wake of Somerset, Huntley, and Dunkirk generating station closings.	Comment noted.
Brian Vattimo	28-1	Moving to clean energy is the key to combating climate change. Wind is a clean, renewable way of generating electricity with zero emissions. It's a free, unlimited, renewable resource. I support any opportunity in our country for off shore wind development and this is why I am supporting the Lake Erie off shore wind project.	Comment noted.
Gigi Semone	29-1	Global warming is a critical issue that puts the well being of our future generations in tremendous danger. One crucial and positive step to avert this crisis is renewable energy. I support offshore wind on Lake Erie.	Comment noted.
Gigi Semone, N/A	30-1	Global warming is a critical issue that puts the well being of our future generations in tremendous danger. One crucial and positive step to avert this crisis is renewable energy. I support offshore wind on Lake Erie.	Comment noted.
William A Schaab III, American DND, Inc.	31-1	I support the use of Lake Erie for Renewable Energy type projects. The United States needs a long term far reaching and sustainable Energy Program that includes a larger % of renewable energy sources and promotes ingenuity, and diversification of energy sources and incentives to explore and develop alternative Energy sources.	Comment noted.
Ben Kerman	32-1	I support permitting wind power generation given the potential to offset ecological deterioration contributing to climate change.	Comment noted.

Commenter	Comment Letter Number – Comment Number	Comment	Response
Chris Mathias, WNY Works	33-1	I fully support the Lake Erie windfarm project. It is time WNY and the country as a whole embrace new technologies and alternative energy sources. We need to be on the forefront of this issue and related projects; and reap the economic and environmental benefits.	Comment noted.
Greg Norton, Twisted Rope	34-1	I support Great Lakes offshore wind in New York. We are facing ever-increasing climate change devastation - over 100 degrees in Siberia! Alternative energy has to increase if we are to make any impact on decreasing our carbon emissions. Wind is crucial to that effort.	Comment noted.
Lyman Castle	35-1	With climate change being one of the most important issues facing the world, each step toward creating clean, efficient, renewable energy should be a priority at the local, state, national and international levels. The Great Lakes Offshore Wind project is an integral part of a comprehensive plan to reduce our collective impact on the environment and ensure a healthy planet for future generations.	Comment noted.
Matthew Mitchell	36-1	I believe the wind farm is absolutely necessary to move us towards clean, renewable energy and away from fossil fuels. Every effort should be made to fast track the environmental review process and get to work on the project.	Comment noted.
Emily Simon, Ms.	37-1	Please, keep NY state a LEADER in fighting climate change! We need offshore wind on Lake Erie.	Comment noted.
Mark Storch, Storch Cooperative Development	38-1	Locally we have the resources to be an exporter of electrical power to areas that can not meet their needs. If the local community can provide green, sustainable power to metropolitan areas and at the same time create local jobs and other economic development opportunities here - what is the downside?	Comment noted.
Ann Monroe	39-1	I have lived around the Great Lakes most of my life and value their significant contribution to our economy and their importance in fighting disastrous climate change. I strongly support utilizing this unique resource to generate a safer, more sustaining source of power for all of us by allowing offshore wind energy generation in the Great Lakes.	Comment noted.
Julie Williamson, Dog Talk	40-1	I am from Buffalo New York grew up there & go back frequently to visit family. I am very passionate about Great Lakes Offshore wind in New York. Look forward to seeing this project move forward.	Comment noted.

Commenter	Comment Letter Number – Comment Number	Comment	Response
Peter Dufty	41-1	I am in support of offshore wind energy and believe it would: 1. Bring additional interest, development, and urban renewal in the Buffalo Niagara region 2. Provide more and much needed clean energy sources due to climate change 3. Provide jobs and industry for local residents.	Comment noted.
Patricia R Jensen, Contentment Camping	42-1	Clean energy is good for our area. I support this.	Comment noted.
Jason Rothschild	43-1	Shortsightedness is the only mindset which can impede this significant for-ward thinking project. I see these Windmills off the coast of Rhode Island and they consistently spin and create a significant source of energy. This is a long term benefit project. Do not let people stuck in an anti-climate change nonsense narrative deprive our region of naturally free occurring energy source.	Comment noted.
Nick Melson	44-1	Our nations reliance on fossil fuels and other non renewables continue to poison our planet, harm public health, and bog us down in foreign conflicts. Enough is enough. We need to build off of the example of Nikola Tesla and harness the vital renewable sources of energy we have right here at home. Offshore wind projects such as this one serve to provide NY State with a chance to lead the nation in clean and sustainable energy while also creating exciting new jobs in one of the fastest growing sectors of our modern economy.	Comment noted.
Nicole Jacobs	45-1	We need to find renewable energy sources to protect out environment! I support off shore wind power off of Lake Erie.	Comment noted.
Natalie Green Tessier, BetterBred	46-1	My young adult children are afraid the world will die in their lifetimes. Renewable energy is one of the most important efforts that can prevent that. Government exists to protect the health and well being of its citizens and to offer opportunity, as well as to support our right to life, liberty and the pursuit of happiness. The government must do everything in its power to support renewable so that we continue to have those rights and opportunities. Do your job. Support renewable energy capabilities aggressively, efficiently and hastily.	Comment noted.

Commenter	Comment Letter Number – Comment Number	Comment	Response
Natalie Shatkin	47-1	I am concerned about global warming and our reliance on fossil fuels. I support the development of reusable wind energy projects.	Comment noted.
Peter Graves, BroadReach Consulting, LLC	48-1	Dear NYS, I am supporting this Great Lakes Wind Energy project as it forms part of an alternative strategy that NYS is mandated to fulfill to ensure that at least 70% of NYS's energy comes from renewable energy sources by 2030.	Comment noted.
Jeff Hayes	49-1	being at the western end of Lake Erie give us and great opportunity to take advantage of the natural resources it provided and wind is one of them. we have to consider what is happening to our environment, juts look at the changes in weather we have seen in WNY. I'm 100% in favor of the wind farms.	Comment noted.
Mindy Hayes, Hayes Construction	50-1	We must use more renewable energy. I support offshore wind on Lake Erie.	Comment noted.
Michael Gilbert	51-1	I'm a concerned New York State resident who believes global warming is harming our environment. I support the notion of greater use of renewable energy in our community. One way to accomplish this would be additional offshore wind on Lake Erie. I fully support this initiative.	Comment noted.
Jessica L Marinelli	52-1	I support Gov Cuomo and our local leaders in their efforts to bring NYS into a new era of energy. Off shore wind is clean and safe. I fully support offshore wind on Lake Erie. No project is without risks - but we need to change our thinking and make big moves now for the safety of ourselves and our world. Global warming's effects are strengthening every year. Let's show the world how progressive NYS is!	Comment noted.
John D Craik	53-1	With all the other issues impacting our world now we cannot lose sight of the fact that global warming continues to be an existential threat. I am, therefore, writing to express my support for the development of off shore wind turbines as an important, necessary and sustainable alternative to the use of fossil fuels.	Comment noted.
Bruce Adams	54-1	I assume much of the resistance to Great Lakes offshore wind energy projects is basically one of aesthetics, people not want their view of the water to change. I have two thoughts about that. Every structure on land and water that humans ever built, changed the view of the natural environment. Look out any window you happen to be near, and realize that what you see was once not there. The second thing I have to say is that I	Comment noted.

Commenter	Comment Letter Number – Comment Number	Comment	Response
		regularly travel down route 20A. There are windmills along there that were once controversial. I think they are beautiful. Every time I pass them I marvel at and enjoy them. They are as visually satisficing as any architecture, actually better than most of what passes for architecture today. And guess what? They are not controversial anymore. People have adjusted to them and they pose no problems anymore. The planet needs sources of clean energy. Wind is clean energy. It's available in an unobstructed form on the water. Maybe by putting some beautiful windmills up, you can eventually tear down some coal burning facilities or oil refineries, and restore that land! So that's my pitch. No statistics. Just saying that I want to enjoy clean energy while viewing the beautiful and majestic windmills that produce it.	
Cynthia Lancer	55-1	I very much support off shore wind on Lake Erie. I am excited that NY can take the lead on Renewable Energy and show that through progressive initiative we can slow Global Warming.	Comment noted.
Paul Vukelic	56-1	I am in full support of the off-shore wind mill project that will produce additional environmentally friendly energy.	Comment noted.
Cyndy Montana	57-1	I support off-shore wind on Lake Erie. We have the infrastructure, the dedication to clean energy and most importantly - the location for great wind!	Comment noted.
Charles Gurney, Gurney, Becker and Bourne	58-1	The future is not fossil fuels. Wind technology has proven to be just one of the solutions. We must be proactive with any future opportunities.	Comment noted.
Michael Hoffert	59-1	This is important to our future. Clean energy is needed to replace the once coal fired polluting monsters the dotted locations along our way ways. When those energy plants were shuttered many jobs were lost and energy production was lost. As a once industrial production giant we must look to the future and make clean energy as demand continues to rise. Our elected leaders know that we can once again be a global competitor as new technologies are being developed right here in Western New York. I support this.	Comment noted.
John Bay	60-1	I have reviewed the CLCPA strategies being outlined by NYSERDA and the PSC. I firmly believe in the eminent dangers of Climate Change and its effects on the economy and well being of fellow residents of New York.	Comment noted.

Commenter	Comment Letter Number – Comment Number	Comment	Response
		Offshore wind, for Lake Ontario and Lake Erie (Great Lakes), is essential for a better life for all of us. We cannot continue to go down the path of utilizing fossil fuels. It just makes no sense. Offshore wind is a step in the right direction.	
Elisa Appelbaum, Oehlers Welding and Fabrication	61-1	I am writing to express full support of the offshore wind project on Lake Erie. We cannot continue to deny science. Global warming is real and must be addressed. More renewable energy, such as this, is crucial.	Comment noted.
Sara Schultz	62-1	I fully support offshore wind energy on Lake Erie. I have met with representatives of the proposal company and they will be fully vetting the environmental impact to birds, bats and marine life. The company has a proven record of success in very cold climates such as ours. They have built successful installations elsewhere that, in our state, would provide much needed renewable energy. NY State needs to really ramp up action on renewable energy to get us to our CLCPA goals. We need to also work on transitioning the heating and cooling of buildings/industry with heat pumps and geothermal infrastructure. I have geothermal in my own home and it saves us money as well as provides us with safe and reliable heating/cooling and hot water. Please look to the future and the long range impact of not acting immediately to curb the global warming emergency!	Comment noted.
Mark Galvin	63-1	Offshore wind power can help us meet our energy needs. This green energy must be a priority. Our environment is suffering, the time to act is now. I fully support offshore wind projects on Lake Erie.	Comment noted.
Clifford Scott	64-1	I am writing in support of the Great Lakes energy initiative by my good friend, Sam Hoyt. Offshore wind can be scaled up faster than any other renewable energy source, rapidly reducing greenhouse gas emissions and harmful air pollution that contributes to heart and lung disease. New York can become a first mover and hub for the emerging Great Lakes wind industry. I believe this would be a great stepping stone to the future of the Great Lakes wind industry. New York would be a perfect contender for a business initiative such as this.	Comment noted.
Erin Marlon	65-1	I support offshore wind on Lake Erie. Climate change is real and of the utmost importance.	Comment noted.

Commenter	Comment Letter Number – Comment Number	Comment	Response
Elizabeth Burke	66-1	As we know, fossil fuels are a finite source of energy. These fuels are dirty and transporting them form source to end can become an environmental disaster. Global warming is destroying the environment and the planet, it is also a massive national security issue. Wind and Solar are infinite sources, they are clean, they pose NO threat to our environment. It is imperative we made radical changes or we may not have a livable planet for our grand-children. We must use more renewable energy. I support offshore wind on Lake Erie.	Comment noted.
Maria Lehman	67-1	Our changing planet is causing many issues for individuals, local, state and the federal government. It is critical that we move from fossil fuels to alternative energy for a safe, secure, sustainable and resilient future. There-fore I wholeheartedly support wind power both onshore and off shore. Commercial Wind Power is only viable in certain areas based on the prevailing winds. WNY is fortunate to have the water and wind resources of Lakes Erie and Ontario. Wind power also creates good, sustainable job growth both during construction and during operations and maintenance.	Comment noted.
Greg Stevens	68-1	I support clean green energy and believe wind in the Great Lakes can be a great addition. this is also an opportunity to improve lake ecological health and this should be an important component of this project some environ-mental damage will unavoidably occur, so the question is, what offsets can be created?	Comment noted.
Flora Cardoni	69-1	As a young person today, I am terrified every day about what my future will look like if the climate crisis continues to worsen. Climate change is already here and the impacts will only get worse without serious, transformative action. Scientists around the country and world are incredibly clear that in order to stop the worst impacts of climate change, we need to get off of fossil fuels and transition to 100% clean, renewable energy as quickly as possible. We have the opportunity to lead that transition here, by investing in offshore wind. Building offshore wind in the Great Lakes will help us reduce greenhouse gas emissions, fight climate change, clean up our air, protect our health and futures, provide good paying jobs, and make NYS a leader in this extremely necessary clean energy transition.	Comment noted.

Commenter	Comment Letter Number – Comment Number	Comment	Response
		We have the opportunity to lead the way to this clean energy future and to be THE leader in Great Lakes Wind. Why let another state take that opportunity away from us when all of us will have to make this transition eventually anyway? We should lead the way and do it now. I fully support Great Lakes offshore wind in New York and encourage the state to move forward as swiftly as possible.	
David J Machlica	70-1	In this era of deepening climate change and its broad negative impacts on society and our economic life, exploration and adoption of renewable energy technologies is crucial. I strongly support efforts to bring such technologies into effect across New York State.	Comment noted.
Olga Karman	71-1	Wind, not fossil fuels. Let us use what nature gives us so easily, without a whimper, without contamination.	Comment noted.
Nicole Hitchcock	72-1	New York State should become a leader in the use of renewable energy. We need to reduce our dependence on fossil fuels and preserve our environment for future generations! I support off-shore wind energy.	Comment noted.
Richard Zakalik	73-1	Global warming is real and everything that can be done to reverse it is logical and appropriate. Wind farms serve to reduce carbon emissions. I support the creation of additional wind farms.	Comment noted.
P L Glick MD MBA, SUNY	74-1	Global warming is destroying the environment. We must use more renewable energy. I support offshore wind on Lake Erie.	Comment noted.
Stephen Lane, St. Philip's	75-1	I support this project. More alternative energy sources have to be of benefit. Please grant this request.	Comment noted.
Stanton Hudson Jr, 1951	76-1	Global warming is not a hoax. It’s real, it’s destroying the environment, and it needs to be addressed now before it is too late for ourselves and our future generations. It is essential to use more renewable energy. I support offshore wind on Lake Erie. Stanton Hudson.	Comment noted.
Steve Goodwin, Goodwin Insurance Agency	77-1	I would like to voice my support for the Wind Project offshore on Lake Erie. We need to do what we can to stem Global Warming with renewable energy sources line this.	Comment noted.
Tom Kubiniec, N/A	78-1	I support clean energy projects like the proposed Lake Erie windmills. First of all clean energy is a great idea in and of itself. The wind off of Lake Erie would be an almost endless resource. I would think that the windmills would create a healthy habitat its base for fish and other animals while	Comment noted.

Commenter	Comment Letter Number – Comment Number	Comment	Response
		having minimal negative impact on nature. I am really surprised that more of this has not been encouraged on both public and private land in the form of not only large projects but small ones too as well as incorporated into new construction.	
Vincent Marrone, 2008	79-1	Global warming is destroying our environment, so we need more renewable energy. For this reason, I support offshore wind on Lake Erie.	Comment noted.
Timothy J Toohey, GW&R Services	80-1	The increased use of renewable energy sources - wind, solar and hydro - is absolutely essential to the future of our planet. Climate change is the greatest threat we face; and, without action now, it will soon be too late. I wholeheartedly support the pending application.	Comment noted.
Roger Cook, Retired Director of WNY Council on Occupational Safety & Health	81-1	I'm in support of the erection of wind turbines in Lake Erie if properly sited and permitted. Last year NYS adopted the Climate Leadership and Community Protection Act which mandates 70% renewable energy by 2030 and 100% carbon-free clean electricity by 2040. Further, these projects will produce 1000s of good paying jobs that are desperately needed in Western NY. Lake Erie wind projects are an essential part of the mix of renewable energy projects that will allow NYS to meet the CLCPA goals.	Comment noted.
Wendy Mathias	82-1	I am in favor of renewable energy. Global warming is effecting our world in the worst way. Here on Lake Erie we have all the resources. Let Buffalo shine by helping the fight for our climate.	Comment noted.
Tom Fontana	83-1	Global warming has proven that we need to ameliorate the great stresses we place on our planet and our local environment; and we can do so by utilizing renewable energy. That's why I support Great Lakes offshore wind on Lake Erie.	Comment noted.
Todd Hobler, 1199 SEIU	84-1	As we struggle through another deadly heatwave, it is clear that global warming is a significant problem. We need to reduce our dependence on fossil fuels. We need more renewable energy sources. We need more wind power now. 1199 SEIU supports moving toward a Green Economy.	Comment noted.
Rudy Pikuzinski Jr	85-1	We need to stop global warming! We need to make clean energy, our kids and grandchildren lives depend on it.	Comment noted.

Commenter	Comment Letter Number – Comment Number	Comment	Response
Vicki Marti	86-1	The Great Lakes Offshore Wind project is badly needed. I fully support this project	Comment noted.
Suzanne Tomkins, Retired UB Law School	87-1	I am writing in support of wind mills in Lake Erie. It is imperative that we, as a society, embrace and support renewable sources of energy. I admit that I actually prefer to have them sited in the Great Lakes rather than in the southern tier of WNY.	Comment noted.
Steven Truesdale	88-1	I'm NOT a climate change die hard supporter -- but that being said, CER-TAINLY THE TIME IS NOW to start re-prioritizing IMPORTANT RESEARCH AND PROJECTS DEMONSTRATING SUCCESSFUL LONG TERM REPLACEMENTS for FOSSIL FUELS as a PRIMARY ENERGY SOURCE... THE GREAT LAKES WIND INITIATIVE is such a project -- and deserves your FULL SUPPORT.	Comment noted.
Sam Magavern, Partnership for the Public Good	89-1	If we are to avoid catastrophic climate change, offshore wind has to be a big part of the solution. Every region in the world with good capacity needs to be deployed, including the Great Lakes. Any cost-benefit analysis that includes the true costs of climate change will support the fastest and largest efforts possible to add off-shore wind.	Comment noted.
Rebecca Castaneda	90-1	Global warming is destroying the environment. We must use more renewable energy in New York State. I support offshore wind on Lake Erie.	Comment noted.
Anthony C Piccione, Retired	91-1	I have to ask the question why would anyone or any organization be opposed to renewable energy let alone be opposed to a study. Unfortunately some Western New York industries have done great harm to the environment in the past. It is responsibility to undo some of the harm caused.	Comment noted.
Laurence Beahan Sierra	92-1	The Great Lakes are an ideal place for siteing wind turbines. Plenty of wind, plenty of space and they are good for fishing. The people of the planet need energy: the planet can’t stand anymore greenhouse gas from the burning of fossil fuels for energy. Wind and sun should be our energy sources. Study the Lakes.	Comment noted.
Andrew Slepian	93-1	I support offshore wind on Lake Erie and more renewable energy projects. More attention must be paid to global warming and investing in a green future now.	Comment noted.

Commenter	Comment Letter Number – Comment Number	Comment	Response
Michael J Sawicz	94-1	We need more renewable energy vs. burning fossil fuels that are killing the planet. The recent events and the downturn of just driving have more than proven this. I support wind energy, and much more of it on lake Erie now.	Comment noted.
Nancy J. Parisi Social Documentation Photography	95-1	Given that the worldwide catastrophe of global warming is as real as Covid-19, we must go ahead with renewable energy sources such as wind power offshore in Lake Erie.	Comment noted.
Paul A. Dyster	96-1	As Lake Erie water temperatures reach record highs, the importance for the future of the Great Lakes of addressing climate change through vigorous alternative energy policies becomes increasingly apparent. As someone with a long history of fighting for environmental causes in the Great Lakes region--but also as a hunter, fisherman and boater who uses the resource regularly--I want to express my support for the development of offshore wind energy on Lake Erie. Of course we always hope that somehow large societal problems will somehow be solved without requiring us to do anything that impacts our own "back yard." Change is always at least a little scary. But in this case the alternative—continued denigration of the Great Lakes environment and destruction of a globally-significant resource as a result of unimpeded global warming--is simply unthinkable.	Comment noted.
Stanley M White	97-1	Although not a New York State resident I fully support all initiatives to improve our environment by expanding the use of all forms of renewable energy and, in particular, offshore wind - in the Atlantic or the Great Lakes. Offshore wind has the ability to produce more, consistent power when compared to solar or onshore wind projects. We must protect our planet and replace carbon generating power plants.	Comment noted.
Bill Wall LS Cable Systems America	98-1	LS Cable Systems America would recommend that NYSERDA move forward with plans for Offshore Wind projects in the Great Lakes. Offshore Wind is one of the most logical choices for implementing a Large Scale Renewable Program. Offshore wind projects provide utility-scale energy delivery capability along with a many local economic benefits including good paying jobs and supply chain opportunities for NY based businesses. We feel NYSERDA should go ahead and complete their Great Lakes study and eventually solicit developers to implement the project(s) as soon as possible.	Comment noted.

Commenter	Comment Letter Number – Comment Number	Comment	Response
Nancy Anchor GZA GeoEnvironmental of New York	99-1	I am writing to lend my support for NYSERDA and the DPS to proceed with offshore wind in New York's Great Lakes for the reasons stated below: The Great Lakes, especially Lake Erie, have all the ingredients for a successful offshore wind industry: Electricity demand from large cities on the coast; Ambitious climate and clean energy policies; Strong wind resources; Excellent infrastructure, ports, grid interconnection locations, skilled workforce; Access to the land-based wind supply chain; Offshore wind can be scaled up faster than any other renewable energy source, rapidly reducing greenhouse gas emissions and harmful air pollution that contributes to heart and lung disease. New York can become a first mover and hub for the emerging Great Lakes wind industry. Great Lakes offshore wind would grow over time to support thousands of jobs. NYSERDA estimates New York's Atlantic offshore wind development will support 10,000 jobs.	Comment noted.
Mike Walczak	100-1	My experience concerning man-made structures in lakes is a positive one in that these structures, be it wind mills or bridges, enhances wildlife in a positive way. They use the structures to build their populations.	Comment noted.
Spencer Flash, Mott MacDonald	101-1	Large-scale wind and solar power is the ONLY way we can mitigate the impending climate change disaster. Offshore wind has the energy-generating potential to change our power grid. Specifically, the Great Lakes are an excellent opportunity for power due to the shallow water, strong winds, and proximity to major cities. We are experiencing a once-in-a-lifetime crisis, and Offshore Wind is a clear solution.	Comment noted.
Brian Plecas	102-1	I am fully opposed to any industrial wind turbines being placed in the Great Lakes, the threat to our freshwater drinking supply should never be com-prised in favor of untrusted, unproven, non-viable, expensive, and net nega-tive energy production. Industrial wind turbines placed in our Great Lakes will threaten the fragile aquatic and avian eco-systems, fisheries, tourism and negatively impact our physical and economic health. There are other ways such as clean natural gas that can be leveraged to obtain safer, proven, inexpensive and lasting results for clean energy production without endangering our freshwater resources that are our very waters of life. Leave our valuable Great Lakes untouched for our future generations to cherish and enjoy.	See response to Comment 7-1 regarding analysis of potential impacts of offshore wind in the Great Lakes. See response to Comment 1-2 regarding qualified renewable energy systems.

Commenter	Comment Letter Number – Comment Number	Comment	Response
Mary Hensen	103-1	I am a lifelong resident of the Buffalo area and have witnessed the slow and steady recovery of Lake Erie after being declared dead in the 1970s. We are boaters, fishermen, wildlife watchers and photographers, hikers, campers, sunset and star gazers and of course rely on the fresh water our Lake provides us. None of these should ever be taken for granted. Buffalo now has the pride of being a recreation destination! The Great Lakes are precious and now faced with the disgusting and ugly lies that are Industrial Wind Turbines. After discovering this plan I have spent the last 11 months actively learning, writing letters and spreading the word as our media are puppets for the foreign billionaires behind this plan to destroy our lakes with this hideous industry. Do you not realize the damage done to the lake bed will be irreversible? Can you fathom the sweeping of birds and bats and pollinating insects from the skies? Can you understand the effects of infrasound on fish, people, the disruption of Doppler radar, the com-promising of our homeland security? Do you realize there is no way to keep oil contained and parts maintained as the machines are pummeled with waves and ice unrelentlessly for years? That turbines contain SF-6, a carcinogen and potent greenhouse gas? This plan to permanently destroy Lakes Erie and Ontario is outrageous, diabolical and is the grandest scale of greed and corruption. It is mirrored by the OBSCENE sizes of these useless, expensive, fossil fuel dependent, repulsive, ugly excuses for a climate change solution. NO WIND TURBINES IN LAKES ERIE, ONTARIO AND ALL THE GREAT LAKES!	See response to Comment 7-1 regarding analysis of potential impacts of offshore wind in the Great Lakes. See response to Comment 9-1 regarding potential impacts on water quality. See response to Comment 12-1 regarding potential impacts on birds and bats. With respect to homeland security and interference with radar, site-specific evaluations would occur early in the development process. During site-specific planning, placement of wind turbines would avoid known obstacles and conflicts with existing uses, such as navigational aids and military practice areas. As noted in Chapter 4 and the Prior SEQRA Analyses, the Federal Aviation Administration and the U.S. Coast Guard must be consulted with respect to offshore wind energy projects.
Tom Pericak	104-1	There is a global warming crisis in the world. Our country must do more to be part of the solution. During the current pandemic, there have been validated reports of less smog in major cities due to less vehicle traffic. We cannot ignore this fact. Renewable energy is part of the solution. I support offshore wind on Lake Erie.	Comment noted.
Patty Pericak	105-1	We as a nation must address the issue of global warming. If we do nothing, we are destroying the environment. One answer is the use of more renewable sources of energy. To this end, I support the use of offshore wind on Lake Erie.	Comment noted.
Sheerri Lange	106-1	Thank you for your message of June 5, 2020, regarding offshore wind energy. I am pleased to respond. To clarify Ontario's position, on February	See response to Comment 1-2 regarding the scope of the SGEIS. Other measure, such as

Commenter	Comment Letter Number – Comment Number	Comment	Response
		11, 2011, a decision notice was posted to the Environmental Registry with respect to policy direction for offshore wind facilities. In light of the comments received through public consultation and in particular the identified need for further study, Ontario has decided not to proceed with proposed offshore wind projects. I appreciate your comments about our government's approach to energy policy. We have generated hundreds of millions of dollars in savings in the electricity sector through actions including winding down more than 750 renewable energy contracts and centralizing conservation programs. In addition, by introducing the Green Energy Repeal Act, we have restored municipal authority over the siting of new renewable energy projects. In addition, the Environmental Protection Act has been amended to give the Lieutenant Governor in Council the authority to make regulations to prohibit the issuance or renewal of Renewable Energy Approvals. Under the leadership of the Ministry of the Environment, Conservation and Parks, Ontario works with the federal government and other partners to safeguard the Great Lakes. For more information about Ontario's actions to protect the Great Lakes you can contact that ministry's Great Lakes and Inland Waters Branch at 416-314-0617.	energy conservation that would also be used to meet the 70 by 30 goal are outside the scope of the SGEIS.
Robert Casey	107-1	Please allow for NYSERDA and DPS to continue to develop wind energy in the Great Lakes. Wind energy and offshore wind energy is a continued growing source of energy that has been shown to be effective worldwide.	Comment noted.
James C. Hoffman	108-1	Wind turbines do not belong in the Great Lakes, let alone the two smallest and most highly stressed Lakes Erie and Ontario. It is well known that these huge structures are highly destructive to wildlife and a detriment to boating, shipping, fishing, and tourism. Further they are environmentally, physically, and economically a disaster. Wind Turbines operate at load factors far below their rated capacity, at best 30%, produce power only when the wind blows which is not generally when the power is needed. Financially they are heavily subsidized with fast write offs, power purchase agreements, tax equity financing, PILOTS, and the like. So, consequently then, wind power is not financially cost competitive if compared to other forms of electrical generation when subsidies are stripped away. At the new York State level Industrial Wind Turbines are being promoted to satisfy a	See response to Comment 9-1 regarding potential impacts on water quality. See response to Comment 5-4 regarding the White Paper cost and benefits analysis.

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		political objective cooked up in Albany to obtain 70% carbon free electricity by the year 2030. This goal is unrealistic and has no scientific justification. Resistance has grown greatly to land based Industrial Wind Turbines, consequently the focus is shifting to off-shore based installations which in the case of Western New York State targets Lakes Erie and Ontario. There better and more effective ways to "save the planet," lets employ them and keep wind turbines out of the Great Lakes.	
Cynthia Hellert	109-1	As a year round resident on the south shore of Lake Ontario, I voice my vehement objection to the emplacement of industrial wind turbines in a lake that has suffered severe abuse and is finally in a recovery stage. Bringing the pollutants of years and years of toxic waste dumping into this lake to the surface is absolutely ridiculous! This is horrible for the environment. Daily, I watch migrating and resident birds and raptors enjoy the habitat provided here on the southern shore. I was awakened this morning by the chatter of two juvenile bald eagles that perched in my white birch tree, just 10 from shore. Western NY has been desecrated by those who profess to be "saving the planet". Let it be known that I believe in global warming and I support proper placement of renewable, clean energy. Not 40 miles from my home is the largest clean energy producer, Niagara Falls and hydro plant. Western New York has done far more than their share in providing NY, Canada and other states with clean, renewable energy. Power is needed in NYC. Long Island and the eastern shore. The wealthy residents, however, prefer to not spoil their million dollar view, and their voices have been heard by Governor Cuomo. There are few millionaires on the south shore of Lake Ontario, and our voices are not heard. Where is the social justice? Why should Western New York be desecrated, our birds and raptors destroyed, so that wealthy Long Islanders don't have their lives inconvenienced? Place your "not so clean industrial wind turbines" where the power is needed.	See response to Comment 12-1 regarding potential impacts on birds and bats. See response to Comment 13-5 regarding potential impacts on visual resources and community character.
David F and Marilyn T Kurzawa	110-1	The Great Lakes basin is the largest source of potable water on the planet. When I was growing up, it was dramatically polluted by industrial wastes, phosphates from laundry detergents, and human waste since there were so many locations along the shores that did not have sewage treatment plants or sewer systems. Some cottages dumped raw sewage directly into the	See response to Comment 9-1 regarding potential impacts on water quality.

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		lake, with no adverse consequences for the dumpers. Industries located on waterways emptying into the lakes also added to the severe pollution. Since the 1970's, good government planning, new taxes, many environmental protection laws, and many, many advocates for clean water have contributed to the clean up of our Great Lakes waterways. They are now the cleanest they have ever been since human settlement. HOWEVER, the bottom of Lakes Erie and Ontario are huge industrial sludge repositories that we MUST NOT disrupt. Once you dig into that sludge pot, all of the pollutants of the past will be stirred back up into the waters and we will return to waters we cannot use, much less swim in, boat in, or fish in. Those fish will not stand a chance! (Good bye, Friday night perch fries!) Can you imagine if a steel mill brownfield on land were dug up and then built upon with no remediation? The human outcry would deafen our ears, as the pollutants would run free. Now take that example and transfer it to the Great Lakes, on whose clean waters many, many millions of people depend. We KNOW that one of the greatest natural resources we have, water, will be in short supply for much of our nation due to declining sources of rain and snow due to climate change. Must we also suffer the loss of our largest single water source because of poor judgment in the rush to increase green energy (for which I am totally in favor.) PLEASE be smart and put wind turbines where they will not harm humans and will NOT destroy our water. We will need every single drop of it as conditions worsen on this planet. Please don't be a contributing reason for destruction of one of our greatest natural resources.	
Victor Liberatore	111-1	The facts that are that wind turbines in Lake Erie would: A: Compromise the northern borders and severely hamper the daily routines of the Homeland Security and Border Patrols B: Endanger wildlife C: Hamper recreation (boating & fishing) D: Disturb the old pollution at the bottom of the lake. The very thought of contaminating the drinking water of thousands of resident on and near any of the Great Lakes is SHEER MADNESS. There are other ways of achieving the clean energy goals, solar and re-powering existing coal fired electric power generator sites with clean burning natural gas (putting many people back to work), just to name a few. I AM ABSOLUTELY AGAINST WIND TURBINES BEING	See response to Comment 1-2 regarding qualified renewable energy systems. See response to Comment 7-1 regarding analysis of potential impacts of offshore wind in the Great Lakes. See response to Comment 9-1 regarding potential impacts on water quality. See response to Comment 103-1 regarding homeland security.

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		INSTALLED IN ANY OF THE GREAT LAKES ESPECIALLY LAKE ERIE!!!!!	
Sally Liberatore	112-1	The facts that are that wind turbines in Lake Erie would: A: Compromise the northern borders and severely hamper the daily routines of the Homeland Security and Border Patrols B: Endanger wildlife C: Hamper recreation (boating & fishing) D: Disturb the old pollution at the bottom of the lake. The very thought of contaminating the drinking water of thousands of resident on and near any of the Great Lakes is SHEER MADNESS. There are other ways of achieving the clean energy goals, solar and re-powering existing coal fired electric power generator sites with clean burning natural gas (putting many people back to work), just to name a few. I AM ABSOLUTELY AGAINST WIND TURBINES BEING INSTALLED IN ANY OF THE GREAT LAKES ESPECIALLY LAKE ERIE!!!!!	See response to Comment 9-1 regarding potential impacts on water quality. See response to Comment 103-1 regarding homeland security.
Andrew Cairns	113-1	I support development of OSW in the Great Lakes as well as the Atlantic. This will provide sustainable power to the western part of the State, as well as provide much needed jobs and economic stimulus in the western part of the State.	Comment noted.
Deb Hay	114-1	Placing industrial wind turbines in any of the Great Lakes is a crime against future generations. The truth is we don't know how this will effect the delicate fresh water ecosystem that we hold so dear. Our family spends time on Lake Erie every summer. We have family and friends that boat on Lake Erie. We follow the bird migrations through the area. Our state governments should be doing everything they can to protect these precious freshwater sources and the species richness that depends on this very special ecological system. Just one turbine fire or one oil spill could release toxic chemicals having devastating effects, possibly forever. Protect the migrating birds and bats that travel over these bodies of water. Protect our Great Lakes! Don't allow these senseless, inefficient monuments to idiocy and greed anywhere near our freshwater sources.	See response to Comment 9-1 regarding potential impacts on water quality. See response to Comment 12-1 regarding potential impacts on birds and bats.
Cameron Morissette Mott MacDonald	115-1	I urge NYSERDA and DPS to proceed with offshore wind in the Great Lakes. We need to start approving and building renewable, clean energy sources for the future generations! The Great Lakes, especially Lake Erie, have all the ingredients for a successful offshore wind industry: Electricity	Comment noted.

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		demand from large cities on the coast; Ambitious climate and clean energy policies; Strong wind resources; Excellent infrastructure, ports, grid inter-connection locations, skilled workforce; Access to the land-based wind supply chain; Offshore wind can be scaled up faster than any other renewable energy source, rapidly reducing greenhouse gas emissions and harmful air pollution that contributes to heart and lung disease. New York can become a first mover and hub for the emerging Great Lakes wind industry, and Great Lakes offshore wind would grow over time to support thousands of jobs. Most importantly, the support of offshore wind in the Great Lakes will be a first step in reaching our renewable energy goals, and will support UN Sustainable Development Goals. Please do this - the country and the planet need it.	
Blake Powell JMS Naval Architects	116-1	As a business active in the maritime industry, we encourage DPS to proceed with offshore wind in New York's Great Lakes region. The Great Lakes, especially Lake Erie, have all the ingredients for a successful offshore wind industry: Electricity demand from large cities on the coast; Ambitious climate and clean energy policies; Strong wind resources; Excellent infrastructure, ports, grid interconnection locations, skilled workforce; Access to the land-based wind supply chain; Great Lakes offshore wind would grow over time to support thousands of jobs. Offshore wind can be scaled up faster than any other renewable energy source, rapidly reducing greenhouse gas emissions and harmful air pollution that contributes to heart and lung disease.	Comment noted.
Robert and Ruth Doughty	117-1	We live on the south shore of Lake Ontario in Orleans County where our ancestors settled over 100 years ago. The perpetual beauty of Lake Ontario, lush farmland, and warm local community have kept this area at the core of our family life for generations. Our family would like to voice our strong opposition to any placement of wind turbines in the waters of the Great Lakes. Any project such as this that could harm the greatest water resource that we have on the planet is certain folly. Yes, we need to halt the warming of our Earth and reduce carbon emissions, but doing so by constructing massive turbines in the lake beds (or on land far from where the energy is needed most) cannot be our best choice. Please, let us focus our future efforts on safer, more efficient, reliable technology and public	See response to Comment 9-1 regarding potential impacts on water quality. See response to Comment 12-1 regarding potential impacts on birds and bats.

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		education on how to conserve energy! Risking the sanctity of the waters of the Great Lakes is a path that that can only lead to irreversible harm to wildlife and human health. As others have pointed out, these waters have barely recovered from past pollution. Let us not start that again! The safety of our Great Lakes wildlife habitat, migratory bird flyways, and human health cannot be endangered. Lake Ontario is said to have acquired its name from the Iroquois word "kanadario", which translates into "sparkling" water. Please do not gamble with the sparkling, irreplaceable waters of our Great Lakes.	
Matthew Doughty	118-1	STRONGLY OPPOSED - I am writing to you to voice my strong opposition to the proposal of offshore wind in ANY Great Lake. I have numerous rea-sons for this objection; as a property owner on the NY state Lake Ontario side, it is unfathomable that this idea is being concerned. I have spent my entire life enjoying the lake, watching sunsets, water sports, any way imaginable. The thought of poisoning such a beautiful place with large structures and blinking lights (already visible in Ontario, CA. from my property!) is unthinkable. This would be a huge disrespect to all our children and future generations who I hope enjoy this beautiful area of the earth as much as I have. Beyond that, I have experience working in the utility industry, specifically with renewable energy. Although I recognize wind energy as a valuable source for renewable energy, the current technological advancements are shifting away from this type of renewable energy. Clean energy can be accomplished elsewhere! These structures will likely be obsolete in years to come, and yet will have poisoned the lake forever. Please consider the negative benefits for the people who actually LIVE in this area, that will have no energy benefits from such a horrendous proposal.	See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind Feasibility Study and analysis of potential impacts of offshore wind in the Great Lakes.
Chris Crafts	119-1	Western New York State has a full four season climate, good soil and rainfall for agriculture, and world class fishing in Lake Erie and Ontario to attract hundreds of out of staters who, among others, become summer shoreline residents, summer only.	See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind Feasibility Study and analysis of potential impacts of offshore wind in the Great Lakes.

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		Wind towers on land and in the Lakes are a threat to the economic viability of Lakeshore housing. Likewise, wind towers are a threat to the health of both year round residents, and to that of migrating eagles, owls, bats, and geese. WNY is a major avian flyway and wind tower killage will be appreciable, and will include golden eagles whose numbers have been slowly recovering from the pesticide damage of the 1950s and 1960s. Studies done in Europe and reported in the Buffalo Evening News report the present and future viability of land for human residences at the latitude of Albany to Chicago, in light of recent climate warming trends. Thinkers in the greater NYC, LI, and NYC areas should be taking a better, long term view of upstate and WNY. Instead of throwing the region "under the bus", ecologically, to save the regions under threat from rising oceans and bigger Atlantic storms, thinkers need to embrace the idea of living here. Big wind, big solar, and big battery storage projects are untested experiments being proposed on top of existing and future human populations. Let's think ahead on this one. Your grandkids are going to need to live here!	
Paul Michalec, Town of Evans Conservation Advisory Commission	120-1	As chairman of the Town of Evans Conservation Advisory Commission I urge New York State to reject any proposals to develop offshore wind energy in Lake Erie or Lake Ontario. All of us who live and work within the Lake Erie and Lake Ontario watersheds are responsible for its health and its care. We rely on these lakes for our supply of fresh drinking water. We recognize and understand even the slightest amount of human activity impacts their health. The development of offshore wind turbines in the Great Lakes will only create a new layer of problems that will need to be addressed but done so by a state and federal government with increasingly limited financial re-sources. Like all our bodies of water, the Great Lakes have been treated as an inert wasteland with little value. However, this attitude has been changing and a lot of work has been done to improve the health of Great Lakes. More remediation and mitigation work needs to be done. We do not need to risk the progress that has been made by allowing the wind energy industry and	See response to Comment 9-1 regarding potential impacts on water quality.

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		wind energy proponents to exploit the Great Lakes. Have we not learned from our past mistakes? New York holds the water-ways and submerged lands of its portions of Lake Erie and Lake Ontario in trust for the public, not for private corporations to generate a profit. Give Lake Erie, Lake Ontario - all the Great Lakes - the protection they deserve from exploitation and development.	
Matthew Zern	121-1	The comments below are the same I had submitted several years ago, related to the planning of industrial wind turbines adjacent to our property. Though they reference the Preliminary Scoping Statement submitted by Lighthouse Wind, LLC several years ago, they remain germaine to the current state of affairs. 1. First, on page 65 of the PSS it states that Lighthouse Wind will perform a Visual Impact Study and take into account visually sensitive sites. I would argue that the Lake Ontario Coastline is a visually sensitive area, due to its natural beauty. After all, it is the reason that most of the people in the study area are concentrated in that location, and it is the place that recreational visitors (fishermen, boaters, etc.) frequent. I am sure that the sensitivity of this location is referenced repeatedly in New York State's Coastal Management Program and the Town of Yates local Waterfront Revitalization Program. Special attention should be paid to views from the coastline, and especially views of the historic lighthouse at Golden Hill State Park. 2. Section 2.4 of the PSS refers to potential adverse health affects of the windmills. From what I have read elsewhere on the adverse health affects of wind farms, I think it behooves the State to perform a full review of the health affects of the project, with particular attention concentrated on the health affects of infrasound. 3. Finally, do we really need to blight New York State's landscape for 100+ years with 600' tall wind turbines. Solar energy plants are no more	See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind Feasibility Study and analysis of potential impacts of offshore wind in the Great Lakes. Any new offshore wind energy projects would consider potential impacts on human health and safety during the environmental review process. See response to Comment 13-5 regarding potential impacts on visual resources and community character.

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		than two stories high and are almost not intrusive to their surrounding environment at all!	
Dafydd Chandler	122-1	I support this motion to develop renewable wind energy as a new York State resident and as a professional within the civil engineering industry.	Comment noted.
Andre Herath	123-1	I strongly support NYSERDA consideration of offshore wind development in New York and the Great Lakes. It is paramount to our near and long term future (from an economic, environmental, and social perspective) to continue our progress with offshore wind energy development in the United States and the Great Lakes are an excellent opportunity for this. Offshore wind in the Great Lakes would provide a clean and competitive power source to hundreds of thousands households while addressing several UNSDGs and create thousands of jobs for the local community. Environmental impacts may be positive for sea life (through creation of steady subsea habitats with foundations) during operation and negative impacts to airborne wild life would be minimal manageable. Given the size of the lakes and the generally shallow water depths, the WTGs can be positioned to not be very visible from the shore (that being said, they are nicer looking that convention coal and gas plants anyways...) Offshore wind farms in closed fresh water bodies have been successful in Europe with many offshore windfarms possessing similar freezing site conditions to the Great Lakes and have been operational for many years with out any major issue. (Vanern) I am extremely proud of the commitment NY has made to renewables and offshore wind in the Great Lakes can be a major success for this commitment.	Comment noted.
Margaret Londergan	124-1	I am writing to state my strong opposition to the development of wind turbine projects along the banks of Lake Ontario. This is a beautiful area, an important bird migration flyway, and a wonderful place to spend time in the peace and quiet of the unspoiled area. Putting wind turbines in this area will destroy this. Currently, on a clear night the sky fills will stars and the milky way can easily be seen. This will no longer be the case if wind	See response to Comment 12-1 regarding potential impacts on birds and bats. See response to Comment 13-5 regarding potential impacts on visual resources and community character.

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		turbines with their constantly blinking red lights are installed. A lakeshore, any lakeshore, is a treasure and should not be defiled by the presence of massive wind tur-bines. There are other places to site them where a natural gift will not be destroyed. We have them in the flat fields of Indiana. They destroy no views, sit on land still farmed by local farmers and pose little problem in sparsely populated areas. I implore you to stop the plans for wind turbine placement along any shores of Lake Ontario and in particular those proposed for Yates and Somerset. My mother grew up in the area and my family and my children have come every year to the lake for the beautiful scenery, the peace and quiet, the star filled skies and the welcoming of those who live in the area. I feel strongly that all this will be lost with the proposed development of wind turbines in this area.	
Paul Reid	125-1	The proposal to industrialize the beautiful Lake Ontario and Erie shorelines with wind turbines is the single worst idea I have heard in my lifetime. Why would anyone want to do that? It will ruin what are the most serene and scenic vistas in our region. NYS should be ashamed of itself for even considering such an option.	See response to Comment 13-5 regarding potential impacts on visual resources and community character.
Jamie Taylor, Mott MacDonald	126-1	I am in support of the state of New York implementing a large-scale renew-able program in the form of an offshore wind farm. As an environmental scientist, I believe this project will benefit the community and the environ-ment by providing a clean, renewable and sustainable source of energy while contributing to the cut back of global greenhouse emissions. There has never been a more important time to take action to reduce the levels of greenhouse gases, so it is of critical significance that this beneficial project is supported. Additional benefits include job opportunities and the ability to be the state leading the offshore wind movement. This infrastructure could benefit generations to come as we progress into a more sustainable and less harmful world.	Comment noted.
Andrew Mason, Conservation Chair	127-1	The New York State Ornithological Assoc., Inc. (NYSOA) supports development of renewable resources to provide energy in NY State, and beyond. Continued dependence on fossil fuels and nuclear power carries with it serious environmental consequences including air and water	See response to Comment 7-1 regarding analysis of potential impacts of offshore wind in the Great Lakes. See response to Comment

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		pollution, toxic waste, habitat degradation and loss, and many threats associated with global warming. These negative consequences impact birds in NY and elsewhere. Wind energy facilities that are sited appropriately provide an alternative that is less harmful than fossil fuel and nuclear generation to birds, humans and our environment. However, all methods of energy production, even those using renewable resources, do have some environmental impacts. The greatest concern to NYSOA for wind power is inappropriate siting and the consequent impact from wind turbine blades and towers on wildlife and the potential degradation or fragmentation of habitats by access roads and the towers themselves. NYSOA recognizes that the cumulative impact of more than one wind power facility in one area poses an environmental threat that may far exceed the impact of an individual facility and that the cumulative impact of a series of wind power facilities along a topographic feature that is used as a migratory route may be severe. NYSOA sees a great need for predictive models of wildlife mortality and development of objective criteria that apply predictions from such models to determine if a site is suitable or not. NYSOA recommends that wildlife monitoring data be subject to external review by scientists unassociated with the wind industry, and that the data be placed in the public domain before a siting review is initiated so citizen participation in the review process is reasonably possible. To minimize damage to wildlife and address these broad concerns, NYSOA recommends the following. A full, draft assessment of the impact on wildlife, including especially birds and bats must be prepared and submitted by the proposer for review by the appropriate agencies. The full, draft assessment must provide an analysis of the cumulative environmental impact due to existing, proposed and reasonably foreseeable energy-related proposals for an area or migratory pathway. The review agency must be given the authority to reject an individual proposal if the	12-1 regarding potential impacts on birds and bats.

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		cumulative effects of several facilities in an ecologically connected area are viewed as too severe. The assessment should determine the presence or absence of state or federally listed threatened or endangered species or species of special conservation concern that reside at or near the site for an appreciable portion of the year and determine how those species would be affected by the proposed project. The assessment must include thorough surveys of nesting birds, with particular emphasis on at risk species, and those species utilizing flight displays and patterns that may increase the likelihood of collisions. Surveys of wintering birds must be conducted to assess use of the area by raptors, which may hunt in open areas near wind turbines. Ridges and shorelines, which are closely followed by some species during migration, are frequently also considered for wind power development. The risks to birds from wind projects at these locations are so high that they should be avoided completely unless it is demonstrated conclusively that minimal concentration of birds exists at proposed sites. In those locations where there is good reason to suspect there may be a seasonal concentrations of birds, no less than three years of full-time surveys through spring and fall migrations, with appropriate peer review, should be considered adequate to document the absence or low frequency of such concentrations. These locations include: areas within 2 miles of the shorelines of Lakes Erie, Ontario, Champlain, and Chautauqua; barrier beaches and other shoreline areas on Long Island; offshore areas within 2 miles of land in Long Island Sound and the Atlantic Ocean; known migratory routes along ridges and valleys including the lower Hudson River Valley, the Susquehanna River Valley, the St. Lawrence River Valley, the Finger Lakes, Chautauqua Lake, and the Shawangunk Ridge. Other areas may also be identified as similarly crucial to bird movement, and should likewise be avoided. The agency must have the authority to reject the assessment on the basis of insufficient or inadequate data.	

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		The draft, full assessment should be provided to the public in such a time and manner that the public has sufficient time to submit an external review to the appropriate agency or agencies prior to the approval by the agency. At a minimum, any project's approval should be contingent on the developer and operator following the most current version of the U.S. Fish and Wildlife Service's recommendations for reducing risk and avoiding bird collisions with towers. The agency must certify that the data is sufficient and collected in an appropriate manner. Post-construction studies of aerial movement of wildlife and mortality rates must be continued and the results readily accessible in the public domain. Approved wind power facilities must provide financial support sufficient to fund several efforts to develop predictive models of mortality using the collective data from all wind power sites.	
Johanna Fallert	128-1	I appreciate this opportunity to comment on Case 15-E-0302 which is concerned with how best, going forward, to align New York State's energy policy with the goals of the CLCPA to reduce GHGs. The CLCPA recognizes that GHGs are contributing to climate change, the defining issue of our time. You undoubtedly are hearing from many technical experts, scientists and grassroot organizations on this matter. Nevertheless, I am compelled to speak as a concerned New Yorker who knows that 2019 was the second hottest year on record, and that the past decade was the hottest in human history. I agree with UN Secretary General, Antonio Guterres, who said that climate change is racing faster than we are. If you accept that we have a climate emergency, then you must leave no stone unturned in the effort to beat the clock and accelerate New York's path to a green energy policy. We can no longer afford to compromise the urgency of the climate crisis with those who proclaim that natural gas is a	See response to Comment 1-2 regarding qualified renewable energy systems. Nuclear energy is not included as a qualified renewable energy system under the CLCPA and is, therefore, outside the scope of analysis of this SGEIS.

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		transition fuel or a "bridge to the future." It is imperative to reduce our carbon footprint, and at the same time, reject any new project that expands the use of fossil fuel energy and develops new fracked gas infrastructure. I urge you to look at New York State's energy policy with fresh eyes. To me, this means: Not permitting the Iroquois ExC Project which would send more natural gas downstate to Long Island and New York City. Reexamining the need for nuclear power in our state, because it does not have a carbon footprint. Supporting a moratorium on our newest fracked-gas power plants, Cricket Valley Energy and CPV Valley, during the ongoing COVID-19 pandemic, when reduced energy needs have resulted. These two plants will contribute up to 25% of CO2E to statewide power sector emissions when fully operational. Saying no to the proposed Danskammer Power Plant on the Hudson River in Newburgh. Mobilizing public opinion to turn away from natural gas and embrace electricity from renewable energy sources. Saying NO to all new fracked gas infrastructure Saying YES to investments in renewable energy options, including energy efficiency projects, getting customers off of gas with induction stoves, air source heat pumps and geothermal (i.e., beneficial electrification) Requiring the use of timers on thermostats and other means of cutting peak demand (i.e. demand response). As of this moment, it's said that we don't have sufficient renewable energy	

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		sources in place for our energy needs. If so, the climate emergency which is leading to more, and even greater, environmental catastrophes for New York and the planet requires that all of us make sacrifices to conserve and reduce our energy consumption. Gov. Cuomo showed us leadership during the peak of New York's COVID-19 crisis, and the people listened to the measures he proposed closing down businesses, staying home, keeping safe distance, wearing a mask, and reopening business with strict COVID-19 preventive measures. When there is a crisis, the public will respond to good, strong leadership. Our Climate Emergency is a reality, and we entrust you and those who impact our energy policies to act accordingly, with the urgency that is called for.	
Johanna Fallert	129-1	I appreciate this opportunity to comment on Case 15-E-0302 which is concerned with how best, going forward, to align New York State's energy policy with the goals of the CLCPA to reduce GHGs. The CLCPA recognizes that GHGs are contributing to climate change, the defining issue of our time. You undoubtedly are hearing from many technical experts, scientists and grassroot organizations on this matter. Nevertheless, I am compelled to speak as a concerned New Yorker who knows that 2019 was the second hottest year on record, and that the past decade was the hottest in human history. I agree with UN Secretary General, Antonio Guterres, who said that climate change is racing faster than we are. If you accept that we have a climate emergency, then you must leave no stone unturned in the effort to beat the clock and accelerate New York's path to a green energy policy. We can no longer afford to compromise the urgency of the climate crisis with those who proclaim that natural gas is a transition fuel or a "bridge to the future." It is imperative to reduce our carbon footprint, and at the same time, reject any new project that expands the use of fossil fuel energy and develops new fracked gas infrastructure. I urge you to look at New York State's energy	See response to Comment 128-1

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		policy with fresh eyes. To me, this means: Not permitting the Iroquois ExC Project which would send more natural gas downstate to Long Island and New York City. REEXAMINING the need for nuclear power in our state, because it does not have a carbon footprint. Supporting a moratorium on our newest fracked-gas power plants, Cricket Valley Energy and CPV Valley, during the ongoing COVID-19 pandemic, when reduced energy needs have resulted. These two plants will contribute up to 25% of CO2E to statewide power sector emissions when fully operational. Saying no to the proposed Danskammer Power Plant on the Hudson River in Newburgh. mobilizing public opinion to turn away from natural gas and embrace electricity from renewable energy sources. Saying NO to all new fracked gas infrastructure Saying YES to investments in renewable energy options, including energy efficiency projects, getting customers off of gas with induction stoves, air source heat pumps and geothermal (i.e. beneficial electrification). Requiring the use of timers on thermostats and other means of cutting peak demand (i.e. demand response). As of this moment, it's said that we don't have sufficient renewable energy sources in place for our energy needs. If so, the climate emergency which is leading to more, and even greater, environmental catastrophes for New York and the planet requires that all of us make sacrifices to conserve and reduce our energy consumption.	

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		Gov. Cuomo showed us leadership during the peak of New York's COVID-19 crisis, and the people listened to the measures he proposed closing down businesses, staying home, keeping safe distance, wearing a mask, and reopening business with strict COVID-19 preventive measures. When there is a crisis, the public will respond to good, strong leadership. Our Climate Emergency is a reality, and we entrust you and those who impact our energy policies to act accordingly, with the urgency that is called for.	
Alan & Mary Isselhard	130-1	We strongly oppose any effort by NYS to permit offshore wind turbines of any size within Lakes Erie or Ontario. Industrializing the Great Lakes with offshore turbines is ILLEGAL because of New York's Public Trust Doctrine. The Draft Supplemental Generic Environmental Impact Statement (SGEIS) for the Climate Leadership and Community Protection Act are the disgusting proposals for offshore wind turbines in Lakes Erie and Ontario. All this info is simply another grand effort by Andrew Cuomo to trash upstate NY to benefit his Democrat friends downstate at our expense. And they have the nerve to call this effort a "Community Protection Act". New York State is considering allowing massive industrial wind turbines to be installed within just a few miles of the shore lines of Lake Erie and Lake Ontario according to the SGEIS which will destroy the aesthetics, threaten drinking water for millions of people and wildlife which depend upon it, the whoosh-whoosh sounds of the turbines only a few miles from shore will make living there impossible while we riparians pay the highest of taxes anywhere in the state for our lake views and privacy, turbines within ten miles of shore would make our lakefront properties totally worthless. In about 2010 the NY Power Authority (NYPA) attempted to force the GLOW project (Great Lakes Offshore Wind) upon us and nearly every NYS county legislature bordering upon Lakes Erie and Ontario voted against this project and they will do so again. The hated GLOW project debacle would have cost two to four times more than land-based wind, according to NYPA. Apparently New York is now making another reckless push to industrialize its recreational waters. Upstate NY does not need more electrical power – downstate does needs the power yet the governor sees fit to close nuclear power plants (Indian Point) that provide significant power to NYC (25%) and putting the city at risk of	See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind Feasibility Study and analysis of potential impacts of offshore wind in the Great Lakes. See response to Comment 9-1 regarding potential impacts on water quality. See response to Comment 12-1 regarding potential impacts on birds and bats. See response to Comment 13-5 regarding potential impacts on visual resources and community character. See response to Comment 5-3 regarding transmission reliability. See response to Comment 103-1 regarding homeland security.

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		future blackouts. But as you look back at the Cuomo family history and their attitude toward nuclear power, the failed Shoreham nuke plant and its closure on L.I., you'll understand why Andrew Cuomo won't consider new safe forms of nuclear power for NYC and downstate. The Shoreham plant was completed in 1984. Suffolk County determined that the county could not be safely evacuated in the event of a serious nuclear accident at the plant. Governor Mario Cuomo ordered state officials not to approve any LILCO Long Island Light Co.) -sponsored evacuation plan—effectively preventing the plant from operating at full capacity. By 1989, it became apparent that not enough local communities would sign on to the evacuation plan for the plant ever to be able to open. On May 19, 1989, LILCO agreed not to operate the plant in a deal with the state under which most of the $6 billion cost of the unused plant was passed on to Long Island residents. In 1992, the Long Island Power Authority bought the plant from LILCO. The plant was fully decommissioned in 1994. Long Islanders are still paying for this catastrophe to this day on their electric bill. Wind turbines and solar power is all that interests Cuomo and never mind how this hurts upstaters. Furthermore NYS has never listened to worthy advice from the NY Independent System Operator (NYISO) who has said for years and years that the sources of power in the state should be located near where the power is needed and consumed. Upstate already has 88% zero emissions electricity generation. And this state has been dragging its feet on another excellent clean renewable power source which is hydro from Quebec to NYC – via the Champlain Hudson Power Express (CHPE). This is a proposed high-voltage direct current (HVDC) submarine power cable project linking the Montreal area to the New York City neighborhood of Astoria, Queens. (The power cable would be located under the length of Lake Champlain and the Hudson River) If approved, the line is expected to be commissioned in 2021. The venture, being developed by Transmission Developers Inc. (TDI), a Blackstone Group, L.P. (Blackstone) portfolio company, would carry clean energy – hydropower and wind power from eastern Canada – and feed it directly in the New York City electricity market. Construction costs for this project are estimated at US$2.2 billion	

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		for the section located in the State of New York. This project would not be paid for with NY taxpayer money. Off shore turbines will hurt tourism, recreational boating, fishing, avian life, commercial shipping, remove darkness at night and they can only be located north as far as the Canadian border – about 25 miles from the south shore in NYS. There is also a large military operations area zone (MOA) over a significant area of Lake Ontario (Misty 1; Misty 2; Misty3) which can been seen on Sectional Aeronautical Charts. It's unlikely turbines would be allowed in the MOA zones due to low flying military aircraft on training assignments. There is substantial military drone activity currently being conducted over Lake Ontario from Camp Drum and the Syracuse-based 174th Attack Wing, which has been flying Reapers in the skies over New York since 2011 and these low flying aircraft may also be affected by turbine heights over Lake Ontario. Hopefully the MOA situation will be enough by itself to prevent offshore turbines in Lake Ontario. Ontario has wisely issued a moratorium on offshore turbines in the Great Lakes and NY should do likewise as there is no need for this waste of Lakes Erie and Ontario. Recently, July 17, 2020, the Ontario Ministry of Energy just issued a letter by The Honourable Greg Rickford that Ontario highly opposed to wind energy. This comment was made recently: "Stirring up legacy pollutants that are in the sediment of the lakes is an environmental disaster in the making. The lakes need restoration, not additional stresses." The Icebreaker offshore wind project in Lake Erie (6 turbines nine miles from shore) near Cleveland was recently given a permit that includes the condition that turbines be shutdown at night for half the year due to danger to migrating bird and bats, highlighting the environmental devastation Great Lakes turbines can have. This stipulation should kill the project which has been languishing for 10 long years and its assets have been sold to a foreign developer. This project clearly violate the public Trust Doctrine and other laws which the state of Ohio has ignored. The Icebreaker project is also facing a lawsuit by two bird organizations. No doubt any NYS effort to place turbines in the Great Lakes will also find its way into the court system for numerous compelling reasons. Offshore wind turbines are a	

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		unneeded curse upon mankind and we especially need to keep them permanently out of Lakes Erie and Ontario. We are writing with adamant opposition to the desecration of Lakes Ontario & Erie by industrial wind turbines, gigantic, filthy machines that, as you know, are neither CLEAN nor "GREEN". Reading the many supportive comments for turning the lakes into industrial power facilities, it is obvious that this is the result of a well orchestrated, misguided effort to move forward with a plan that will ultimately destroy the lakes, painfully slaughter MILLIONS of migrating birds and raptors, slaughter flying gulls, ducks, herons, and of course bats! Their ravaged carcasses, MANY MILLIONS of them, will turn our near shore region into heart wrenching bloody avian soup! As you are well aware, the proposed minuscule amount of power these monstrosities would intermittently and unpredictably produce is NOT intended for the residents of the shorelines of these two lakes. Our demand for electricity is declining as people are leaving the upstate region for states with lower taxes, and our energy sources here are 88-90% emissions-free! So, then why does any right minded person think it is "feasible" to destroy parts of the greatest fresh water system on earth for a tiny fraction of the need for power to a region hundreds of miles from here? Why are we, here along the shore of these two Great Lakes so devalued that our homes, our wildlife, our waterfront businesses, our rights that are GUARANTEED in the Public Trust Doctrine are "feasibly" without value or consideration. For perspective, consider this: The combined area of the Great Lakes is 94,000 square miles, the largest surface of fresh water in the world by volume. Thirty million people rely on the Great Lakes for drinking water, 10% of the U.S. population and 30% of Canadians. Now recall 1980-1981, when the International Joint Commission (IJC) identified areas around the Great Lakes, including Lakes Erie and Ontario, where toxic substances and pollutants were impairing water usage, calling them Areas of Concern. There are 43 such areas in the Great Lakes as a result of decades of unregulated dumping of pesticides, metals, fertilizers, and other organic and inorganic waste into the watersheds. The toxins include PCB, Dioxin, mercury, cadmium, lead, and arsenic, to name a VERY few. As a result, there were restrictions on fish	

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		and wildlife consumption, fish tumors and deformities, restrictions on drinking water, beach closures, and more. As a result of REMEDIATION PLANS, the pollution was controlled or stopped. So, where do you think those toxins are now? Still out there!! Buried under cleaner sediment, or "encapsulated", below the floor of the lakes. Is the NYS DPS willing to let industrialization, including excavation of the lake bottoms for transmission lines and anchoring turbines occur? SERIOUSLY? While the rest of the country and the world struggles to supply fresh, unpolluted drinking water to citizens in an increaseingly polluted environment, the NYS DPS is considering a plan to allow one of the most envied resources on earth to be sacrificed. There is NOTHING clean or green about this. The need for conventional back up power does not go away where wind turbines are added to the energy mix! There are places where the CO_2 emissions even increase due to the ramping effect of back up sources to accommodate those times when the wind blows at a nonproductive speed. Energy sprawl in our lakes is NOT the answer. Ten years into trying to educate the public about the scam called "wind energy", we find it impossible to believe that the DPS is unaware of the lack of credible evidence proving this. Finally, we ask, while ALL New Yorkers are overwhelmed with family deaths, business and job losses, inability to gather to discuss this proposal, racial uprisings and protests, increasing depression and anxiety, and more, why is this NOW being proposed? Where is the urgency? Having lived on the shore of Lake Ontario for nearly 40 years, we are committed to efforts to preserve and protect Lake Ontario, NOT trash it with dead animals, broken and rusted turbine parts, recirculated toxins, fiber-carbon blades the length of football fields that explode and blow apart, the loss of our drinking water, and ultimately, the ability to live here.	
Suzanne and Richard Albright	131-1	We are writing with adamant opposition to the desecration of Lakes Ontario & Erie by industrial wind turbines, gigantic, filthy machines that, as you know, are neither CLEAN nor "GREEN". Reading the many supportive comments for turning the lakes into industrial power facilities, it is obvious that this is the result of a well orchestrated, misguided effort to move forward with a plan that will ultimately destroy the lakes, painfully slaughter MILLIONS of migrating birds and raptors, slaughter flying gulls,	See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind Feasibility Study and analysis of potential impacts of offshore wind in the Great Lakes. See response to Comment 12-1 regarding potential impacts on birds and bats.

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		ducks, herons, and of course bats! Their ravaged carcasses, MANY MILLIONS of them, will turn our near shore region into heart wrenching bloody avian soup! As you are well aware, the proposed minuscule amount of power these monstrosities would intermittently and unpredictably produce is NOT intended for the residents of the shorelines of these two lakes. Our demand for electricity is declining as people are leaving the upstate region for states with lower taxes, and our energy sources here are 88-90% emissions-free! So, then why does any right minded person think it is "feasible" to destroy parts of the greatest fresh water system on earth for a tiny fraction of the need for power to a region hundreds of miles from here? Why are we, here along the shore of these two Great Lakes so devalued that our homes, our wildlife, our waterfront businesses, our rights that are GUARANTEED in the Public Trust Doctrine are “feasibly” without value or consideration. For perspective, consider this: The combined area of the Great Lakes is 94,000 square miles, the largest surface of fresh water in the world by volume. Thirty million people rely on the Great Lakes for drinking water, 10% of the U.S. population and 30% of Canadians. Now recall 1980-1981, when the International Joint Commission (IJC) identified areas around the Great Lakes, including Lakes Erie and Ontario, where toxic substances and pollutants were impairing water usage, calling them Areas of Concern. There are 43 such areas in the Great Lakes as a result of decades of unregulated dumping of pesticides, metals, fertilizers, and other organic and inorganic waste into the watersheds. The toxins include PCB, Dioxin, mercury, cadmium, lead, and arsenic, to name a VERY few. As a result, there were restrictions on fish and wildlife consumption, fish tumors and deformities, restrictions on drinking water, beach closures, and more. As a result of REMEDIATION PLANS, the pollution was controlled or stopped. So, where do you think those toxins are now? Still out there!! Buried under cleaner sediment, or “encapsulated”, below the floor of the lakes. Is the NYS DPS willing to let industrialization, including excavation of the lake bottoms for transmission lines and anchoring turbines occur? SERIOUSLY? While the rest of the country and the world struggles to supply fresh, unpolluted drinking water to citizens in an increasingly polluted environment, the NYS DPS is considering a plan to allow one of the most envied resources on earth to be	See response to Comment 9-1 regarding potential impacts on water quality.

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		sacrificed. There is NOTHING clean or green about this. The need for conventional back up power does not go away where wind turbines are added to the energy mix! There are places where the CO_2 emissions even increase due to the ramping effect of back up sources to accommodate those times when the wind blows at a nonproductive speed. Energy sprawl in our lakes is NOT the answer. Ten years into trying to educate the public about the scam called "wind energy", we find it impossible to believe that the DPS is unaware of the lack of credible evidence proving this. Finally, we ask, while ALL New Yorkers are overwhelmed with family deaths, business and job losses, inability to gather to discuss this proposal, racial uprisings and protests, increasing depression and anxiety, and more, why is this NOW being proposed? Where is the urgency? Having lived on the shore of Lake Ontario for nearly 40 years, we are committed to efforts to preserve and protect Lake Ontario, NOT trash it with dead animals, broken and rusted turbine parts, recirculated toxins, fiber-carbon blades the length of football fields that explode and blow apart, the loss of our drinking water, and ultimately, the ability to live here.	
Karen Engstrom Mrs.	132-1	According to New York State Energy Research and Development Authority (NYSERDA). "Capacity factors of inland wind sites in New York are on the order of 30 percent of their rated capacity. Their effective capacities, however, are about 10 percent, due to both the seasonal and daily patterns of the wind generation being largely "out of phase" with the NYISO load patterns." (2017 NYSERDA Energy publication) So when Big Wind claims 100 MW of power it is actually 10 MW. When they claim 30,000 homes are powered, it is 3,000 homes.	The reference the commenter cites is to work conducted more than 15 years ago (a 2010 report that is referencing a 2005 study) evaluating the Effective Capacity (i.e. capacity credit) of wind energy's contribution to system reliability which is tied to meeting peak demand/load. Effective Capacity is different from the Capacity Factor which is approximately 30% across the portfolio of projects in New York State.[135]
Karen Engstrom Mrs.	132-2	Western NY had a viable energy source -NRG which produced 435 MW about to be converted to reliable, affordable, dispatchable dual cycle gas on a 98-acre facility compared to the three Chautauqua County turbine factories that impact tens of thousands of acres of forested land. The negative economic impact has been calculated to be approximately $23	See response to Comment 1-2 regarding qualified renewable energy systems. Dual cycle gas energy is not included as a qualified renewable energy system under the CLCPA and is, therefore, outside the scope of analysis

[135] NYISO. 2020. Power Trends 2020: The Vision for a Greener Grid.

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		million per year to the region as tourism, agriculture and property values suffer. The health problems of those living in the Arkwright wind factory (began in 2018) are now a reality with headaches, vertigo, and sleeplessness, and this affecting children as young as four years old. When will the state recognize the insanity of forcing industrial wind turbines on the people of Western New York where 80% or our energy is already renewable?	of this SGEIS. See response to Comment 5-4 regarding the White Paper cost and benefits analysis. As noted in the Prior SEQRA Analyses, the design and operation of specific onshore wind projects would be subject to review by multiple federal, state, and local agencies. Any new onshore wind energy projects would consider potential impacts on human health and safety during the environmental review process.
Karen Engstrom Mrs.	132-3	Late last year NYS passed the "Climate Leadership Community Protection Act" (CLCPA). In an apparent move to minimize legislative oversight Cuomo has declared this to be an "emergency declaration" and then included it as a State Budget Amendment (!). Clearly the biggest issue at stake, is the Home Rule Rights of NYS citizens. As with any of our freedoms, if we don't aggressively defend them, it will be interpreted that we don't really care, and they will likely be taken away. As a minimum NYS Towns and Counties need to immediately pass a quality Resolution, formally and strongly objecting to the Governor's renewable energy siting proposal. More information found on www.awed.org.	The interplay of state and local authorities that may be involved in the siting of future renewable energy projects is discussed in Chapter 6. The extent to which home rule principles may or may not be recognized in a future case is beyond the scope of this SGEIS. The potential impacts on local communities are identified in Chapter 5 and Section 9.3.
Anne & Dave Mancuso	133-1	Regarding: New York State is considering allowing massive industrial wind turbines to be installed within just a few miles of the shorelines of Lake Erie and Lake Ontario. We are against Giant Turbines being located in Western NY by Albany. They are an eye sore and are a terrible danger to migrating birds in one of the biggest migratory corridors in the country.	See response to Comment 12-1 regarding potential impacts on birds and bats. See response to Comment 13-5 regarding potential impacts on visual resources and community character.
Anne & Dave Mancuso	133-2	These turbines would cost millions of dollars to dispose of if they are broken and have to be removed.	See response to Comment 5-4 regarding the White Paper cost and benefits analysis.
Carol Hinkelman	134-1	Over the last few months of navigating through the Corona virus pandemic, one thing we have learned is that everything can change drastically in a very short time. Over the last few months of navigating through the Corona virus pandemic, one thing we have learned is that everything can change drastically in a very short time. We need to be very flexible and creative to deal with change. We should definitely have plans to meet our renewable energy goals under the CLCPA, but our plans should not be inflexible. It is	See response to Comment 132-3 regarding Home Rule.

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		likely that there will be new developments in renewable energy generation and changes in the energy demand. Therefore we should not assign definite percentages needed to the various forms of renewable energy generation, but only have broad categories for meeting our energy goals. As we have seen with the pandemic, the demand for energy can suddenly change and people can learn to live differently, so we do not know how much energy conservation we can achieve if people are motivated. We can also become very creative when faced with a crisis to find new ways to do things, so allow for changes in energy generation and demand. We also need to think outside the box. We could let communities each have a renewable energy goal and let them figure out how they are going to meet the need for energy in their communities. If they are responsible for producing the energy they need, they are more likely to be wiling to have renewable energy projects in their community or cooperate with another community to buy energy from them. Each community could decide what works best for them and where in their community are appropriate areas where they would be willing to host a renewable energy project instead of trying to fight them off inappropriate areas. There would be community support for projects instead of opposition which would save time and money.	
Carol Hinkelman	134-2	There would not be the loss of a large percent of energy from transmitting it over long distances to where it is used if energy sources were located in each community, so it would be much more efficient. We would also avoid having many energy projects built in one place where the grid cannot accommodate that much energy at any one time creating a transmission bottleneck and energy wasted.	See response to Comment 5-3 regarding transmission reliability.
Carol Hinkelman	134-3	We should be concerned about social justice issues such as child labor being used in some other countries where we source our materials for renewable energy projects or severe environmental impacts from obtaining these materials. Locating many projects in one area is not fair to people who live in those areas.	See response to Comment 13-14. Social justice issues related to equipment and construction materials are beyond the scope of this SGEIS.
Michael & Penelope Boismenu, Individual Citizen	135-1	Prior to the issuance of a construction permit for any new renewable energy supply alternative including hydro, solar and wind technologies a detailed economic analysis should be conducted to ensure that the least cost alterna-tive is considered. The February 2019 US Department of Energy analysis of	See response to Comment 5-4 regarding the White Paper cost and benefits analysis.

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		the "Levelized Cost and Levelized Avoided Cost of New Generation Resources" can provide an excellent source of current economic data that can be utilized to support this economic analysis. It should be noted that a review of the capital costs and operation and maintenance costs of offshore wind generation is by far the highest cost alternative. When compared against the average of other renewable generation capital cost alternatives including hydro, solar and onshore wind the levelized capital costs of offshore wind generation exceeds this average by 275%. In addition the levelized operation and maintenance costs of offshore wind generation exceeds the average hydro, solar and onshore wind generation operation and maintenance costs by 211%.	
Michael & Penelope Boismenu, Individual Citizen	135-2	To further support this economic analysis consideration should also be given to the massive amount of potential energy as associated with New York State's hydroelectric facilities. Additionally, the State should review each of the regulated power company's (National Grid & Avangrid) Integrated Resource Plans (IRP)to determine the need and economic benefits the addition of these resources will bring the rate payers. To summarize we strongly recommend that the State conduct a detailed, risk based, cost/benefit analysis to determine the least cost option to meet the NYS CES.	See response to Comment 2-2 regarding the proposed Tier 4 and the role of hydropower.
Michael & Penelope Boismenu, Individual Citizen	135-3	This analysis should also consider the impact the associated alternative has on the fragile lake environment including aesthetics as associated with our current unobstructed open water view and halt the exploitation of our most valuable resource.	See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind Feasibility Study and analysis of potential impacts of offshore wind in the Great Lakes. See response to Comment 13-5 regarding potential impacts on visual resources and community character.
Mary Milani Newby	136-1	I am writing with adamant opposition to the desecration of Lakes Ontario & Erie by industrial wind turbines, gigantic, filthy machines that, as you know, are neither CLEAN nor "GREEN". Reading the many supportive comments for turning the lakes into industrial power facilities, it is obvious that this is the result of a well orchestrated, misguided effort to move forward with a plan that will ultimately destroy the Great Lakes, painfully	See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind Feasibility Study and analysis of potential impacts of offshore wind in the Great Lakes.

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		slaughter MILLIONS of migrating birds and raptors, slaughter flying gulls, ducks, herons, and of course bats! As you are well aware, the proposed minuscule amount of power these monstrosities would intermittently and unpredictably produce is NOT intended for the residents of the shorelines of these two lakes. Our demand for electricity is declining as people are leaving the upstate region for states with lower taxes, and our energy sources here are 88-90% emissions-free! So, then why does any right minded person think it is "feasible" to destroy parts of the greatest fresh water system on earth for a tiny fraction of the need for power to a region hundreds of miles from here? For perspective, consider this: The combined area of the Great Lakes is 94,000 square miles, the largest surface of fresh water in the world by volume. Thirty million people rely on the Great Lakes for drinking water, 10% of the U.S. population and 30% of Canadians. Now recall 1980-1981, when the International Joint Commission (IJC) identified areas around the Great Lakes, including Lakes Erie and Ontario, where toxic substances and pollutants were impairing water usage, calling them Areas of Concern. There are 43 such areas in the Great Lakes as a result of decades of unregulated dumping of pesticides, metals, fertilizers, and other organic and inorganic waste into the watersheds. The toxins include PCB, Dioxin, mercury, cadmium, lead, and arsenic, to name a VERY few. As a result, there were restrictions on fish and wildlife consumption, fish tumors and deformities, restrictions on drinking water, beach closures, and more. As a result of REMEDIATION PLANS, the pollution was controlled or stopped.	See the responses to Comment 12-1 regarding potential impacts on birds and bats. See response to Comment 9-1 regarding potential impacts on water quality.
Mary Milani Newby	136-1	There is NOTHING clean or green about this. The need for conventional back up power does not go away where wind turbines are added to the energy mix! There are places where the CO_2 emissions even increase due to the ramping effect of back up sources to accommodate those times when the wind blows at a nonproductive speed. Energy sprawl in our lakes is NOT the answer. Ten years into trying to educate the public about the scam called "wind energy", we find it impossible to believe that the DPS is unaware of the lack of credible evidence proving this	See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind Feasibility Study.
Clif Schneider	137-1	I am a retired Lake Ontario Unit Leader for the NYS Department of Environmental Conservation. I want to alert you and the Public Service	Section 5.3.4 of the SGEIS acknowledges that development of wind turbines in the Great

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		Commission to a serious misrepresentation of the science and references cited in Section 5 Areas of Potential Environmental Impact, subsection 5.3 Great Lakes Offshore Wind Energy, sub-sub section 5.3.4 Birds and Bats. In referring to potential impacts from offshore wind development within New York's Great Lakes, the DSGEIS states: "Development of wind turbines in the Great Lakes under the Proposed Action would result in direct impacts on birds and bats through collisions with turbines. Many species of birds migrate through the Great Lakes region during spring and fall migrations. Many of those species avoid flying over large bodies of water, and those that do typically fly at higher altitudes, often above the height of turbine blades." The authors of the DSGEIS cite a radar surveillance study of Lake Ontario conducted by the United States Fish and Wildlife Service suggesting that birds do not fly over the lake, and if they do, they are above the height of wind turbines. They would have us conclude that any offshore wind development in Lake Ontario would be minimal or marginal. This is not, however, a conclusion that should be drawn from the Heist et al. 2018 study. I have copied charts (following page) that show the night distribution of targets at the three radar sites sampled in the USFWS study. They show significant targets within the shaded area, which represents the height of current models of wind turbines. It is likely that any future development in the Great Lakes, if allowed, would use taller turbines, since that has been the long-term trend in the technology. Taller turbines would affect an even greater proportion of migrating birds. The DGEIS is wrong to conclude that "…they are above the height of wind turbines." Many migrating birds fly within the rotor zone of wind turbines. The DSGEIS is also wrong to conclude "Many of those species (birds) avoid flying over large bodies of water…" In Figures 14, 15 and 16 from the USFWS report it shows the mean orientation of migrating bird flight and approximate direction of flight origination. What stands out in these graphics is how frequently migrating birds fly over the Lake Ontario, not that many avoid flying over large bodies of water. Again, a serious misrepresentation of the facts. Heist et al 2018 show convincingly that migrating birds regularly and normally fly over Lake Ontario, not that they avoid transiting the lake. This represents more than just an oversight or a cut-and-paste error. Rather, it suggests a purposeful misrepresentation of	Lakes under the Proposed Action would result in direct impacts on birds and bats through collisions with turbines. The Heist article looked at activity patterns of birds along the shores of the Great Lakes and was considered in the SGEIS. The report states that the Great Lakes likely represents a geographic obstacle that migrants choose to cross, or not, based on environmental and physiological conditions. The report indicated that that there was activity well above 1 km, however, most targets passed below 1 km with peak density typically below 600 m. Maximum target densities occurred more frequently at the lower elevations, with most common peak densities falling between 188 m and 644 m in altitude. As discussed in Section 2.3.3, accessibility to the Great Lakes may be a limiting factor for the development of offshore wind, as moderately sized heavy-lift vessels that are typically used to install offshore wind foundations and turbines in the ocean are generally too large to safely navigate locks and some inland waterways connecting to the Great Lakes. This could limit the size of turbines in the Great Lakes. The proposed Ice Breaker project in Lake Erie would use turbines with a total height of 146 meter, at the lower end of the range of elevation for peak densities. Section 5.3.4 has been revised to clarify that birds species that avoid flying over open water are typically land based species and that turbines in the Great Lakes are expected to be a shorter height. The SGEIS acknowledges that siting

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		the study that supports wind development in the offshore regions of the Great Lakes. This misrepresentation indicates to me that the entire DSGEIS is flawed and should be rejected. This is not a small error that can be dismissed and swept away. I would not be surprised if checking every citation in the DSGEIS showed other misrepresentations.	of specific projects would require careful avoidance, minimization, and mitigation measures. See response to Comment 7-1 regarding the recommendation of a Great Lakes Wind Feasibility Study that would consider potential environmental impacts on birds.
Kathy Evans	138-1	It is imperative that we take action to protect our planet against the effects of climate change, but we must look at alternatives and not to wind and solar installations which have negative environmental consequences of their own and are unreliable and intermittent. We also should be looking at a circular economy that focuses on reducing the amount of energy we consume. Offshore wind farms are expensive and difficult to build and maintain. Wave action and very high winds particularly during heavy storms can damage the turbines. We already experience extreme winds and waves along our shorelines that have caused millions of dollars in damage. Besides the Noise Pollution produced when offshore turbines are operational they also produce noise pollution during pre-construction (surveys to assess site condition and increased vessel traffic), construction (pile-driving, drilling, excavation with explosives, dredging, cable laying, and continued ship & barge operations) and de-commissioning (mechanical cutting & explosives & vessel traffic). Noise during all phases has a physiological and behavioral impact on local marine communities and can cause habitat displacement. The Visual Pollution will destroy our scenic vistas and the character of our towns, especially at night as red blinking nights pollute our dark skies.	See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind Feasibility Study and analysis of potential impacts of offshore wind in the Great Lakes. The Prior SEQRA Analyses acknowledges that development of offshore wind capacity could result in minor temporary increases of noise and other sensory disturbances from construction activities. Advancements in turbine anchoring systems such as gravity-based foundations, may substantially reduce the amount of pile driving and associated noise-related disturbance during turbine installation. This SGEIS acknowledges that siting of specific projects would require careful avoidance, minimization, and mitigation measures.
Kathy Evans	138-2	Wind turbines should not be built in the major migratory bird flyways along Lake Erie and Lake Ontario. They have the potential to impact breeding, wintering and migrating birds and bats who risk displacement, as well as collision with the turbines. The best mitigation method for avoiding adverse effects to waterbirds is to avoid biological hotspots and areas of high bird habitat use. The American Bird Conservancy and Black Swamp Bird Observatory have filed a lawsuit against the U.S. Department of Energy and U.S. Army Corps of Engineers to ensure that the evaluation of	See response to Comment 12-1 regarding potential impacts on birds and bats.

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		environmental impacts and alternatives associated with the IceBreaker project on Lake Erie are done. They are concerned about the substantial collision risks to the enormous numbers of birds that use the area throughout the year. They want to "ensure that we're not creating new problems for bird populations by building in high-risk areas, or not considering better alternatives such as distributed solar power on Cleveland rooftops, parking lots, and brownfields." The Lake Erie Improvement Association with supporting opinions from 13 birding organizations, states the Lake Erie Marsh Region is recognized as globally important for migratory birds as millions of migratory songbirds, shorebirds, and waterfowl stop here to feed and rest every spring and fall during their long-distance migrations. In addition, Lake Erie shorelines and inland natural areas are also home to a large number of permanent residents. Lake Erie marshes make up the largest stopover habitats in the eastern United States between coastal habitats and northern breeding areas.	
Kathy Evans	138-3	Ecosystem studies must be done to consider how all the species in an area function together to help minimize unwanted impacts on fish, marine mammals, and birds and not cause more environmental damage. In Lake Erie and Lake Ontario offshore wind turbines would be sited to close to shorelines having even more of an impact on the local area. Rural communities should have the right to determine whether or not they want industrial facilities in their towns and along their shores to protect their ecological environments and their residents' health, property values and quality of life. Put new industrial renewable energy projects where they are needed near New York City and Long Island not in upstate New York where the transmission lines are not even available to get the energy to downstate. Western New York already gets the majority of it's energy from renewable sources.	See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind Feasibility Study and analysis of potential impacts of offshore wind in the Great Lakes. See response to Comment 132-3 regarding Home Rule. See response to Comment 13-5 regarding potential impacts on visual resources and community character. See response to Comment 5-3 regarding transmission reliability.
Gerald A(Gerry) Smith	139-1	As a professional avian ecologist and conservationist with over a half century of experience I find suggestions to place turbines in the Great Lakes absurd. The lakes are one of the areas of heaviest concentration for a wide variety of migrant birds. Any large turbines anywhere in or near the lakes is a prescription for large scale mortality and habitat disruption, I would wonder how such recommendations were arrived at by DPS staff	See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind Feasibility Study and analysis of potential impacts of offshore wind in the Great Lakes. See response to Comment 12-1 regarding potential impacts on birds and bats.

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		were it not for the involvement of Ecology and Environment. This firm derives a substantial part of their income from wind projects. I do not consider them objective regarding our state's energy future.	
Gerald A(Gerry) Smith	139-2	We are all aware of the need for renewable energy but industrial wind uses a clunky old technology with many harmful side effects. If your administration really wants to impact climate change then commit to new safe advanced generation of nuclear power. If you do that at appropriate levels New York's energy future will not be blowing in uncertain winds.	See response to Comment 1-2 regarding qualified renewable energy systems.
Susan E Dudley	140-1	From the EIA "Wind energy is the second-largest source of renewable generation in New York. Wind accounted for only slightly more than one-tenth of all renewable generation in 2018 and equaled more than three-fifths of New York's non-hydroelectric utility-scale renewable generation". Total % of electricity produced in 2018 via wind in NYS was 3.2%. One tenth of 3.2% is a significantly MINISCULE number. If current wind turbine installations only account for slightly more than one-tenth of all renewable generation how many more wind turbines would be necessary to make wind a viable reliable source of electricity? Why would we risk two of the world's GREAT fresh water lakes to produce electricity for an area that already gets most of its electricity from renewable sources (mainly hydropower). We do not have the infrastructure to transmit the electricity efficiently to the highly populated areas (mainly NYC). Why would we not seek methods to generate electricity closer to where it is needed?	See response to Comment 5-3 regarding transmission reliability. See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind Feasibility Study. See response to Comment 9-1 regarding potential impacts on water quality.
Susan E Dudley	140-2	Other facts about NYS from the EIA New York generates about one-third of its electricity from nuclear power plants, and the state includes nuclear power as a zero emissions resource that counts toward New York's 2040 emissions reduction goals. (Let's use more nuclear power instead of inefficient wind turbines.) In 2018, New York produced more hydroelectric power than any other state east of the Rocky Mountains and was the third-largest producer of hydroelectricity in the nation. (Is there room for improvement?) About one-fourth of New York households are heated with petroleum products, primarily fuel oil. (Should we increase subsidies for home solar instead of throwing money at inefficient wind turbines?) New York is the fifth-largest consumer of petroleum among the states, but, in part because almost three-tenths of state residents use public	See response to Comment 2-2 regarding the proposed Tier 4 and the role of hydropower. See response to Comment 1-2 regarding qualified renewable energy systems.

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		transit to commute to work (more than five times the U.S. average), New Yorkers consume less petroleum per capita than residents of any other state in the nation. (Should we invest in improvements to public transportation rather than subsidize mostly foreign companies for inefficient noise polluting wind turbines?) I think that wind turbines in the lakes and on the near shorelines are a short-sighted non-solution to a very long term issue. We can do better than this.	
Alan & Mary Isselhard	141-1	We strongly oppose any effort by NYS to permit offshore wind turbines of any size within Lakes Erie or Ontario. Industrializing the Great Lakes with offshore turbines is ILLEGAL because of New York's Public Trust Doctrine. The Draft Supplemental Generic Environmental Impact Statement (SGEIS) for the Climate Leadership and Community Protection Act are the disgusting proposals for offshore wind turbines in Lakes Erie and Ontario. All this info is simply another grand effort by Andrew Cuomo to trash upstate NY to benefit his Democrat friends downstate at our expense. And they have the nerve to call this effort a "Community Protection Act". New York State is considering allowing massive industrial wind turbines to be installed within just a few miles of the shore lines of Lake Erie and Lake Ontario according to the SGEIS which will destroy the aesthetics, threaten drinking water for millions of people and wildlife which depend upon it, the whoosh-whoosh sounds of the turbines only a few miles from shore will make living there impossible while we riparians pay the highest of taxes anywhere in the state for our lake views and privacy, turbines within ten miles of shore would make our lakefront properties totally worthless. In about 2010 the NY Power Authority (NYPA) attempted to force the GLOW project (Great Lakes Offshore Wind) upon us and nearly every NYS county legislature bordering upon Lakes Erie and Ontario voted against this project and they will do so again. The hated GLOW project debacle would have cost two to four times more than land-based wind, according to NYPA. Apparently New York is now making another reckless push to industrialize its recreational waters. Upstate NY does not need more electrical power - downstate does needs the power yet the governor sees fit to close nuclear power plants (Indian Point) that provide significant power to NYC (25%) and putting the city at risk of	See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind Feasibility Study and analysis of potential impacts of offshore wind in the Great Lakes.

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		future blackouts. But as you look back at the Cuomo family history and their attitude toward nuclear power, the failed Shoreham nuke plant and its closure on L.I., you'll understand why Andrew Cuomo won't consider new safe forms of nuclear power for NYC and downstate. The Shoreham plant was completed in 1984. Suffolk County determined that the county could not be safely evacuated in the event of a serious nuclear accident at the plant. Governor Mario Cuomo ordered state officials not to approve any LILCO Long Island Light Co.) -sponsored evacuation plan—effectively preventing the plant from operating at full capacity. By 1989, it became apparent that not enough local communities would sign on to the evacuation plan for the plant ever to be able to open. On May 19, 1989, LILCO agreed not to operate the plant in a deal with the state under which most of the $6 billion cost of the unused plant was passed on to Long Island residents. In 1992, the Long Island Power Authority bought the plant from LILCO. The plant was fully decommissioned in 1994. Long Inlanders are still paying for this catastrophe to this day on their electric bill. Wind turbines and solar power is all that interests Cuomo and never mind how this hurts upstaters. Furthermore NYS has never listened to worthy advice from the NY Independent System Operator (NYISO) who has said for years and years that the sources of power in the state should be located near where the power is needed and consumed. Upstate already has 88% zero emissions electricity generation. And this state has been dragging its feet on another excellent clean renewable power source which is hydro from Quebec to NYC - via the Champlain Hudson Power Express (CHPE). This is a proposed high-voltage direct current (HVDC) submarine power cable project linking the Montreal area to the New York City neighborhood of Astoria, Queens. (The power cable would be located under the length of Lake Champlain and the Hudson River) If approved, the line is expected to be commissioned in 2021. The venture, being developed by Transmission Developers Inc. (TDI), a Blackstone Group, L.P. (Blackstone) portfolio company, would carry clean energy - hydropower and wind power from eastern Canada - and feed it directly in the New York City electricity	

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		market. Construction costs for this project are estimated at US$2.2 billion for the section located in the State of New York. This project would not be paid for with NY taxpayer money.	
Alan & Mary Isselhard	141-2	Offshore turbines will hurt tourism, recreational boating, fishing, avian life, commercial shipping, remove darkness at night and they can only be located north as far as the Canadian border - about 25 miles from the south shore in NYS. There is also a large military operations area zone (MOA) over a significant area of Lake Ontario (Misty 1; Misty 2; Misty3) which can been seen on Sectional Aeronautical Charts. It's unlikely turbines would be allowed in the MOA zones due to low flying military aircraft on training assignments. There is substantial military drone activity currently being conducted over Lake Ontario from Camp Drum and the Syracuse-based 174th Attack Wing, which has been flying Reapers in the skies over New York since 2011 and these low flying aircraft may also be affected by turbine heights over Lake Ontario. Hopefully the MOA situation will be enough by itself to prevent offshore turbines in Lake Ontario. Ontario has wisely issued a moratorium on offshore turbines in the Great Lakes and NY should do likewise as there is no need for this waste of Lakes Erie and Ontario. Recently, July 17, 2020, the Ontario Ministry of Energy just issued a letter by The Honourable Greg Rickford that Ontario highly opposed to wind energy. This comment was made recently: "Stirring up legacy pollutants that are in the sediment of the lakes is an environmental disaster in the making. The lakes need restoration, not additional stresses." The Icebreaker offshore wind project in Lake Erie (6 turbines nine miles from shore) near Cleveland was recently given a permit that includes the condition that turbines be shutdown at night for half the year due to danger to migrating bird and bats, highlighting the environmental devastation Great Lakes turbines can have. This stipulation should kill the project which has been languishing for 10 long years and its assets have been sold to a foreign developer. This project clearly violate the public Trust Doctrine and other laws which the state of Ohio has ignored. The Icebreaker project is also facing a lawsuit by two bird organizations. No doubt any NYS effort to place turbines in the Great Lakes will also find its way into the court system for numerous compelling reasons. Offshore wind turbines are a	See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind Feasibility Study and analysis of potential impacts of offshore wind in the Great Lakes. See response to Comment 12-1 regarding potential impacts on birds and bats and response to Comment 9-1 regarding potential impacts on water quality.

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		unneeded curse upon mankind and we especially need to keep them permanently out of Lakes Erie and Ontario.	
Audubon New York	142-1	Offshore wind is a relatively new technology in the United States and, as such, we need to closely monitor the impact of offshore wind operations on marine wildlife and the ocean ecosystem to guide its adaptive management and future development. Although the current lease areas in the north and mid-Atlantic are in federal waters, as the purchaser of that power, New York State has the responsibility to ensure that projects are environmentally sound. Offshore wind can and must be developed thoughtfully and responsibly, using science-based measures to avoid, minimize, mitigate, and monitor impacts on valuable and vulnerable wildlife. This includes putting specific measures in place to protect our most vulnerable species, but also monitoring pre- and post-construction so we can actively adapt as we better understand the impacts on birds and other wildlife. Wind farm construction and operation can displace vulnerable birds from prime feeding and breeding areas, interfere with their migration routes, and poses a risk of collision. Almost all groups of birds, including pelagic, marine, and land birds, have the potential to be impacted by offshore wind development. At this time, we do not have a solid understand or complete picture of the risks and impacts of offshore wind on birds. Therefore, the draft SGEIS's conclusion that the potential impacts to birds through collisions and displacement will not be significant is erroneous. We commend the State for forming and facilitating the New York State Environmental Technical Working Group (E-TWG), which is a team of stakeholders providing advice on how to advance offshore wind energy development in environmentally responsible ways, and look forward to continuing to work with the State to ensure that offshore wind is appropriately sited and operated with the necessary mitigation measures and adaptive management to protect wildlife.	The analysis regarding the incremental procurement of 4,800 MW of offshore wind builds upon the 2020 OSW SEIS which analyzed 4,200 MW of offshore wind. While recognizing that there would be additional impacts from a more than doubling of capacity, the overall spatial coverage necessary for the incremental procurement of 4,800 MW relative to the distribution of the potential impact area would not result in a significant reduction or modification of offshore avian habitat. While this has not been demonstrated in the North America offshore environment yet, there is no evidence from Europe to suggest otherwise when it comes to the level of significance of potential impacts.
Audubon New York	142-2	The Great Lakes are the largest fresh water system on earth and support millions of migratory birds, which depend on aquatic and coastal habitats	See response to Comment 7-1 regarding the recommendation for a Great Lakes Wind

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		for shelter, rest, and nourishment during spring and fall migrations. Since many bird species that are already in decline rely on the lakes for habitat and other resources, it is critical that we take a measured approach to the development of offshore wind in the waters of Lake Ontario and Lake Erie, and ensure that migratory birds are not impacted negatively. The draft SGEIS recognizes that offshore wind in the Great Lakes will result in direct impacts to birds by causing displacement, disturbance, or loss of habitat and mortality/injury due to, "construction and operation of offshore wind including disturbance and displacement due to noise, human presence, vessel traffic, and the presence of newly introduced large structures." Specifically, it states that collisions may occur when birds seek out turbines as a place to roost or when nocturnal migrants are attracted to lighting placed on turbines. However, when discussing migrants, the draft SGEIS says that collisions are unlikely to occur during migration since most birds either migrate along the shoreline or, if flying over the lakes, fly at altitudes that are higher than the height of the turbines. Given these findings, the draft SGEIS concludes that the development of offshore wind in the Great Lakes will result in impacts to birds at the individual level, but that population-level impacts will not be observed. To mitigate the collisions that do occur, the draft SGEIS recommends the use of best management practices, including minimizing upward-facing lighting and using colors of lights that are less attractive to birds, and by adjusting the pitch and speed of turbine levels. We agree with the draft SGEIS's assertion that birds will be directly impacted by offshore wind in the Great Lakes and with its recommendation to use the aforementioned best management practices, since they may result in lower mortality numbers. However, we believe that it is premature to conclude that birds will not be impacted at the population level and that the use of best management practices will result in a satisfactory reduction in mortalities. Impacts on nocturnal migrants crossing the lakes and wintering ducks, grebes, mergansers, and other waterbirds need more study before it can be concluded that they are not expected to be susceptible to impacts from offshore wind. In particular, while we agree that nocturnal migrants	Feasibility Study and analysis of potential impacts of offshore wind in the Great Lakes. See response to Comment 12-1 regarding potential impacts on birds and bats.

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		often fly at altitudes sufficient to avoid turbines when traversing the lake, inclement weather can force them down into the path of the blades and result in injury or mortality. We recommend that developers conduct impact assessments before and after construction of offshore wind projects to ensure that impacts to vulnerable birds are minimized to the maximum extent possible and that population-level effects are not observed. Such monitoring will also aid in the development of best practices for wind development in the Great Lakes, including the creation of a specific Bird and Bat Conservation Strategy (as contemplated by this draft SGEIS), if the feasibility study recommended in NYSERDA's White Paper on Clean Energy Standard Procurement (2020) indicates that offshore wind in the Great Lakes is a viable source of renewable energy for New York State. Lastly, according to past feasibility studies, desirable development areas on Lake Ontario include, "north and east from Oswego, through Mexico Bay and into the northeast portion of the lake near Galloo Island and Cape Vincent. The area of interest roughly follows the coastlines of Oswego and Jefferson Counties, stretching farther from shore near the entrance to the Saint Lawrence River." As noted by the draft SGEIS, since this feasibility study was conducted, the federally endangered Piping Plover has returned to and successfully nested at Sandy Island Beach State Park since 2015. Due to this return, we recommend that the state conduct additional research to examine whether offshore wind development will have negative impacts on the Piping Plover or its designated critical habitat along the eastern shore of Lake Ontario. Additionally, the final SGEIS should note that there is the potential for population-level impacts on this species since there are only seventy-five nesting pairs of Piping Plovers in the entire Great Lakes region. The loss of even one nesting pair would have a disproportionate impact on the population, particularly in New York State where there is only one nesting pair.	
Audubon New York	142-3	Stabilizing grassland bird populations has been identified as a conservation priority by virtually all bird conservation initiatives, groups, and agencies in	The commenter's indication that population-level impacts could occur to NYS-listed bird

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		the northeastern United States due to concern over their declines. As a group, grassland birds have declined more than any other group of birds in this region and across the country in the past 50 years. Data from the Breeding Bird Survey show populations of Henslow's Sparrows have decreased by more than 99% in New York State, and Grasshopper Sparrow populations have declined by 97%. Even the Bobolink, one of New York State's relatively more ubiquitous grassland birds, has experienced a 40% population loss. In New York State, grassland bird population declines are strongly linked to the loss of agricultural grasslands - primarily hayfields, pastures, and fallow fields - which have shrunk by more than two thirds over the past century. The draft SGEIS recognizes that utility-scale solar may result in direct impacts to grassland birds through habitat loss or fragmentation, disruption of natural behaviors, and by creating barriers to movement. Specifically, it states that the conversion of agricultural land and construction of solar sites may displace individuals from suitable habitat and that noise from construction or increased human presence may cause stress and/or impact reproductive success. However, the draft SGEIS finds that, "bird populations can rebound very shortly after even large-scale, extremely noisy events," and also argues that only a negligible amount of grassland habitat will be converted to other uses. It is asserted that if all of the utility-scale solar contemplated by this draft SGEIS were constructed within the Grassland Focus Areas identified by the NYSDEC, then it would only use 0.8 to 2.3% of the 1.4 million acres previously identified. The draft SGEIS then extrapolates that due to "this minor conversion of land compared to available grassland areas, the available habitat for relocation, and project-specific agency consultations, significant adverse impacts on grassland birds would not be expected."	species, in particular the grassland bird species, is not supported by current evidence. These species have not been shown to be especially affected by collisions with wind turbines in New York or the northeast. A recently published journal article lends more evidence to the case that there are not population level impacts to any bird species from wind turbine collisions. This study of bird and bat mortality at Northeastern wind projects reported to the U.S. Fish and Wildlife Service between 2008-2017 included review of 44 wind facilities for avian mortality.[136] Zero Henslow's sparrows and grasshopper sparrows were among the 2,039 fatalities of 128 avian species reported, and grassland habitat species were barely present at all, with one horned lark and one savannah sparrow.[137] As indicated in Section 5.2, grassland birds were included in this analysis as they were not in the previous SEQRA analysis out of concern for habitat loss and fragmentation. The land requirements for the additional build out of utility solar represent a small percentage of the available habitat in New York State. Fragmentation of quality habitat is indeed a concern and it is expected that will be reviewed on a project-by-project basis by involved agencies; however, this level of buildout and development would not lead to

[136] Choi DY, Wittig TW, Kluever BM.2020. An evaluation of bird and bat mortality at wind turbines in the Northeastern United States. PLoS ONE 15(8): e0238034. https://doi.org/10.1371/journal.pone.0238034

[137] Ibid

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		Given these findings, the draft SGEIS concludes that the development of solar will result in impacts to birds at the individual level, but that population-level impacts will not be observed. To mitigate the impacts that do occur, the draft SGEIS recommends the use of strategies contained in the NYSDEC's Best Management Practices for Grassland Birds; including seeding, mowing, and removing trees and shrubs on grassland habitat; minimizing mowing, planting, harvesting, and driving, during the nesting season; eliminating excessive disturbance such as frequent high-speed snowmobile, ATV, motorized vehicle operation, or loud noises such as fireworks for the protection of wintering raptors; and eliminating hedgerows, shrubs, and trees within the boundaries of the project area. We agree that large solar installations have the potential to negatively impact grassland birds by breaking up open contiguous grasslands and creating disruptions that affect behavior and reproductive success of highly sensitive species. We also concur with the draft SGEIS's recommendation to use the NYSDEC's Best Management Practices for Grassland Birds on solar installations during and post-construction to minimize impacts to sensitive species. However, the use of best management practices does not negate the need to protect high-value habitat. The New York State Grassland Focus Areas, which provide grassland birds with the greatest chance of sustaining their populations, should be prioritized for conservation by the State and should be avoided when siting solar installations. As referenced above, the draft SGEIS states that if all of the needed utility-scale solar were constructed in the state's Grassland Focus Areas, it would only use 0.8 to 2.3% of the 1.4 million acres, suggesting the impact would be small. However, only a portion of the Grassland Focus Areas is actually occupied habitat for grassland birds or in a land use category that periodically becomes grassland habitat due to dynamic agricultural practices. Due to these limitations, we do not believe that it is appropriate to use the total acreage of the Grassland Focus Areas as a representation of the available habitat for grassland birds, and that the final SGEIS should	population level impacts for these bird species.

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		instead use the likely percentage of occupied or potential habitat when projecting the scope of potential adverse impacts. Additionally, the final SGEIS should provide further clarification that while "Most grassland bird species are present throughout the state", the actual extent of their occupied habitat is relatively small and not geographically disperse and several species are distributed only in specific and relatively small parts of the state. This should be reconsidered for the sections on utility-scale solar, distributed solar, and the cumulative impacts from distributed and utility-scale solar. Also, if only 0.8 - 2.3% of the area in grassland focus areas is needed to fulfill the expanded renewable energy goals of the CLCPA, it should be possible to avoid entirely the highest-quality grassland habitat occupied by listed species and construct renewable energy projects elsewhere. Grassland bird populations are in rapid decline, making it even more critical to protect the places where they are currently found. The declines also tell us that we need additional quality habitat to ensure populations are maintained and rebound. Lastly, some species, such as the Upland Sandpiper, need large uninterrupted areas of space in order to achieve reproductive success. The Upland Sandpiper prefers large grassland-associated landscapes (250 acres or more) with low levels of human disturbance, has specific habitat requirements, is highly sensitive to habitat fragmentation, and may exhibit avoidance of renewable energy infrastructure. This means that while a specific installation may only inhabit a small portion of a grassland at five acres per MW, it can provide a disturbance significant enough to displace sensitive species from the surrounding area. While individual projects will have to consider these impacts based on the species that are present in the project area, it should be noted in the final SGEIS that the impacts on habitat will not have a direct correlation to the footprint of renewable projects. In some situations, this will increase the number of acres of occupied habitat that are impacted by utility-scale solar installations and the total percentage of the Grassland Focus Areas that are affected.	

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		The draft SGEIS also states that, "Impacts on birds would occur at an individual level, however, population level impacts would not be expected to occur for any species." We take issue with this assertion. When individuals of rare, declining, and highly vulnerable species are impacted, it can cause a population-level impact. This would be the case for Henslow's Sparrow, Grasshopper Sparrow, and other grassland species in New York State. While the terms and conditions for specific projects will take the needs of these species into account, the final SGEIS should recognize that there are vulnerable bird species that can be impacted at the population level unless appropriate avoidance, minimization, and mitigation strategies are implemented.	
Audubon New York	142-4	As noted in the draft SGEIS, distributed solar has fewer impacts than utility-scale solar projects and we ask that the State pursue and incentivize distributed solar and other behind-the-meter resources wherever possible. Solar panels that are installed on rooftops, parking lots, and other man-made structures ensure that the greatest amount of habitat is left undisturbed. However, community solar has the potential to result in impacts that are similar to utility-scale solar, as noted in the draft SGEIS, and we recommend that our proposed considerations for utility-scale solar also be taken into account when developing community solar projects.	Section 1.3 has been updated to include the Build Ready Program that prioritizes abandoned or underutilized sites for development of renewable energy. Section 5.3.4 has been updated to indicate community solar project could be developed on brownfields and closed landfills.
Audubon New York	142-5	Many renewable energy projects are proposed in active agricultural landscapes, such as grasslands associated with hayfields and pastures, or in fallow fields. Because these agricultural grasslands are the primary habitats of grassland birds, many conservation professionals are concerned about the potential impact of the conversion of agricultural land. This draft SGEIS argues that development of wind or solar power may contribute to the viability of farms and the preservation of agricultural land. Specifically, it states that promoting the continuation of agricultural practices on the project site will allow for the ongoing maintenance of grassland bird habitat and preclude fallow fields from turning into inappropriate woody cover through natural succession. It also states that allowing for the siting of solar or wind projects will prevent the conversion	Section 5.2.1 discusses impacts on agricultural land from an economic and community character perspective. Impacts on grassland birds are addressed separately in Section 5.2.3.

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		of farmland to nonagricultural purposes such as commercial or residential development, which may permanently destroy suitable grassland bird habitat. However, it is important to keep in mind that although farming practices may continue in areas where wind turbines or solar panels are installed, those agricultural areas may not provide suitable habitat to nesting or wintering grassland birds, especially for highly at-risk birds like the Upland Sandpiper (discussed above). Therefore, it should never be assumed that development of renewable energy will help maintain quality grassland bird habitat by contributing to farm viability. Farm viability and continuation of agriculture are not substitutions for adequate habitat mitigation for such at-risk species, and should not be considered a conservation benefit in these cases.	
Audubon New York	142-6	In Chapter 9, the draft SGEIS states that "The development of large-scale renewable resources and distributed solar generation would support the objectives of the CLCPA and the State to combat climate change which would benefit sensitive species." According to the draft SGEIS, this would include the protection of grassland birds, as, "An emerging threat to grassland bird species is the warming of global temperatures. The National Audubon Society's North American Grasslands and Birds Report state[s] that solutions to carbon emissions are needed to protect grassland birds." We are concerned with the way that Audubon's Grassland Bird report is cited in the draft SGEIS and that its relevance to this issue has been misconstrued. The main takeaway of that report is that in addition to protecting remaining grasslands, we must also advance solutions that reduce carbon emissions, and prioritize and direct resources and other investments to the places that will support grassland birds and other wildlife into the future. It is not a valid conclusion from that report that mitigating climate change through the development of renewables is more important than protecting critical habitat for those species. Even in a best-case scenario, following the leadership that New York State is providing through the CLCPA, it will be years before atmospheric greenhouse gases	Sections 5.2 and 5.5 discuss the potential impacts on birds, including displacement, disturbance, and loss or conversion of habitat. Potential benefits discussed in Chapter 9 would not replace the need for project-specific agency consultations and careful avoidance, minimization, and mitigation measures. See response to Comment 142-3 regarding potential impacts to grassland birds.

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		and the global climate are stabilized and it will depend on other states and countries across the world taking similar actions. In the interim, temperatures will continue to rise and we will be forced to confront the immediate impacts of climate change through coordinated climate adaptation projects. Long-term survival of threatened and endangered grassland bird species requires that we ensure their short-term survival by continuing to protect occupied habitat to the maximum extent possible and ensuring that appropriate mitigation takes place where that is impracticable – as we do our utmost to contribute to solving the global climate crisis. A suitable climate does not help birds that are lacking suitable habitat. We must maintain or increase population levels, especially species that are already experiencing notable population declines, to help them adapt while we wait for the benefits of climate mitigation efforts to have a positive impact on our currently projected global warming.	
Liberty Utilities	143-1	On behalf of St. Lawrence Gas, a natural gas-only distribution company based in Massena and serving approximately 16,000 customers in St. Lawrence, Franklin and Lewis counties, we believe the DSGEIS is incomplete in its current format. In particular, we find that the DSGEIS does not address the use of renewable natural gas ("RNG") and hydrogen that we believe are an important set of tools to enable New York State to meet the CLCPA's aggressive emissions reduction goals. Evidence shows that the production and use of RNG and hydrogen will enable deeper and faster decarbonization – especially of hard-to-decarbonize sectors like heavy industry and building heat in cold climates – than policy-driven electrification alone. We firmly believe further consideration should be given to these important tools and their potential contribution to reach the CLCPA's objectives.	See response to Comment 1-2 regarding qualified renewable energy systems. Renewable natural gas and hydrogen produced from natural gas are not qualified renewable energy systems under the CLCPA.

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		Further, the DSGEIS must balance the imperatives of reaching the state's aggressive climate action targets while still supporting the North Country's fragile economy. Economic justice and environmental justice concerns are critical components for the CLCPA in rural as well as urban areas. Employing RNG and hydrogen is particularly pressing in the North Country, where our cold climate makes other emerging thermal energy technologies far less effective, and economic indicators lag behind the rest of the state. The state's climate differs significantly from Manhattan to Massena, and winter temperatures pose a particular challenge as we work to find the path forward to decarbonize our energy sources in the North Country. Heating degrees days in the North Country ranged from 7,391 to 8,271 between 2015-19 compared to a statewide average range of 5,642 to 6,203. Heating degree days in New York City during that same period ranged from 3,978 to 4,565. Thermal energy solutions that make sense for New York City will often be inadequate to keep North Country families and businesses warm in the winter. For example, electric-powered air source heat pumps are ill-suited to handle North Country winters, especially in communities with older housing stock. Utilizing existing natural gas distribution systems to deliver clean, renewable fuel can be a more efficacious alternative. That's why it is important to include options like RNG and hydrogen as tools to reduce carbon emissions, protect the environment and continue to provide customers with safe, reliable and affordable energy. The recent energy-related challenges on Long Island are just the latest example of the critical need for reliable utility service, reliability that is even more critical during the dark of winter in the North Country. Emission-free hydrogen and low-, zero-, or negative-carbon RNG can be produced locally from abundant local feedstock, to provide sustainable fuel for heating homes and businesses and fueling our transportation sector. Additionally, RNG production from agricultural waste also serves as a waste-management solution, and actively sequesters methane emissions,	

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		while strengthening the economic outlook for the dairy industry, the driver of our region's economy, here in the North Country. Importantly, hydrogen energy systems can provide the most cost-effective, longest duration storage solution for intermittent renewable power generation from wind, solar and hydro, increasing the effective capacity factor of existing generators and enabling greater clean power development in the future. The North Country communities we serve are poised to lead the way, with their abundant renewable power resources, ready workforce, and highly capable academic research institutions. By some estimates, New York has an estimated RNG technical production capacity of 271 Bcf,, with much of that located in the North Country. Liberty Utilities (St. Lawrence Gas) Corp's strategy for integrating hydrogen into New York's energy economy will leverage the investment our customers have already made in our existing natural gas distribution system. We have proven our expertise providing "pipes-in-the-ground" service with the unique characteristics of the North Country communities that we serve. Our priority remains reducing the greenhouse gas emissions profile of our entire service territory, while providing affordable, efficient thermal energy to homes and businesses. Expanded natural gas service has already been responsible for significant carbon emission reductions in the North Country as homes and businesses have switched from oil to gas, and we are equally as confident that emerging RNG and hydrogen technologies will allow us to dramatically reduce emissions even further. We firmly believe utilizing existing pipes in the ground as hydrogen storage for operating peak shaving electric plants ("P2G") is a very real	

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		storage solution. P2G can provide stored power in a way that battery storage technology will never be able to. For example, the biggest battery in the world (a 1200MWh lithium-ion facility) could only supply a quarter of NYC's electricity for about a half-hour. Strategically located hydrogen P2G plants on the various existing natural gas systems could fill the renewables generation gap. Furthermore, as stated in National Fuel Gas Distribution Corporation's comments previously submitted to the Commission, RNG and P2G are recognized emission reduction solutions. To quote: "The New York State Energy Research and Development Authority (NYSERDA), whose Acting President is co-chair of New York's Climate Action Council (CAC or the Council), commissioned Energy + Environmental Economics (E3) to develop a strategic analysis of New York's decarbonization opportunities. E3's report on that topic was recently presented at the Council's June 24, 2020 meeting." "The CAC indicated that E3's report is intended to serve as a starting point to inform the work of the Council and its advisory panels in their deliberations, as they develop the strategies and pathways that will be needed to achieve the goals of the CLCPA. E3's Presentation includes several important findings that highlight the need for New York to develop and utilize a broad portfolio of energy options, including RNG and P2G." "Both "starting point" pathways discussed by E3 in its Report envision the use of advanced biofuels to achieve the CLCPA's emission reduction goals10, and throughout its Report and Presentation E3 identifies bioenergy/fuels like RNG and P2G as potential contributors to emission reductions in multiple sectors, including power, transportation, buildings and industry. E3 also recognizes that as the share of intermittent resources like wind and solar grow substantially, studies have suggested that complementing those resources with firm, zero-emission resources such as bioenergy, synthesized fuels such as hydrogen and other resources could provide a number of benefits."	

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		"E3's Report and Presentation conclude with the important acknowledgement that flexibility along multiple dimensions is key to maintaining reliability and reducing cost, particularly when faced with the difficult challenge during winter periods of high heating loads and very low renewable energy production. During those periods E3 indicates that a combination of resources is advisable, including RNG or synthetic fuels such as hydrogen, among others." Liberty Utilities is already actively pursuing opportunities to decarbonize our fuel supply and developing innovative alternative delivery systems to enable emerging RNG and hydrogen technology. We are currently in the process of evaluating pilot projects for local RNG and hydrogen production and distribution facilities in New York. With the urgency for climate action growing every day, it is more crucial than ever to craft policy solutions that will make the elimination of greenhouse gas emissions not just more likely, but certain. Adding hydrogen and RNG to the mix is critical to making that happen in a timely fashion. To that end, we believe DSGEIS should give further consideration to these important tools and their potential contribution to reach the CLCPA's objectives. Liberty Utilities (St. Lawrence Gas) Corp. requests the Commission not accept the DGSEIS as final but instead direct that a further supplement be added to include analysis of the use of RNG and hydrogen as discussed in these comments.	

B Revisions to the Draft Supplemental Generic Environmental Impact Statement

This appendix represents the edits made to the Draft Supplemental Generic Environmental Impact Statement (SGEIS) and captures any new information that may have been added.

EXCUTIVE SUMMARY

- Revised to reflect the public notice and comment period on the Draft SGEIS.

CHAPTER 1: SEQRA AND DESCRIPTION OF THE PROPOSED ACTION

- Added description of the DPS and NYSERDA White Paper.

1.1 The New York State Environmental Quality Review Act

- Revised to reflect the public notice and comment period on the Draft SGEIS.

1.2 Purpose of this SGEIS

Revised to reflect new description of potential hydropower impacts considered as part of the proposed Tier 4.

1.3 Relationship to Other Plans and Programs

- Added description of the Build Ready Program, the Accelerated Renewable Energy Growth and Community Benefit Act, and the Climate Action Council.

CHAPTER 2: DESCRIPTION OF CHANGES

2.2 Energy forecasts

- Added description of forecasted energy generation from the White Paper.

2.3.3 Hydropower

- Added description of proposed Tier 4 and changes in technology regarding hydroelectric energy.

CHAPTER 5: AREAS OF POTENTIAL ENVIRONMENTAL IMPACT

5.3.4 Birds and Bats

- Expanded discussion of potential environmental impacts on migratory birds.

5.5 Hydropower

- Added discussion of potential environmental impacts from hydropower projects.

CHAPTER 6: Alternatives Considered

- Added discussion of No Action alternatives on disadvantaged communities.

CHAPTER 9: Growth-Inducing Aspects and Socioeconomic Impacts

9.2 Potential Program Costs

- Added updated program costs from the White Paper.

9.3 Potential Program Benefits

- Added updated program benefits from the White Paper.

APPENDIX A: RESPONSES TO COMMENTS ON THE DRAFT SUPPLIMENTAL ENVIRONMENTAL IMPACT STATEMENT

- Incorporated to include responses to public comments.