New York State Great Lakes Wind Energy Feasibility Study: State and Federal Permitting Roadmap

Final Report | Report Number 22-12k | December 2022

NEW YORK STATE | NYSERDA

NYSERDA's Promise to New Yorkers:

NYSERDA provides resources, expertise, and objective information so New Yorkers can make confident, informed energy decisions.

Our Vision:

New York is a global climate leader building a healthier future with thriving communities; homes and businesses powered by clean energy; and economic opportunities accessible to all New Yorkers.

Our Mission:

Advance clean energy innovation and investments to combat climate change, improving the health, resiliency, and prosperity of New Yorkers and delivering benefits equitably to all.

New York State Great Lakes Wind Energy Feasibility Study: State and Federal Permitting Roadmap

Prepared for:

New York State Energy Research and Development Authority

Albany, NY

Prepared by:

Worley Group, Inc. (dba Advisian)

NYSERDA Report 22-12k NYSERDA Agreement 163855 December 2022

Notice

This New York State Great Lakes Wind Energy Feasibility Study: State and Federal Permitting Roadmap was prepared by Worley Group Inc. (dba Advisian) in the course of performing work contracted for and sponsored by the New York State Energy Research and Development Authority (hereafter "NYSERDA"). The opinions expressed in this document do not necessarily reflect those of NYSERDA or the State of New York, and reference to any specific product, service, process, or method does not constitute an implied or expressed recommendation or endorsement of it. Further, NYSERDA, the State of New York, and the contractor make no warranties or representations, expressed or implied, as to the fitness for particular purpose or merchantability of any product, apparatus, or service, or the usefulness, completeness, or accuracy of any processes, methods, or other information contained, described, disclosed, or referred to in this report. NYSERDA, the State of New York, and the contractor make no representation that the use of any product, apparatus, process, method, or other information will not infringe privately owned rights and will assume no liability for any loss, injury, or damage resulting from, or occurring in connection with, the use of information contained, described, disclosed, or referred to in this report.

NYSERDA makes every effort to provide accurate information about copyright owners and related matters in the reports we publish. Contractors are responsible for determining and satisfying copyright or other use restrictions regarding the content of reports that they write, in compliance with NYSERDA's policies and federal law. If you are the copyright owner and believe a NYSERDA report has not properly attributed your work to you or has used it without permission, please email print@nyserda.ny.gov

Information contained in this document, such as web page addresses, are current at the time of publication.

Preferred Citation

New York State Energy Research and Development Authority (NYSERDA). 2022. "New York State Great Lakes Wind Energy Feasibility Study: State and Federal Permitting Roadmap," NYSERDA Report Number 22-12k. Prepared by, Worley Group, Inc. (dba Advisian), Reading, PA. nyserda.ny.gov/publications

Abstract

The Great Lakes Wind Energy Feasibility Study investigates the feasibility of adding wind generated renewable energy projects to the New York State waters of Lake Erie and Lake Ontario. The study examines myriad issues, including environmental, maritime, economic, and social implications of wind energy areas in these bodies of freshwater and the potential contributions of these projects to the State's renewable energy portfolio and decarbonization goals under the New York State Climate Act.

The study, which was prepared in response to the New York Public Service Commission Order Case 15-E-0302, presents research conducted over an 18-month period. Twelve technical reports were produced in describing the key investigations while the overall feasibility study presents a summary and synthesis of all twelve relevant topics. This technical report offers the data modeling and scientific research collected to support and ascertain Great Lakes Wind feasibility to New York State.

To further inform the study in 2021, NYSERDA conducted four public webinars and a dedicated public feedback session via webinar, to collect verbal and written comments. Continuous communication with stakeholders was available through greatlakeswind@nyserda.ny.gov NYSERDA's dedicated study email address. Additionally, NYSERDA and circulated print advertisements in the counties adjacent to both Lake Erie and Lake Ontario as to collect and incorporate stakeholder input to the various topics covered by the feasibility study.

Keywords

Permitting, regulation, Lake Ontario, Lake Erie, Great Lakes Wind, policy

Table of Contents

Notice ii
Preferred Citation ii
Abstract iii
Keywords iii
List of Figures vii
List of Tables viii
Acronyms and Abbreviations ix
Summary S-1
1 Introduction 1
2 Methodology 2
2.1 Process Flow Charts 3
2.2 Assumptions and Limitations 4
3 Federal and State Regulatory Approvals and Permitting 5
3.1 Federal Regulatory Approvals and Permitting 6
3.1.1 National Environmental Policy Act Review 6
3.1.2 Criteria and Thresholds 8
3.1.3 US Army Corps of Engineers Clean Water Act Section 404 and Rivers and Harbors Act Section 10 Permit and Section 408 Review 10
3.1.3.1 Approval Criteria and Thresholds 12
3.1.3.2 Integration with NEPA 13
3.1.4 US Fish and Wildlife Service Activities for Endangered Species Act, Migratory Bird Treaty Act, and Bald and Golden Eagle Protection Act, and Fish and Wildlife Coordination Act 14
3.1.4.1 Endangered Species Act (ESA) 14
3.1.4.2 Bald and Golden Eagle Protection Act (BGEPA) 18
3.1.4.3 Fish and Wildlife Conservation Act (FWCA) 19
3.1.4.4 Approval Criteria and Thresholds 19
3.1.5 National Historic Preservation Act Section 106 Consultation 22
3.1.5.1 Approval Criteria and Thresholds 23
3.1.6 USCG Consultation and Private Aids to Navigation Permit, Navigational Safety Risk Assessment 24
3.1.6.1 Approval Criteria and Thresholds 26
3.1.7 *Federal Aviation Act* Obstruction Evaluation 27
3.1.7.1 Approval Criteria and Thresholds 29

3.1.8 National Marine Sanctuary Permitting 30
3.2 New York State Regulatory Approvals and Permitting 33
3.2.1 Office of Renewable Energy Siting Major Renewable Energy Facility Permit 33
3.2.1.1 Approval Criteria and Thresholds 35
3.2.2 State Environmental Quality Review Act 35
3.2.2.1 Approval Criteria and Thresholds 36
3.2.3 New York State Department of Environmental Conservation Permits Governed by the Uniform Procedures Act 38
3.2.3.1 Clean Water Act Section 401 Water Quality Certification 39
3.2.3.2 Approval Criteria and Thresholds 39
3.2.3.3 Excavation or Placement of Fill in Navigable Waters Permit 40
3.2.3.4 Approval Criteria and Thresholds 41
3.2.3.5 Coastal Erosion Hazard Area (CEHA) Permit 42
3.2.3.6 Approval Criteria and Thresholds 43
3.2.3.7 Incidental Take Permit 44
3.2.4 Coastal Zone Management Act and the New York State Coastal Management Program 48
3.2.4.1 Approval Criteria and Thresholds 49
3.2.5 Easements of Lands Underwater 50
3.2.5.1 Approval Criteria and Thresholds 51
3.2.6 New York Public Service Law Article VII 52
3.2.6.1 Approval Criteria and Thresholds 54
3.2.7 Points of Collaboration 55
4 Comprehensive Process Overview 59
4.1 Scenario 1 Process Flowchart 60
4.2 Scenario 2 Process Flowchart 66
4.3 Discussion of Permitting Scenarios 68
5 Case Studies: Permitting Challenges and Lessons Learned from Comparable Wind Energy Projects 70
5.1 Icebreaker Wind 70
5.1.1 Background 70
5.1.2 Permitting Challenges 72
5.2 Galloo Island 73
5.2.1 Background 73
5.2.2 Permitting Challenges 75
5.3 Lighthouse Wind 76
5.3.1 Background 76

5.3.2 Permitting Challenges 77
5.4 Trillium Power Wind 1 77
5.5 Nautilus Offshore Wind 79
5.5.1 Background 79
5.5.2 Permitting Challenges 79
5.6 Block Island Windfarm 79
5.6.1 Background 79
5.6.2 Permitting Challenges 81
5.7 Cape Wind 81
5.7.1 Background 81
5.7.2 Permitting Challenges 83
5.8 Other Freshwater Windfarms 84
6 Risks and Opportunities 86
6.1 Risks 86
6.1.1 Grass Roots Community Opposition 86
6.1.2 Policy Uncertainty and Compliance with Migratory Bird Treaty Act 86
6.1.3 Citizen Suits Over National Environmental Policy Act and Other Federal Statutes 87
6.1.4 New York State Article 78 88
6.1.5 New York State Submerged Lands Easements and Adjacent Upland Landowners 88
6.1.6 New York State Accelerated Renewable Energy Growth and Community Benefit Act (94-c) 89
6.1.7 Proposed Lake Ontario National Marine Sanctuary 89
6.1.8 New York State Agency Discretion Over Great Lakes Wind Authorization 90
6.2 Opportunities 90
6.2.1 Contributions to New York State Climate Goals 90
6.2.2 Fixing America's Surface Transportation Act 90
6.2.3 New York State Accelerated Renewable Energy Growth and Community Benefit Act 91
6.2.4 Eliminating Redundancies Among Federal and State Reviews 91
6.2.5 Optimizing Mitigation Plans Across Multiple Permitting Processes 91
6.2.6 Optimize the Project Relative to the Permitting Risks 92
6.2.7 Leveraging Studies for Multiple Permits 93
7 Recommendations 95
8 Materials and Studies Needed for Permit Applications 97
9 References 110
Endnotes EN-1

List of Figures

Figure 1. Illustrative Example Cross-Functional Flow Chart 3
Figure 2. Overview of National Environmental Policy Act (NEPA) Process 7
Figure 3. Overview of U.S. Army Corps of Engineers (USACE) Permitting Process.....12
Figure 4. Overview of the U.S. Fish and Wildlife Service (USFWS) Consultation Process 17
Figure 5. Eagle Management Units Established in Bald and Golden Eagle Protection Act (BGEPA) Regulations.....18
Figure 6. Overview of the National Historic Preservation Act (NHPA) Section 106 Consultation Process.....23
Figure 7. Overview of the Private Aid to Navigation (PATON) Permitting Process 25
Figure 8. Overview of the Federal Aviation Administration (FAA) Obstruction Evaluation Process.....28
Figure 9. Overview of the Accelerated Renewable Energy Growth and Community Benefit Act Process 34
Figure 10. Overview of State Environmental Quality Review Act (SEQRA) Process 36
Figure 11. Overview of Clean Water Act (CWA) Section 401 Water Quality Certification (WQC) Process 39
Figure 12. Overview of the Protection of Waters Permit Process 41
Figure 13. Overview of Coastal Erosion Hazard Area (CEHA) Process 43
Figure 14. Overview of Incidental Take Permit Process 47
Figure 15. Overview of the Coastal Zone Management Act (CZMA) Consistency Certification Process.....49
Figure 16. Overview of New York State Easement of Lands Underwater Process 51
Figure 17. Overview of Article VII Process 54
Figure 18. Scenario 1 Utility-Scale Project 61
Figure 19. Scenario 2 Demonstration-Scale Project.....67
Figure 20. Proposed Icebreaker Wind Location (Pollack 2020) 71
Figure 21. Proposed Location of the Apex Clean Energy Galloo Island Wind Project 73
Figure 22. Map of Proposed Turbine Placement—Lake Ontario 76
Figure 23. Proposed Location of Trillium Power Wind 1 in Lake Ontario 78
Figure 24. Location of Block Island Windfarm in Rhode Island.....80
Figure 25. Proposed Location of Cape Wind Energy Project.....82

List of Tables

Table 1. Sample Summary Table 5
Table 2. Summary of National Environmental Policy Act (NEPA) Review Requirements 10
Table 3. Summary of Clean Water Act (CWA) Section 404/Rivers and Harbors Act (RHA) Section 10 and Section 14 Review Requirements 14
Table 4. Overview of Federal Endangered Species Act (ESA) Listed Species Within Study Area 15
Table 5. Summary of Endangered Species Act (ESA) Section 7 Consultation Review Requirements 21
Table 6. Summary of National Historic Preservation Act (NHPA) Section 106 Consultation Review Requirements 24
Table 7. Summary of Private Aid to Navigation Permit (PATON) Requirements 27
Table 8. Summary of Federal Aviation Administration (FAA) Obstruction Evaluation Requirements 29
Table 9. Summary of National Oceanic and Atmospheric Administration (NOAA) National Marine Sanctuaries Permitting 32
Table 10. Summary of Accelerated Renewable Energy Growth and Community Benefit Act Requirements 35
Table 11. Summary of State Environmental Quality Review Act (SEQRA) Requirements 38
Table 12. Summary of Clean Water Act (CWA) Section 401 Certification Review Requirements 40
Table 13. Summary of Dredge and Fill Permit Review Requirements 42
Table 14. Summary of Coastal Erosion Hazard Area (CEHA) permit Review Requirements 44
Table 15. Overview of Number of New York State Environmental Conservation Law (ECL)-Listed Species Within Study Area 45
Table 16. Summary of Incidental Take Permit Details 48
Table 17. Summary of Coastal Zone Management Act (CZMA) Consistency Review Requirements 50
Table 18. Summary of Easements of Lands Underwater Requirements 52
Table 19. Summary of Article VII Requirements 55
Table 20. Freshwater Windfarms Worldwide 84
Table 21. Summary of Permitting Challenges Experienced by Past Projects 85
Table 22. Common Forms, Materials, Studies, and Plans Across Permit Applications 94
Table 23. Materials and Studies for Permit Application 97

Acronyms and Abbreviations

ABC	American Bird Conservancy
ACHP	Advisory Council on Historic Preservation
AIS	Automatic Identification Systems
APA	Administrative Procedures Act
AREGCBA	Accelerated Renewable Energy Growth & Community Benefit Act
BA	biological assessment
BGEPA	Bald and Golden Eagle Protection Act
BPU	Board of Public Utilities
BSBO	Black Swamp Bird Observatory
CE	categorical exclusion
CEHA	Coastal Erosion Hazard Areas
CECPN	Certificate of Environmental Compatibility and Public Need
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CMP	Coastal Management Plan
CRIS	Cultural Resource Information System
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DOD	Department of Defense
DOE	Department of Energy
DOI	Department of the Interior
DOJ	Department of Justice
EA	environmental assessment
EAF	environmental assessment Form
ECL	Environmental Conservation Law
EIS	Environmental Impact Statement
EJ	environmental justice
EM&CP	Environmental Management and Construction Plan
EMU	eagle management units
EO	executive order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FAST	Fixing America’s Surface Transportation Act
FCAF	Federal Consistency Assessment Form
FCC	Federal Communications Commission
FONSI	finding of no significant impact

FR	Federal Register
ft	feet
FWCA	Fish and Wildlife Act
GP	General Permit
IJC	International Joint Commission
JAF	Joint Application Form
km	kilometer
kV	kilovolt
kW	kilowatt
LCA	Lake Carrier Association
LEEDCo	Lake Erie Development Corporation
LWRP	Local Waterfront Revitalization Plans
m	meters
MBTA	Migratory Bird Treaty Act
mi	miles
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MW	megawatts
NAW	North America Windpower
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHPO	National Historic Preservation Office
NMFS	National Marine Fisheries Service
NMSA	National Marine Sanctuaries Act
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NSRA	Navigational Safety Risk Assessment
NYCRR	New York Codes, Rules and Regulations
NYSEXC	New York State Executive (EXC)
NYSDEC	New York State Department of Environmental Conservation
NYSDOS	New York State Department of State
NYSDOT	New York State Department of Transportation
NYSDPS	New York State Department of Public Service
NYSERDA	New York State Energy Research and Development Authority
NYSOGS	New York State Office of General Services
NYSPSC	New York State Public Service Commission (PSC)
ONMS	Office of National Marine Sanctuaries
OPSB	Ohio Power Siting Board
OPDCI	Office of Planning, Development, & Community Infrastructure

ORES	Office of Renewable Energy Siting
PARS	Port Access Route Study
PATON	Private Aid to Navigation
PBL	Public Lands Law
PERM	permit
PPA	Power Purchasing Agreement
PSL	Public Service Law
PUC	Public Utilities Commission
RHA	Rivers and Harbors Act
RI	Rhode Island
ROD	Record of Decision
ROW	right-of-way
SEQR	State Environmental Quality Review
SEQRA	State Environmental Quality Review Act
SHPA	State Historic Preservation Act
SHPO	State Historic Preservation Office
SOS	Save Our Shores
THPO	Tribal Historic Preservation Office
TPW1	Trillium Power Wind 1
UPA	Uniform Procedures Act
U.S.C.	U.S. Code
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard (CG)
USFWS	U.S. Fish and Wildlife Service
WQC	Water Quality Certification

Summary

This State and Federal Permitting Roadmap and Study, hereafter referred to as the "study," was prepared to support The New York State Energy Research and Development Authority's (NYSERDA's) Great Lakes Wind Feasibility Study. The current study contains the results of a review of the major federal, state, and utility permitting and regulatory authorizations that would likely be required for Great Lakes Wind (GLW) projects in Lake Ontario and Lake Erie in the territorial waters of New York State. Because no such Great Lakes Wind project has been fully permitted and developed to date, the regulatory analysis in this document draws on expert interpretation of current state and federal policy, experience with comparable wind energy projects, and relevant agency guidance. Some of the regulatory processes or combinations of processes described as applicable to Great Lakes Wind are not only new to U.S. wind, but new to the state of New York as of 2021 (e.g., the Accelerated Renewable Energy Growth and Community Benefit Act and its implementation alongside New York Public Service Law Article VII). As a result, there is some ambiguity in how these processes would be utilized for Great Lakes Wind; this study provides the best available information regarding which statutes will apply for different windfarm size and transmission line length scenarios.

The purpose of this document is to provide NYSERDA and the public with an assessment, based on the best information available, of the likely permitting and regulatory processes for siting and developing New York Great Lakes Wind projects. While an evaluation of site-specific permit conditions and permitting outcomes is beyond the scope of the study, these findings provide critical information on the key regulatory and permitting processes, agencies involved, lessons learned from similar projects, and recommendations to ensure an efficient permitting process that would allow for maximum input and consideration from the public and other key stakeholders.

S.1 Permitting and Regulatory Review

This review focuses on permitting of construction and operation of windfarms and underwater cables. Other activities that may require permits (not described here) include port development and pre-development studies and surveys, such as metocean and environmental data collection and geophysical surveys. Pre-construction geophysical and geotechnical surveys may be covered under U.S Army Corps of Engineers (USACE) Nationwide Permit 6, which would undergo New York State Department of State (NYSDOS) review. Permits may also be required from NYSDEC to conduct geophysical and geotechnical surveys. In addition to the State permitting described herein, if

transmission lines have a design capacity of 100 kilovolt (kV) or more and extend 16 kilometers (km; 10 miles [mi]) or more, or a design capacity of 125 kV or more and extend a distance of 1.6 km (1 mi) or more, they would be subject to New York Public Service Law Article VII "Siting of Major Utility Transmission Facilities." Under Article VII, the Public Service Commission (NYSPSC) would control required approvals (e.g., wetlands and coastal erosion permitting if applicable) except those permits issued under a federally delegated or pursuant to federally approved environmental permitting programs or federal consistency review pursuant to the federal Coastal Zone Management Act (CZMA). It is possible Great Lakes Wind transmission projects could be advanced through the Accelerated Renewable Energy Growth and Community Benefit Act, for which the NYSPSC adopted criteria in October 2020, and regulations became effective on March 3, 2021. With respect to power purchase, renewable energy from Great Lakes Wind could be procured through several mechanisms to meet New York State's Clean Energy Standard including through Tier 1 Renewable Energy Credits, a separate procurement, or possibly a new Tier under the Renewable Energy Standard.

This study presents and assesses 15 major federal and State permitting or regulatory requirements for New York Great Lakes Wind. The federal processes for Great Lakes Wind are largely driven by or tied to the National Environmental Policy Act (NEPA) review process which is likely to be triggered by issuance of a permit by USACE and involve consultations and review by the U.S. Fish and Wildlife Service (USFWS), State and Tribal Historic Preservation Offices (SHPO/THPO), U.S. Coast Guard (USCG), and Federal Aviation Administration (FAA).

At the New York State level, regulatory permitting and reviews can vary depending upon windfarm size and transmission line length. Windfarms with nameplate capacity of 25 MW (megawatt) and above are designated major renewable energy projects under New York State law (Section 94-c of New York State Executive Law), and therefore undergo a process under the Accelerated Renewable Energy Growth and Community Benefit Act, administered by the Office of Renewable Energy Siting (ORES). Projects with nameplate capacity of at least 20 MW and less than 25 MW may "opt-in" to undergo 94-c permitting. As described above, projects including major utility transmission facilities, which are defined to include electric transmission lines of length 1.6 km (1 mi) or longer and capacity of 125 kV or more, or lines 16 km (10 mi) or longer with capacity of 100 kV or more are subject to Article VII. Projects below the thresholds described above for 94-c may be subject to State Environmental Quality Review Act (SEQRA) and several permits from the New York State Department of Environmental Conservation (NYSDEC). An easement must be obtained by the developer for the New York State submerged lands upon which a GLW project would be built from the New York State Office of General Services

(NYSOGS). The transmission cables would also require an easement by the developer for the NYS submerged lands upon which the transmission cable crosses from the New York State Office of General Services (NYSOGS § 3(2) PBL [Public Lands Law]). The New York State submerged lands upon which a Great Lakes Wind project would be built must be leased to the developer through a New York State easement of lands underwater from NYSOGS. Legislation would have to be passed to allow the State to convey an easement. Without such legislation, no structure would be allowed even if all permits and regulatory requirements were obtained. It is also possible that transmission cables may traverse private lands, in which case a private party would be involved with land use. The 15 major regulatory processes are summarized in Table S-1.

Table S-1. Summary of Major Federal and State Permitting and Regulatory Reviews

Permit or Regulatory Requirement	Covered Activities	Statute	Regulations	Authorizing Agency
NEPA Review	Major federal action such as granting a federal permit.	42 United States Code (U.S.C.) §4321 et seq	Council on Environmental Quality (CEQ): 40 *Code of Federal Regulations* (CFR) Parts 1500-1508 USACE: 33 CFR §230.9	Lead federal agency, such as USACE
***Clean Water Act* (CWA) Section 404/*Rivers and Harbor Act* (RHA) Section 10 Permit/RHA Section 408 Review (if project overlaps with USACE project water/lands)**	Excavation or placement of dredged or fill in waters of the U.S. Construction of structures or obstructions in navigable waters. Alterations of submerged lands or waters occupied or used by a USACE project.	33 U.S.C. § 1344 33 U.S.C. § 403 33 U.S.C. § 408	33 CFR Part 323 33 CFR Part 322	USACE Buffalo District

Table S-1 continued

Permit or Regulatory Requirement	Covered Activities	Statute	Regulations	Authorizing Agency
USFWS Consultation and Other Reviews	Federal activities that potentially threaten protected species.	16 U.S.C. 1531-1544 *Endangered Species Act* (ESA) 16 U.S.C. 703–712 *Migratory Bird Treaty Act* (MBTA) 16 U.S.C. 668-668c *Bald and Golden Eagle Protection Act* (BGEPA) 16 U.S.C. 661-666c *Fish & Wildlife Coordination Act* (FWCA)	50 CFR Parts 17 and 400 (ESA) 50 CFR Part 21 (MBTA) and Proposed rulemaking for MBTA permitting process (86 Federal Register [FR] 54667) 50 CFR § 22 (BGEPA)	U.S. Fish and Wildlife Service (USFWS)
CWA Section 401 Certification	Federal action that discharges to navigable waters of the U.S.	33 U.S.C. 1341	40 CFR § 121 (federal) 6 New York Codes, Rules, and Regulations (NYCRR) 608.9 621.4 (b) Article VII New York Public Service Law (state)	NYSDEC, New York State Department of Public Service (NYSDPS), and/or ORES (State)
***National Historic Preservation Act* (NHPA) Section 106 Consultation**	Impacts to historical properties.	54 U.S.C. § 306108	36 CFR Part 800	Lead NEPA agency (depends on how Section 106 is completed), SHPO and THPO.
Private Aid to Navigation Permit	Obstructions or hazards to navigation.	14 U.S.C. 542, 543, 544; 43 U.S.C. 1333	33 CFR §62, 64, 66 et seq	USCG
FAA Obstruction Evaluation	Hazards to air navigation.	49 U.S.C. § 106	14 CFR Part 77	FAA
National Oceanic and Atmospheric Administration (NOAA) National Marine Sanctuaries Section 304(d) Consultation*	To be determined upon sanctuary designation.	16 U.S.C. § 1431 et seq	15 CFR Part 922	NOAA Office of National Marine Sanctuaries.
***Accelerated Renewable Energy Growth and Community Benefit Act* (94-c)**	Major renewable energy project siting and permitting.	NYSEXC (Executive) § 94-c	19 NYCRR Part 900	ORES

Table S-1 continued

Permit or Regulatory Requirement	Covered Activities	Statute	Regulations	Authorizing Agency
SEQRA Review	Discretionary state agency activities not covered by *Accelerated Renewable Energy Growth and Community Benefit Act.*	Environmental Conservation Law (ECL) Article 8	6 NYCRR Part 617	Lead state agency or delegated local agency or certified municipality.
***Coastal Zone Management Act* (CZMA) Consistency Review**	Federal activities affecting New York State's coastal zone.	16 U.S.C. Chapter 33	15 CFR Part 930	NYSDOS
New York State Excavation and Fill Permit	Excavation or placement of dredged or fill in New York State waters.	ECL § 15-0501 (2015)	6 NYCRR 608	NYSDEC (if not reviewed under Article VII or 94-c).
Easement of Lands Underwater	Structures located on state submerged lands.	NYS PBL (Public Lands Law) § 75	9 NYCRR Part 270	NYSOGS
Coastal Erosion Hazard Areas (CEHA) Permit	Activities in designated CEHA areas.	ECL § 34-0102	6 NYCRR Part 505	NYSDEC or delegated certified municipality (if not reviewed under Article VII or 94-c).
New York State Incidental Take Permit	Take of New York State listed species.	ECL § 9-1503 (plants) ECL § 11-0535 (animals)	6 NYCRR Part 193.3 (protected native plants) 6 NYCRR Part 182	NYSDEC (if not reviewed under Article VII or 94-c).
Article VII	Certificate of Environmental Compatibility and Public Need.	PSL (Public Service Law)0 Article VII	16 NYCRR Subpart 85-2	NYSPSC

* Currently there is no National Marine Sanctuary in New York State waters in Lakes Erie and Ontario, but because a sanctuary is proposed for Lake Ontario, the consultation process for sanctuaries is discussed in this review. Notice of Intent to Conduct Scoping and Prepare a Draft Environmental Impact Statement for a sanctuary in Lake Ontario was published April 17, 2019 (84 FR 16004), and a Draft Environmental Impact Statement and Draft Management Plan were made available for public comment July 7, 2021 (86 FR 35757). Although this Feasibility Study focuses on permitting for the in-water infrastructure, additional permits will be applicable for terrestrial activities, such as port and utility development. For example, coordination and review would be performed by NYS Department of Transportation for terrestrial utility line installation and other terrestrial activities. Approval from NYS Department of Transportation and the Federal Highway Administration is separate and apart from the NYSPSC Article VII process (see 17 NYCRR 131.4). A Certificate of Public Convenience and Necessity pursuant to PSL Section 68 may also be required.

S.2 Risks and Opportunities

This study discusses risks and opportunities posed by the permitting and regulatory review processes presented above. In this context, risk refers to the hurdles or difficulties that Great Lakes Wind projects could face which could impede project activities. Opportunities refers to increases in the efficiency of the processes, the likelihood of successful permitting, and synergies among the permitting processes.

S.2.1 Risks

- **Policy Uncertainty and Compliance with Migratory Bird Treaty Act:** New York State's territorial waters within Lake Ontario and Lake Erie are habitat for numerous species of birds covered under MBTA. Under MBTA, violations are a criminal offense, but there is proposed legislation that would allow use of civil penalties (House of Representatives 116-482 Migratory Bird Protection Act of 2020). There is discussion by USFWS regarding a general permit for MBTA take that may be out in proposal form by the end of 2022 (86 FR 54667). Whether the MBTA protects birds from incidental or accidental takes, as opposed to purposeful take, has been debated for years. Bill 116-482 also seeks to codify MBTA as including incidental take. On January 7, 2021, USFWS finalized a rule that take would not apply to incidental take (86 FR 1134), but USFWS rescinded that rule effective December 3, 2021 (86 FR 54642). The lack of regulations and the changing of Department of Justice opinions and potential to address prosecution differently across presidential administrations is a significant risk for wind projects in general, and Great Lakes is no exception.
- **Citizen Suits Over National Environmental Policy Act and Other Federal Statutes:** The federal Administrative Procedures Act (APA) allows for "citizen suits," meaning citizens can initiate litigation against a federal agency if they are adversely affected by that agency's actions. This can include individuals or advocacy groups suing federal agencies over improper implementation of NEPA, underscoring the need for legally and scientifically defensible NEPA documents.
- **New York State Article 78:** Article 78 is a proceeding used to appeal the decision of a New York State or local agency if an interested party disagrees with the State or agency's decision. Some examples of arguments for an Article 78 proceeding are if the agency did not follow its own rules when making the decision or the decision was not supported by substantial evidence. This can include individuals or advocacy groups challenging state agencies over improper implementation of SEQRA or Article VII, underscoring the need for legally and scientifically defensible documents.
- **New York State Submerged Lands Easements and Adjacent Upland Landowners:** During conversations with NYSOGS, officials stressed that under New York State law, permission must be granted by the adjacent upland landowner for NYSOGS to issue an easement for submerged lands. According to officials at NYSOGS, the state currently lacks the ability to legally issue a submerged lands lease for a parcel of submerged land that is not adjacent to the shoreline, which is where the offshore components of Great Lakes wind energy projects would be located. NYSOGS officials stated that New York State legislation could fix this issue with revisions to the language in the current law.

- **New York State Accelerated Renewable Energy Growth and Community Benefit Act (94-c):** The new regulations under this Act offer an opportunity as they consolidate several New York State permitting processes into a single process led by the Office of Renewable Energy Siting, potentially eliminating duplication and complexity; however, the regulations are relatively untested, posing the risk that state agencies still need to develop standard operating procedures to execute the regulations and that undiscovered challenges with the process may exist.
- **Proposed Lake Ontario National Marine Sanctuary:** As discussed in section 3.1.8 there is a proposed National Marine Sanctuary in New York State territorial waters in Lake Ontario. If the area is designated as a National Marine Sanctuary, National Oceanic and Atmospheric Administration Office of National Marine Sanctuaries, in principle, could limit or prohibit Great Lakes wind energy activities. The National Marine Sanctuaries Act and CZMA give the State of New York a significant role in shaping the substance of these federal regulations.
- **New York State Agency Discretion Over Great Lakes Wind Authorization:** New York State agencies have significant discretion over Great Lakes Wind projects through the Clean Water Act (CWA) Section 401 Water Quality Certification (responsibility of New York State agencies, which will vary depending on project size and characteristics) and Coastal Management Program consistency review (responsibility of NYSDOS). Without both of these certifications, U.S Army Corps of Engineers (USACE) cannot issue a permit for CWA Section 404, and without the consistency review, USACE cannot issue a permit for Rivers and Harbors Act (RHA) Section 10, likely leaving a Great Lakes Wind project unable to proceed. If regulatory requirements are not met agency officials cannot approve certifications and permits will not be issued, leading to great risk to the project approval and continued progress.
- **Grass Roots Community Opposition:** Controversial projects are often subject to organized opposition that seeks to impact decisionmakers, and this often does not require citizen suit or other litigation.

S.2.2 Opportunities

- **Contributions to New York State Climate Goals:** Great Lakes Wind could contribute to New York State's Clean Energy Standard goal of providing 70% of the State's energy through clean energy by 2030. The Climate Leadership and Community Protection Act legislates the offshore goal which is separate from Great Lakes Wind. Potential Great Lakes Wind could fulfill other goals related to renewable energy generation and carbon neutrality in New York. The Accelerated Renewable Energy Growth and Community Benefit Act sets goals for an 85% reduction in greenhouse gas emissions by 2050 for the State of New York. Great Lakes wind could support New York's achievement of such goals.
- **Fixing America's Surface Transportation Act-41:** The Fixing America's Surface Transportation Act was enacted in December 2015. Title 41 of the Act (FAST-41; 42 U.S.C. § 4370[m]) codifies into law a permitting approach to improve inter-agency coordination and expedite timelines to complete NEPA review and issue authorizations. A Great Lakes Wind project could qualify for FAST-41, potentially expediting the federal permitting process.

- **New York State Accelerated Renewable Energy Growth and Community Benefit Act:** Regulations promulgated to implement this Act are discussed above as a risk, but they are also an opportunity. The Accelerated Renewable Energy Growth and Community Benefit Act regulations involve the submission of a consolidated application package, a consolidated process for public review and input, and a single organization, ORES, to oversee the process. If implemented successfully, this could save time and reduce duplication of effort.
- **Eliminating Redundancies Among Federal and State Reviews:** Existing law provides for several areas where federal review can eliminate or truncate redundant state level review. For example, New York State Regulations at 9 NYCRR 428.2 state that if the commissioner of the Division of Parks is consulted through National Historic Preservation Act Section 106 Consultation, review of a project under the New York State Historic Preservation Act is unnecessary. Similarly, under SEQRA (which would only apply to projects below the Accelerated Renewable Energy Growth and Community Benefit Act threshold) a New York State Environmental Impact Statement (EIS) is not necessary if a federal NEPA EIS is published that includes an appropriate level of analysis and detail to fulfill SEQRA requirements and SEQRA findings can be made by the involved agencies using the NEPA EIS.
- **Optimizing Mitigation Plans Across Multiple Permitting Processes:** Because each statute at the State and federal level has unique requirements and findings to be made, each implementing agency would review proposed projects and mitigation measures and potentially propose different or additional mitigation measures. An opportunity in the environmental review and authorization process is for project applicants to integrate and optimize mitigation and any adjustments to the project to maximize environmental protection and compliance. Integrated mitigation plans should clearly indicate which individual statutes are addressed by project logistical choices and mitigation measures so regulators can easily determine if statutory needs are met. Integrated plans can address redundancies and conflicts early.
- **Optimize the Project Relative to the Permitting Risks:** Addressing environmental compliance and major risks at the outset of proposed projects can allow the project itself to be optimized relative to permitting risks. Permitting risks do not necessarily outweigh safety and logistical needs, but there may be a range of engineering and equipment choices to achieve a successful outcome. Within that range, there may be more or less risk associated with permitting and environmental compliance.
- **Leveraging Studies for Multiple Permits:** Several of the permitting and regulatory reviews involve the submission of similar or identical studies and materials. Identifying these common materials can help project applicants reduce duplication of effort and could help agency reviewers understand where other regulators are evaluating similar materials, perhaps with differing goals or review criteria. A comprehensive list of materials, studies, plans, and forms required for each application listed below is provided in section 8.

S.2.3 Recommendations

The recommendations presented below are informed by analysis of the major permitting and regulatory review processes, interviews with federal and State regulators, and lessons learned from case studies of eight wind energy projects that shed light on potential Great Lakes Wind permitting challenges. These recommendations would improve processes for development of Great Lakes Wind were New York State to decide to pursue such development.

- **Pursue utility-scale projects to capture the full benefits of clean energy and lower power prices.** Both demonstration-scale and utility-scale projects are likely to spark significant public interest, with some opposing projects based on viewshed and other local issues. The challenges in addressing these concerns would be significant for both a demonstration-scale and a utility-scale project. If New York State is able to successfully address these concerns, it is recommended that the State take advantage of the significant clean energy benefits of a utility-scale project.
- **The New York State Legislature should pass legislation to allow New York State Office of General Services to allow easements for submerged lands that lack adjacent upland landowners**. Legislators should consult with NYSOGS on specific recommendations for legislative language (see section 6.1.5 for more details).
- **Reduce risks associated with Great Lakes Wind** for developers to ensure a competitive process with optimal outcomes for ratepayers. A similar approach to New York State's offshore wind planning, studies, working groups, and other de-risking activities would likely improve the value of Great Lakes Wind for New York.
- **Consult closely with the Office of Marine Sanctuaries** through New York State agencies like New York State Department of State (NYSDOS) to ensure the proposed National Marine Sanctuary in Lake Ontario, and any other potential National Marine Sanctuaries, are compatible with Great Lakes Wind.
- **Leverage public engagement and incorporate Great Lakes Wind into climate goals.** Public input is an important part of determining relative benefits and impacts of Great Lakes Wind.
- **Project proponents should conduct the following key steps for efficient regulatory management** which include, but are not limited to, the following (some of which have been initiated in this report):
    - Early engagement with regulators, relevant agencies, and key stakeholders.
    - Openly sharing information, regularly communicating project goals and objectives, avoiding premature commitments, and fulfilling commitments that are made.
    - Early establishment of project environmental goals.
    - Early identification of key issues and strategies, regulatory issues, and risks.
    - Regulator engagement and reviews of the permitting, engineering, construction, and logistics schedules.
    - Close communication and coordination between engineering and regulatory teams.
    - Avoid major scope changes that would require agencies to reassess the project and repeat steps.

- Optimized and integrated mitigation plans.
- Establishment of a clear timeline and plan for permit acquisition (milestones).
- Effective management of change.

- **Conduct studies to reduce uncertainty around major permitting and stakeholder concerns.** The case studies and risks described in this report suggest that New York State could benefit by considering studies relative to the following:
  - Prioritize and conduct studies on bird and bat use of areas where wind turbines would potentially be built. In particular, ESA-listed species, bald and golden eagles, and birds for which large portions of the population transit the Great Lakes are of particular concern.
  - Studies to understand sediment composition and potential to disturb and release contaminants with cable laying and burial and turbine installation would reduce risks for water quality impacts. USACE burial depth requirements can be problematic depending on bottom type and composition, so better understanding of those would also inform RHA/CWA 404 permitting.
  - As more understanding of the feasible technologies, wind speeds, bottom composition/geology, vessel corridor needs, and other logistics and project parameters become available (through the current Great Lakes Wind Feasibility Study and other mechanisms), more thorough visual impact studies should be conducted, and siting should take visibility strongly into account.
  - Fisheries have been an important issue in Atlantic offshore wind. Better understanding of fisheries resource and use conflicts for siting and mitigation would be valuable.
  - Threatened and endangered species are also a focus of concern and can be difficult to study when they are rare (low sample sizes). Developing studies that reasonably feed models or serve as proxies for rare species is more likely to achieve reduced uncertainty than standard survey approaches.
  - Design studies to answer specific questions and directly address environmental and stakeholder risks with realistic timeframes and costs. Where robust studies or models are not feasible or practicable, risk assessment with mitigation for high severity, high-likelihood effects can reduce and avoid potential impacts.
  - Studies can benefit from regional and international collaboration and Indigenous Nations.
  - Cultural resources studies in consultation with Indigenous Nations, SHPO, and NOAA can identify important cultural sites, artifacts, and uses (e.g., subsistence fishing) near potential windfarm locations.

1 Introduction

This study supports the New York State Energy Research and Development Authority's (NYSERDA's) New York State Great Lakes Wind Energy Feasibility Study: State and Federal Permitting Roadmap and describes the federal and State authorizations that would likely be required for permitting a major wind project in Lake Ontario and Lake Erie in the territorial waters of NYS, since utility permitting is encompassed within the federal and State processes. Because no Great Lakes Wind project has been fully permitted and developed to date, the regulatory analysis contained in this document draws on expert interpretation of current State and federal policy, experience with comparable wind energy projects, and relevant agency guidance. Some of the regulatory processes or combinations of processes described as applicable to Great Lakes Wind are not only new to U.S. wind, but new to the State of New York as of 2021 (e.g., the Accelerated Renewable Energy Growth and Community Benefit Act and its implementation alongside New York PSL Article VII). As a result, there is some ambiguity in how these processes would be utilized for Great Lakes Wind; this study provides the best available information regarding which statutes will apply for different windfarm size and transmission line length scenarios.

The purpose of this document is to provide NYSERDA and the public with an assessment, based on the best information available, of the likely permitting and regulatory processes for siting and developing New York Great Lakes Wind projects should New York State decide to pursue such projects. This information is crucial for consideration by the State of New York to determine whether Great Lakes wind development is a viable path forward to help achieving the State's Clean Energy Standard. While an evaluation of site-specific permit conditions and permitting outcomes is beyond the scope of this study pending a specific proposal, this study evaluates two potential permitting scenarios, including a demonstration scale project and a utility scale project. These findings provide critical information on the key regulatory and permitting processes, agencies involved, lessons learned from similar projects, and recommendations to ensure an efficient permitting process that allows for maximum input and consideration from the public and other key stakeholders. The challenges and opportunities described herein will be considered, in conjunction with studies, by the State of New York in determining the feasibility of development of Great Lakes Wind in New York State waters.

2 Methodology

This study was developed with a desktop literature review that was then validated through phone interviews with and reviews by regulators. The research team began the literature search by reviewing several foundational information sources including a 2010 NYSERDA study titled, "New York's Offshore Wind Energy Development Potential in the Great Lakes: Feasibility Study," which features a section on permits and regulation, and the Department of Energy's (DOE's) National Environmental Policy Act (NEPA) documentation for the Icebreaker Wind project, the Final Environmental Assessment Lake Erie Energy Development Corporation (LEEDCo) Project Icebreaker (DOE 2018), a proposed Great Lakes Wind project in Ohio state waters.

The research team conducted internet searches for additional information on current permitting requirements, statutory and regulatory references, authorizing agencies and entities, and permitting processes and timelines. Identifying specific jurisdictions and regional responsibilities was important for federal requirements, as federal permitting can vary by state, region, or district. Generally, the following categories of information sources were accessed (a complete list of references is provided in section 9):

- Federal agency websites such as U.S. Army Corps of Engineers (USACE), U.S. Fish and Wildlife Service (USFWS), and the National Oceanic and Atmospheric Administration (NOAA).
- The official United States Code (U.S.C.) published at www.uscode.house.gov
- The official Code of Federal Regulations (CFR) published at www.ecfr.gov
- State agency websites such as those of the New York State Department of Environmental Conservation (NYSDEC), New York State Department of State (NYSDOS), and Office of Renewable Energy Siting (ORES).
- Other peer reviewed literature and technical reports discussing potential permitting issues for U.S. Great Lakes waters.

The research team then contacted relevant regulatory authorities to conduct interviews to validate the findings from the desktop study and address any information gaps. The following organizations were interviewed:

- USFWS, New York Field Office
- USACE, Buffalo District
- U.S. Coast Guard (USCG), Sector Buffalo
- Federal Aviation Administration (FAA) Obstruction Evaluation
- NYSDEC

- New York State Office of General Services (NYSOGS)
- NYSDOS
- NOAA Office of National Marine Sanctuaries (ONMS)

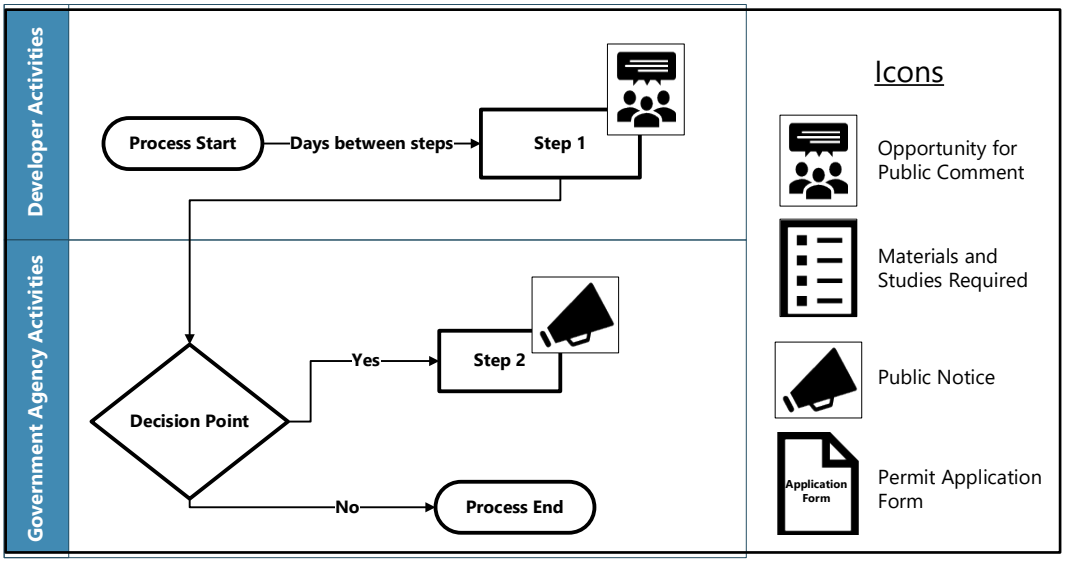
Several of the interviewees made themselves available for additional follow-up calls and emails to confirm details.

The research team also canvassed websites and literature available on Great Lakes collaboration between the U.S. federal government and New York State government with Canadian government agencies, as well as case studies on offshore wind projects that have faced permitting challenges.

2.1 Process Flow Charts

This study presents cross-functional process flow charts to illustrate the various permits and approvals in a visual, process-oriented format. Process flow charts facilitate analysis of sequencing, dependencies, process triggers, decision points, inputs, outcomes, responsible actors, and handoffs between organizations. The flow charts present dedicated rows of activity for each organization or entity, which is particularly important when evaluating the multi-stakeholder permitting processes presented in this study. Figure 1 provides a flow chart template to familiarize the reader with the format and symbology used in the permitting roadmap. Section 3 provides flow charts for individual permitting processes, and section 4 combines these processes into "master flow charts" to give a comprehensive, integrated view of the processes.

Figure 1. Illustrative Example Cross-Functional Flow Chart



2.2 Assumptions and Limitations

As previously stated, currently no windfarms are operating within Great Lakes waters in the U.S. or Canada. As a result, details of some required permitting processes are uncertain, as they may not contemplate Great Lakes Wind energy projects. During interviews with regulatory experts, the research team asked interviewees to describe the most likely permitting process based on available information, with the caveat that regulatory processes are subject to change at the discretion of the regulator or relevant legislative body.

To evaluate likely permitting and regulatory approval requirements, the study findings contained in this document assume Great Lakes Wind energy projects with standard horizontal axis wind turbines with hub height of 112 meters (m; 367 feet [ft]), blade diameter of 164 m (538 ft), and a maximum blade tip height of 194 m (636 ft) (based on the Physical Siting Analysis in appendix 3), though we recognize that larger turbines may be feasible in the future. Such a hypothetical Great Lakes windfarm would include inter-array cables that connect the turbines and at least one buried export cable that brings power to shore. The turbine foundations could use a variety of designs including monopiles, gravity base foundations, suction buckets, or floating designs. It is assumed that the project could range in total capacity from a small demonstration project under 20 MW, to a project above 25 MW, which would be automatically subject to the process under the Accelerated Renewable Energy Growth and Community Benefit Act, to an even larger utility-scale project with several hundred MW capacity. While the site-specific permit reviews, approvals, and environmental mitigations would likely vary based on windfarm specifications, this study considers the range of specifications described in this paragraph and addresses general permitting and regulatory requirements based on the hypothetical designs.

3 Federal and State Regulatory Approvals and Permitting

This section describes the major federal, State, and utility regulations and permitting approvals likely required for Great Lakes Wind, beginning with federal regulatory requirements, then discussing NYS requirements. This review focuses on permitting of construction and operation of windfarms and underwater cables. Other activities that may require permits (not described here) include port development and pre-development studies and surveys, such as metocean and environmental data collection and geophysical surveys.

There are 15 major permitting activities described in this section. Each permitting activity features a summary table with the following information:

Table 1. Sample Summary Table

Requirement	Name of the permitting or regulatory requirement or process.
Statutory Reference	Authorizing Statute
Regulatory Reference	Authorizing Regulations
Responsible Agency	Federal or state agency with responsibility over the process.
Triggers	Activity that initiates the process or makes the process necessary.
Inputs	Forms, studies, meetings, and other materials submitted by the developer or lead government agency.
Application Fees	Fees paid by the applicant.
Outputs	Permits, approvals, or other outcomes.
Timeline	Estimated overall duration of process.
Risks	Challenges or possible adverse outcomes.
Opportunities	Efficiencies or streamlining.
Case Studies	Case studies in section 5 to which the permit was or could have been applicable if the project had progressed further.

The Great Lakes present somewhat unique jurisdictional issues for wind energy projects. Under the Submerged Lands Act, the waters of Lake Ontario and Lake Erie between the NYS shoreline and the international boundary with Canada are all NYS waters, and the submerged lands beneath these NYS waters also belong to NYS. While NEPA is a procedural statute, it is related to various permits and approvals of a proposed project under other laws and regulations, including the Endangered Species Act, Coastal Zone Management Act, and National Historic Preservation Act, and review and approval

under these statutes are often required before the NEPA process can be completed. In addition, the NEPA process itself must be completed before the federal action may precede. However, the waters of the Great Lakes are considered "navigable waters of the U.S." making them subject to certain federal permitting and review processes.

3.1 Federal Regulatory Approvals and Permitting

This section describes the major federal approvals and permitting requirements that would likely apply to wind projects in the NYS territorial waters of Lake Ontario and Lake Erie. While the Coastal Zone Management Act (CZMA) is a federal statute, both federal and state regulatory roles are described in the state permitting section (section 3.2.4), as the most relevant regulatory entity for CZMA consistency for Great Lakes Wind energy is the NYSDOS.

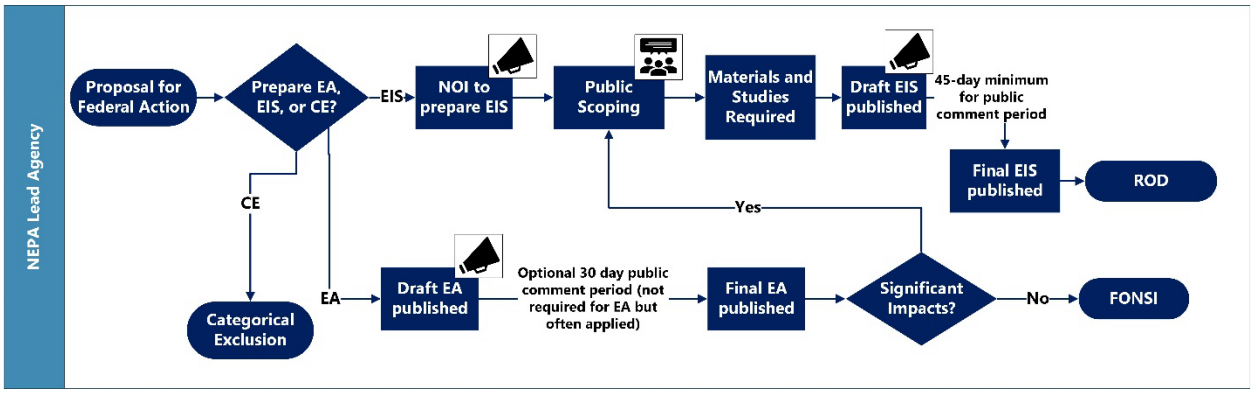
3.1.1 National Environmental Policy Act Review

NEPA is a federal statute that requires the environmental review of any "major federal action," which includes granting of federal permits, use of federal lands, or use of federal funding. Enacted in 1970, this law requires agencies to integrate environmental values into their decision-making process. It involves assessing the project with respect to various environmental, socioeconomic, archaeological, and health impacts that may occur during the project's lifecycle. A NEPA review is triggered by a major federal action and is led by a lead federal agency that makes the decision to conduct the major federal action and is responsible for developing NEPA documents, cooperating, coordinating, and consulting with other relevant federal agencies as appropriate, and making decisions about how to implement the NEPA process. In the case that federal permits are required by multiple federal agencies, or consultations are complicated, additional federal agencies may become cooperating or participating agencies on the NEPA document or adopt the NEPA document to cover the environmental review of multiple federal actions associated with a project. Alternatively, different federal agencies may conduct separate NEPA reviews for their actions, but current regulations encourage cooperation and consolidation of NEPA review to the extent practicable.

While NEPA is a procedural statute, it is related to various permits and approvals of a proposed project under other laws and regulations, including the Endangered Species Act, Coastal Zone Management Act, and National Historic Preservation Act; review and approval under these statutes are often required before the NEPA process can be completed. In addition, the NEPA process itself must be completed before the federal action may proceed. NEPA requires that the lead federal agency conduct a NEPA review, make

information on likely environmental and socioeconomic impacts available to the public, provide opportunities for public input, and decide on the major federal action only after considering the NEPA findings and reasonable alternatives. The Council on Environmental Quality (CEQ) is the implementing agency overseeing NEPA across federal agencies. CEQ has developed overarching implementing regulations that all federal agencies must follow. The current NEPA regulations are under review and revision by CEQ, and rules that essentially rescind new regulations established in 2020 and reinstate some of the procedures of the 1978 regulations were proposed in October 2021 (86 Federal Register [FR] 55757). At the individual agency level, each federal agency (and sometimes regions or divisions) may have its own implementing regulations and guidance for NEPA, including the requirement that agencies identify categorical exclusions in their NEPA procedures. This would result in slight differences in the process, depending upon the designated lead federal agency, but fundamentally all agencies must follow the high-level process outlined in Figure 2. If DOE or another federal agency were to fund a project, the federal funding agency would likely be the lead agency, as is the case for Icebreaker in Ohio state waters. USACE would likely be the lead agency for commercially funded projects.

Figure 2. Overview of National Environmental Policy Act (NEPA) Process



Based on NEPA reviews for offshore wind energy projects, it is unlikely that even a small Great Lakes Wind project would qualify for a Categorical Exclusion; therefore, this section will discuss the preparation of either an Environmental Assessment (EA) or Environmental Impact Statement (EIS). The EA is a less detailed environmental review study that can result in either a Finding of No Significant Impact (FONSI) or, if the EA finds significant impacts, a full EIS can be completed, which is a more detailed review. The lead federal agency can also choose to skip the preparation of an EA and begin with development of an EIS if impacts are likely to be significant. Once a final EIS has been published, the lead federal agency publishes a Record of Decision (ROD) which documents the agency's final decision on the proposed action. For the Icebreaker Wind project proposed in Ohio state waters and

lands in Lake Erie, the DOE published an EA and FONSI and is currently addressing litigation over this action (see section 5.1). In the case that a project proponent qualifies and requests that federal review be conducted under the Fixing America's Surface Transportation Act Title 41 (FAST-41; 42 U.S.C. § 4370[m]), NEPA would be undertaken following the FAST-41 requirements (see section 6.2.2 for more details).

3.1.2 Criteria and Thresholds

NEPA does not directly result in an approval or permit, but it does require that the federal government follow the process set forth in the NEPA statute and implementing regulations. The successful and legally defensible completion of a NEPA review would be a critical step to any Great Lakes Wind project. Litigation related to this review can delay or stop project development. Though there is no citizen suit provision under NEPA, litigants often sue using the Administrative Procedures Act, alleging "arbitrary and capricious" actions or "an abuse of discretion" or action "otherwise not in accordance with law" (5 U.S.C. §706). For other statutes, such as Clean Water Act (CWA) and Endangered Species Act (ESA), there are citizen suit provisions that allow direct lawsuits. While litigation may not technically prevent a project from proceeding, it can take years to resolve, leading to other technical, regulatory, and financial risks for projects. The NEPA process can result in three potential outcomes, and the criteria for each are briefly summarized below:

Categorical Exclusion: The USACE NEPA implementing regulations at 33 CFR §230.9 state that categorically excluded actions "do not have significant effects on the quality of the human environment…" These federal actions do not require preparation of an EA or EIS and include the following for USACE:

- Minor maintenance dredging using existing disposal sites.
- Planning and technical studies which do not contain recommendations for authorization or funding for construction.
- All operations and maintenance grants, general plans, agreements.
- Real estate grants for use of excess or surplus real property.
- Real estate grants for government-owned housing.
- Exchanges of excess real property and interests therein for property required for project purposes.
- Real estate grants for rights-of-way (ROW) which involve only minor disturbances to earth, air, or water including the following:

  - Minor access roads, streets, and boat ramps.
  - Minor utility distribution and collection lines, including irrigation.
  - Removal of sand, gravel, rock, and other material from existing borrow areas.
  - Oil and gas seismic and gravity meter survey for exploration purposes.
- Real estate grants of consent to use government-owned easement areas.
- Real estate grants for archaeological and historical investigations compatible with the Corps Historic Preservation Act responsibilities.
- Renewal and minor amendments of existing real estate grants evidencing authority to use Government-owned real property.
- Reporting excess real property to the General Services Administration for disposal
- Boundary line agreements and disposal of lands or release of deed restrictions to cure encroachments.
- Disposal of excess easement interest to the underlying fee owner.
- Disposal of existing buildings and improvements for off-site removal.
- Sale of existing cottage site areas.
- Return of public domain lands to the Department of the Interior (DOI).
- Transfer and grants of lands to other Federal agencies.

Environmental Assessment: An EA must be prepared if a Categorical Exclusion does not apply to the proposed activity and the lead NEPA agency determines that significant impacts are not likely or whether significant impacts of the action are unknown. After completing an EA, the lead federal agency can decide to issue a FONSI or develop an EIS. The USACE regulations at 33 CFR§230.10 state that an EA must contain sufficient information for the USACE to decide whether to publish a FONSI or an EIS.

Finding of No Significant Impact: The USACE NEPA implementing regulations at 33 CFR §230.11 refer to the CEQ regulations at §1501.6 for FONSI criteria which State that federal agencies will publish a FONSI if they find that the proposed action will not have a significant effect. With changes to the CEQ regulations in 2020 and additional regulatory review underway by CEQ, the regulatory section number provided here may not match the correct section of the regulations, but a parallel section will apply and USACE will likely update its regulations and guidance to stay consistent with CEQ regulations.

Environmental Impact Statement and Record of Decision: The USACE NEPA implementing regulations at 33 CFR §230.13 define the agency's requirements for EISs. If an EA finds significant impacts, then an EIS must be written. An agency can choose to publish an EIS without having published an EA first. Once the EIS is published, the lead federal agency publishes a ROD which explains its decision on the major federal action that triggered the NEPA process. NEPA has no requirements that address what final decision should be made by the agency; NEPA only requires that the agency consider impacts and alternatives under NEPA before making the final decision.

The materials and studies required for NEPA review are summarized in section 8. Table 2 provides a summary of key details for the NEPA process.

Table 2. Summary of National Environmental Policy Act (NEPA) Review Requirements

Requirement	NEPA Review
Statutory Reference	42 U.S.C. §4321 et seq
Regulatory Reference	CEQ: 40 CFR Parts 1500-1508 USACE: 33 CFR §230.9
Responsible Agency	USACE likely lead agency for commercially funded projects. (DOE likely lead agency for DOE-funded projects).
Triggers	Major federal action such as USACE issuing permit.
Inputs	Details of the proposed project required to complete either an EA or EIS.
Application Fees	None
Outputs	FONSI or ROD
Timeline	2-6 years for complete process, depending on sensitivity of environmental receptors and content required (CEQ 2018); current regulations require 1 year for completion of EA from start and 2 years from Notice of Intent to ROD for EISs; these regulations are under review.
Risks	Litigation: CEQ proposed to reimplement some aspects of the 1978 regulations in October 2021 (86 FR 55757) and additional review of the 2020 regulations is underway by CEQ.
Opportunities	Coordination with other federal approvals such as USFWS consultation and NHPA Section 106 Consultation; SEQRA EIS not required if NEPA EIS is published that satisfies SEQRA requirements and SEQRA findings can be made by the involved agencies using the NEPA EIS.
Case Studies	Icebreaker Wind

3.1.3 US Army Corps of Engineers Clean Water Act Section 404 and Rivers and Harbors Act Section 10 Permit and Section 408 Review

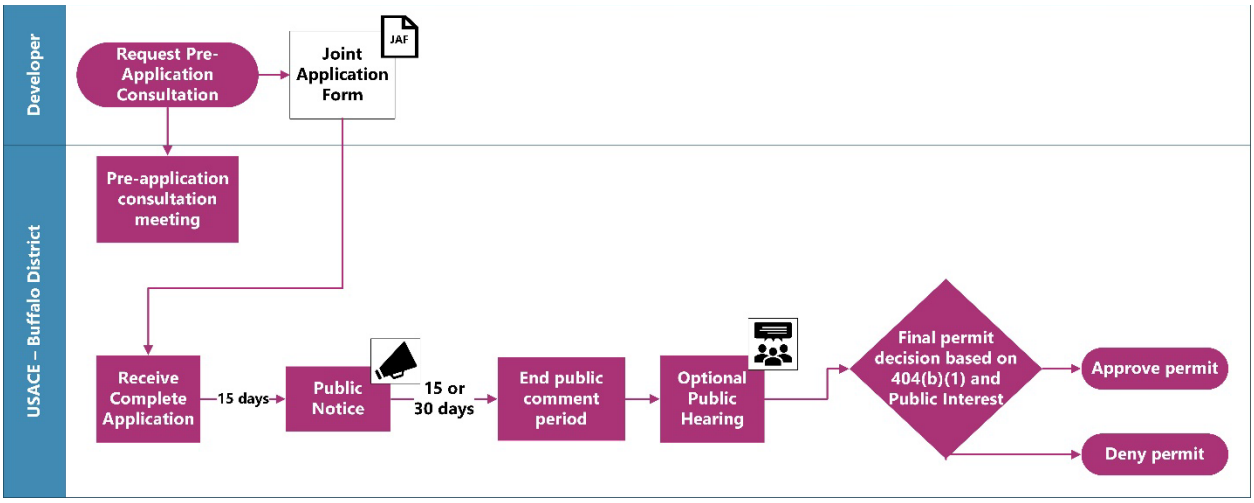
Construction activities related to the development of Great Lakes Wind facilities including construction of foundations for wind turbines and cable installation would require excavation and/or discharge of fill of dredged material in U.S. waters. The intent of the CWA is to protect and restore the quality of U.S. surface waters, including wetlands. Section 404 of the CWA requires a federal permit for activities that involve the discharge of dredged or fill materials into navigable waters of the United States. Section 10 of the Rivers and Harbors Act (RHA) requires a permit for activities that involve the construction of structures or obstructions in navigable waters. Both activities are permitted by USACE under the CWA Section 404/RHA Section 10 Permit. An additional approval that may be required depending on project location is included in RHA Section 14 as Section 408 review. Section 408 states that the USACE may grant permission for another party to alter a USACE Civil Works project upon a determination that the alteration proposed will not be injurious to the public interest and will not impair the usefulness of the

Civil Works project. If Great Lakes Wind project activities are sited in a location that leads to alterations of submerged lands or waters occupied or used by a USACE project, this approval would be required, and would likely be a separate submission from the CWA Section 404/RHA Section 10 Permit joint application form.

All NYS Waters within the Great Lakes are within the jurisdiction of the USACE Buffalo District, and CWA 404/RHA Section 10 Permits are *not* delegated to be administered by the state, as they are in some other states. There are several types of USACE CWA/RHA permits including Nationwide Permits, General Permits, and Individual Permits. In a phone interview with the Buffalo District, USACE staff confirmed that Great Lakes Wind development at a utility-scale would likely require an Individual Permit (also called a Standard Permit). Activities that would be covered under the USACE permit include the placement of wind turbines in the water, which are "obstructions" as defined in the RHA, and possibly trenching involved with laying the export and inter-array transmission cables. This section focuses on Standard Permits, which follow a more involved process than Nationwide Permits. USACE would likely be the lead federal agency under NEPA for a commercially developed Great Lakes Wind project because its issuing of the CWA/RHA permit would constitute a "major federal action" as defined under NEPA, triggering the NEPA review process (see section 3.1.1 for more information). If DOE or another federal agency were to fund a project, the federal funding agency would likely be the lead agency, as is the case for Icebreaker in Ohio state waters.

A general overview of the USACE permitting process is shown in Figure 3. The process begins with a pre-application consultation meeting between the developer and USACE. In New York State, the Joint Application Form (JAF) is used as the USACE permit application form, and the JAF also notes other relevant permit and review types involved under NYS law including easements for state-owned lands underwater, Coastal Management Program consistency, CWA Section 401 Water Quality Certificate (WQC), and Coastal Erosion Management. There is a public comment period, with the ability for commenters to request a public hearing. USACE may arrange for a public hearing to take additional public comment if deemed necessary to gather public input on certain issues. Ultimately USACE reviews the permit application based on the criteria set forth in CWA Section 404(b)(1) and the public interest and makes a final determination on whether to grant the permit.

Figure 3. Overview of U.S. Army Corps of Engineers (USACE) Permitting Process



3.1.3.1 Approval Criteria and Thresholds

To evaluate CWA Section 404/RHA Section 10 permits, the USACE conducts a public interest review[1] and a review under the CWA Section 404(b)(1) guidelines. The public interest review criteria are available at 33 CFR §320.4 (a) and involve balancing the following public interest factors:

- Conservation
- Economics
- Aesthetics
- General environmental concerns
- Wetlands
- Historic properties
- Fish and wildlife values
- Flood hazards
- Floodplain values
- Land use
- Navigation
- Shore erosion and accretion
- Recreation
- Water supply and conservation
- Water quality
- Energy needs
- Safety
- Food and fiber production
- Mineral needs
- Considerations of property ownership
- The needs and welfare of the people (USACE 2021)

The CWA Section 404(b)(1) guidelines are also used by the USACE to evaluate permit applications. The guidelines have the following criteria:

- No discharge will be allowed if there is a practicable alternative that has a less adverse impact.
- No discharge will be allowed if it violates the following:
    - State Water Quality Standards under the CWA.
    - CWA Section 307 toxic effluent standards.
    - Jeopardizes a species listed under the ESA.
    - Any provisions of a Marine Sanctuary.

Discharge of dredged or fill material is not permitted that causes or contributes to significant deterioration of waters of the United States, which includes the following:

- Significant impacts to human health or welfare.
- Discharge of pollutants to aquatic life, ecosystems, or habitat.
- Discharge of pollutants to recreational, aesthetic, or economic values.

Steps must be taken to minimize the potential adverse impacts on the aquatic ecosystem.

3.1.3.2 Integration with NEPA

The consideration of the USACE permit would likely be a major federal action that triggers NEPA, making USACE the NEPA lead federal agency. This means that USACE would not be able to issue its permit until the NEPA process is completed with either a FONSI or EIS and subsequent ROD. USACE typically conducts EAs and FONSIs for Nationwide and General Permits and evaluates whether an EIS is necessary for Standard Permits on a case-by-case basis. If an EIS is developed for a Standard Permit for a New York Great Lakes Wind project, USACE would not be able to issue the permit until publication of the ROD (USACE 2014). In addition, USACE would not be able to issue a Section 404 permit authorization without a Clean Water Act Section 401 WQC determination by the certifying NYS agency. A successful progression of the NEPA review, with its consultation requirements, and progressive acquisition of a CWA Section 404/RHA Section 10 permit can set a precedent for obtaining the remaining permits for a project, many of which are linked to a successful completion of a NEPA review.

The materials and studies required for USACE permit applications are summarized in section 8. Table 3 provides a summary of key details for the USACE permit.

Table 3. Summary of Clean Water Act (CWA) Section 404/Rivers and Harbors Act (RHA) Section 10 and Section 14 Review Requirements

Requirement	CWA Section 404/RHA Section 10 and Section 408 (project location dependent).
Statutory Reference	33 U.S.C. § 1344
Regulatory Reference	33 CFR Part 323
Responsible Agency	USACE Buffalo District
Triggers	Discharge of dredged or fill material for transmission cable burial and placement of wind turbines which are obstructions in navigable waters of the U.S.; alterations of submerged lands or waters occupied or used by a USACE project.
Inputs	JAF; Section 408 Review.
Application Fees	District will request fee upon permit issuance.
Outputs	CWA Section 404/RHA Section 10 Standard Permit; Section 408 review approval.
Timeline	Permit cannot be issued until NEPA is complete with either a FONSI or ROD.
Risks	Subject to state review through CZMA consistency and CWA Section 401 WQC.
Opportunities	Coordination with NEPA process.
Case Studies	Icebreaker Wind

3.1.4 US Fish and Wildlife Service Activities for Endangered Species Act, Migratory Bird Treaty Act, and Bald and Golden Eagle Protection Act, and Fish and Wildlife Coordination Act

The U.S. Fish and Wildlife Service (USFWS) coordinates and consults with lead federal agencies for wind energy projects to implement the ESA, Migratory Bird Treaty Act (MBTA), the Bald and Golden Eagle Protection Act (BGEPA), and the Fish and Wildlife Coordination Act (FWCA). The ESA and FWCA involve consultation between federal agencies, and MBTA and BGEPA may involve informal discussion between agencies but do not require formal consultation as FWCA and ESA expect. The applicant is responsible for demonstrating compliance for MBTA and BGEPA (including any necessary permitting), whereas for ESA and FWCA, a federal consultation between the lead agency and USFWS, achieves compliance during the NEPA process. Because these four statutes are typically addressed in an integrated fashion through USFWS, they are all discussed in this section.

3.1.4.1 Endangered Species Act (ESA)

The ESA is the federal statute that governs the protection of threatened and endangered species and their designated critical habitat. It is administered by USFWS for terrestrial and aquatic species and the National Marine Fisheries Service (NMFS) for marine and anadromous (species that start their lives in freshwater but live as adults in saltwater) species. Because the Great Lakes are freshwater, this section

only discusses the USFWS. Table 4 provides an overview of the ESA listed species within the study Area. For the purpose of this section, the study area is defined as the NYS waters jurisdiction in Lake Ontario and Lake Erie with the onshore environment within one mile from shore. There are five ESA-listed species within the study area.

Table 4. Overview of Federal Endangered Species Act (ESA) Listed Species Within Study Area

ESA Listing	Species Confirmed Within Study Areaa
Federal ESA Endangered	Indiana Bat (*Myotis sodalis*) Piping Plover (*Charadrius melodus*)
Federal ESA Threatened	Northern Long-Eared Bat (*Myotis septentrionalis*) Red Knot (*Calidris canutus rufa*) Bog Turtle (*Clemmys muhlenbergii*)

[a] USFWS New York Office verified that listed mussels would not be present in in coastal or offshore areas, as these are riverine species, and USFWS would not expect them to be a concern for Great Lakes Wind, so they are not included in this table. The current Study Area does not include rivers. NYSDEC indicated they would consider clam species, so they are included in the discussion of New York State listed species.

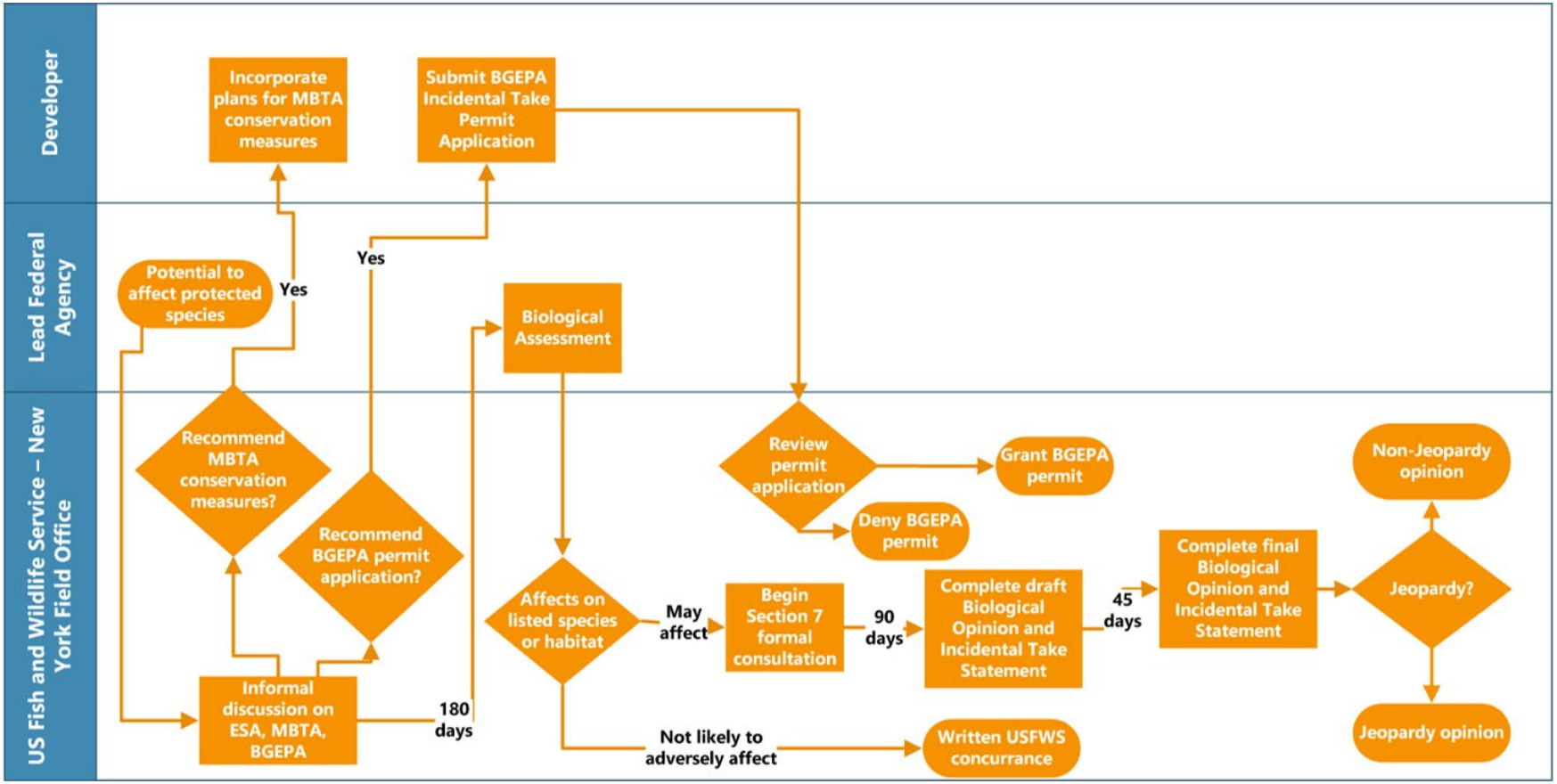
ESA-listed species can have critical habitat designated under ESA, which also requires consultation to address whether adverse impacts to the habitat may occur. One ESA-listed species has critical habitat that includes the New York Great Lakes study area, the piping plover, which has critical habitat for breeding along the eastern shore of Lake Ontario in Jefferson and Oswego Counties (66 FR 22938). For projects that involve federal activities, such as granting of permits, the ESA is administered through a process called ESA Section 7 Consultation, which involves a lead federal agency (e.g., USACE) consulting with USFWS to ensure that the federal activities comply with the statute. For projects for which NEPA is applicable, Section 7 Consultation is typically incorporated into the NEPA review process and the NEPA lead agency consults with USFWS. Therefore, for a New York Great Lakes Wind project, USACE would likely consult with the USFWS New York Field Office.

A general overview of the USFWS consultation process is shown in Figure 4 below. Because ESA-listed birds and bats have the potential to be harmed or killed by Great Lakes Wind projects, a formal consultation is likely. Typically, the lead federal agency will prepare a Biological Assessment (BA), which is a study that characterizes the severity of potential impacts to listed species and their critical habitat. USFWS may use the BA as a basis for a Biological Opinion and Incidental Take Statement (if applicable). Ultimately USFWS will render either a Jeopardy Opinion–a conclusion

that the proposed federal action is not in compliance with the ESA, or a Non-Jeopardy Opinion–a conclusion that the proposed federal action is in compliance with the ESA (USFWS and NMFS 1998). A Non-Jeopardy Opinion can be contingent on reasonable and prudent measures to minimize impacts and the terms and conditions under which those measures are to be accomplished. These measures can be considered in the NEPA analysis.

In interviews with the USFWS New York Field Office, USFWS officials stated that a lead federal agency would likely engage USFWS regarding a potential Great Lakes Wind project through an initial informal discussion, such as a letter or a conference call. USFWS would then evaluate the available facts about the proposed projects and offer recommendations under the MBTA, which could be included in a Bird Conservation Plan. The MBTA is a strict liability law under which individuals or companies can be held criminally liable for killing birds covered under the MBTA, but there is proposed legislation that would allow use of civil penalties (House of Representatives 116-482 Migratory Bird Protection Act of 2020). According to USFWS officials, USFWS typically provides recommendations to the federal lead agency on conservation measures to address MBTA concerns, and developers that follow the recommended conservation measures are unlikely to be penalized for take under the MBTA. USFWS addresses MBTA concerns around federal activities pursuant to Executive Order (EO) 13186 and associated Memoranda of Understanding (MOUs). Section 5 provides a case study in which USFWS brought criminal charges against a windfarm under the MBTA.

Figure 4. Overview of the U.S. Fish and Wildlife Service (USFWS) Consultation Process

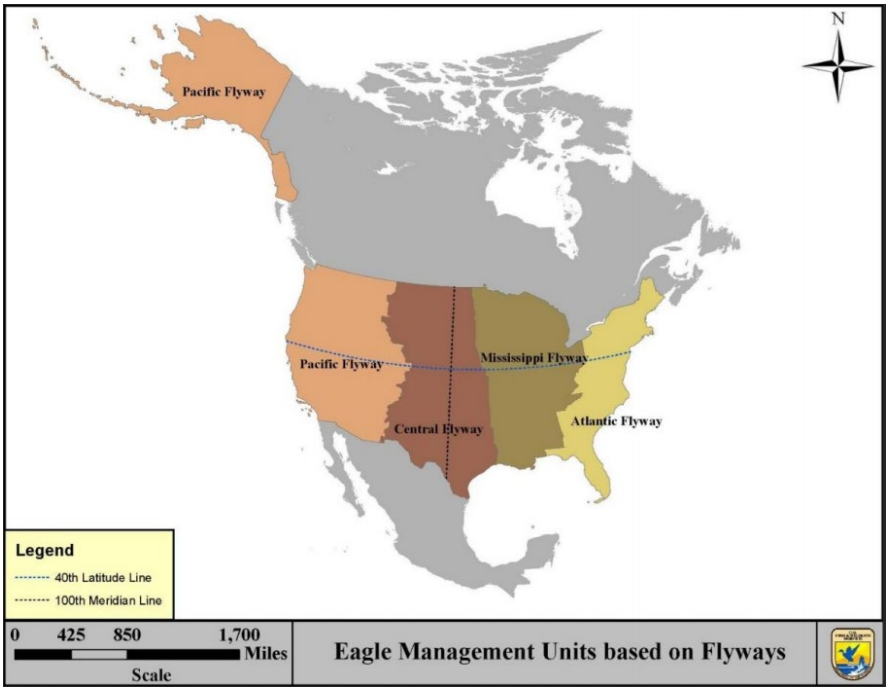


3.1.4.2 Bald and Golden Eagle Protection Act (BGEPA)

USFWS would also provide a recommendation on whether the developer should seek a permit under BGEPA. Bald Eagles are known to reside within the study area, and it is possible that Golden Eagles could occur within the study area as well. Under the 2016 USFWS rule, Eagle Permits; Revisions to Regulations for Eagle Incidental Take and Take of Eagle Nests, private entities can apply for and secure permits from USFWS for incidental take of Bald and Bolden Eagles. USFWS published an advanced Notice of Proposed Rulemaking for expediting and simplifying the permit process authorizing incidental take of eagles September 14, 2021 (86 FR 51094). Currently, permits are issued on the basis of take limits for eagle management units (EMUs) and local area populations, and compensatory mitigation is required for permitted take over the take thresholds. New York Great Lakes Wind would be within the combined Mississippi and Atlantic flyway EMU for Golden Eagles and the Atlantic flyway EMU for Bald Eagles (Figure 5). No take of Golden Eagles allowed, meaning that any permitting for incidental take of Golden Eagles would require offset mitigation (81 FR 91498, 50 CFR Parts 13 and 22). USFWS cannot require private entities to seek BGEPA incidental take permits, but they may make recommendations as to whether a permit is necessary (Figure 5).

Figure 5. Eagle Management Units Established in Bald and Golden Eagle Protection Act (BGEPA) Regulations

Source:(USFWS 2016a)



* Golden Eagle EMU is combined Atlantic and Mississippi Flyway; Bald Eagle EMU is Atlantic Flyway.

3.1.4.3 Fish and Wildlife Conservation Act (FWCA)

Under the FWCA federal agencies are required to consult with USFWS regarding potential actions that can affect fish and wildlife. USFWS provides non-binding recommendations on actions that can be taken to improve conservation of fish and wildlife resources. Officials from the USFWS New York Field Office stated that these requirements would likely be addressed in tandem with ESA, MBTA, and BGEPA concerns. FWCA does not involve any permits or regulatory approvals for developers.

3.1.4.4 Approval Criteria and Thresholds

ESA: For the proposed federal action that triggers ESA Section 7 Consultation (in this case, most likely the USACE permit), in order for permitting to proceed, USFWS would have to find that the proposed federal action does not "jeopardize the continued existence of" listed species or "result in the destruction or adverse modification" of critical habitat of threatened or endangered species (Section 7(a)(2)). USFWS regulations at 50 CFR §402.02 define "jeopardize the continued existence of" as "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." USFWS has relatively broad discretion to interpret and apply this definition, and in doing so, would draw on scientific experts and likely case law.

The rendering of a Jeopardy Opinion by USFWS in the Biological Opinion would prohibit the lead federal agency from proceeding with the proposed action unless the proposed action is revised in accordance with the reasonable and prudent alternatives or measures developed during Section 7 consultation in a manner that USFWS determines does not jeopardize listed species (i.e., a "Non-Jeopardy" Opinion; (Rohlf 2001).

BGEPA: Based on discussion with the lead agency, USFWS may recommend that the developer needs a BGEPA permit under 50 CFR §22.26, "permits for eagle take that is associated with, but not the purpose of, an activity." Under BGEPA, take is defined at 50 CFR §22.23 as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb," a bald or golden eagle, and "disturb" is defined as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

USFWS New York Field Office officials stated that the agency would likely request that a Great Lakes Wind developer to conduct site-specific studies on eagle populations and behaviors near a proposed project and, based on the data gathered in that study, may or may not recommend that the developer seek a permit. USFWS uses a risk model that would use the developer studies as input, model risk to the populations, and advise on the application for a permit based on those model outputs (i.e., higher risk would more likely lead to a recommendation to seek a permit). In email correspondence with USFWS officials involved with the Icebreaker Wind project in Ohio, USFWS stated that the Icebreaker developer did not seek a BGEPA permit. The USFWS Ohio Ecological Services Field Office stated that, during Icebreaker eagle issues reviews, concern was raised related to the potential presence of winter foraging areas near the turbines. It was postulated that during winter months with significant surface ice, wave action around the turbine foundations could create gaps in the ice which could attract eagles as potential foraging areas, exposing them to risk of collision. USFWS New York Field Office stated that the expected time from submission of a complete BGEPA permit application to USFWS permit decision is approximately six months.

If a BGEPA permit for development activities is needed, it would include measures for avoidance, minimization, and compensatory mitigation in the terms of the permit, based on the best available science, that must be followed by the developer. Violations of the terms of the permit or take of eagles without a permit can result in fines and criminal penalties.

MBTA: The MBTA covers over 1,000 bird species. In January 2021, USFWS published regulations that state that "Injury to or mortality of migratory birds that results from, but is not the purpose of, an action (i.e., incidental taking or killing) is not prohibited by the Migratory Bird Treaty Act" (50 CFR §10.14). In May 2021, USFWS published a proposal to revoke this rule and return to implementing the MBTA as prohibiting incidental take and applying enforcement discretion, consistent with judicial precedent (86 FR 24573). In October 2021, USFWS published a final rule revoking the January 2021 rule (86 FR 54642). During interviews with the USFWS New York Field Office, officials stated that, if USFWS has concerns, based on the best available science, with violations of the MBTA, they will recommend conservation measures to developers. There are no regulations governing permits under MBTA (though legislation is under consideration to mandate a general permit process be developed), and conservation measures are generally provided pursuant to EO 18186, as noted above. Pursuant to EO 18186, USFWS has an MOU with the Department of Defense (DoD) that governs how DoD,

including the USACE, should coordinate with USFWS on activities that could impact migratory birds. This MOU would be followed by USACE and USFWS if USACE were acting as NEPA lead agency based on their CWA Section 404/RHA Section 10 permitting. MBTA has undergone several recent policy and regulatory changes, and these are discussed in detail in section 6.1.2.

The materials and studies required for ESA Section 7 Consultation are summarized in section 8. Table 5 provides a summary of the USFWS Process for ESA, MBTA, and BGEPA.

Table 5. Summary of Endangered Species Act (ESA) Section 7 Consultation Review Requirements

Requirement	ESA Section 7 Consultation, recommendations for MBTA and BGEPA, and coordination for FWCA.
Statutory Reference	16 U.S.C. 1531-1544 (ESA) 16 U.S.C. 703–712 (MBTA) 16 U.S.C. 668-668c (BGEPA) 16 U.S.C. 661-666c (FWCA)
Regulatory Reference	50 CFR Parts 17 and 400 (ESA) 50 CFR §10.14 (MBTA) (USFWS has proposed to revoke this rule). 50 CFR § 22 (BGEPA)
Responsible Agency	USFWS New York Field Office
Triggers	Federal activities that threaten listed species or their habitats (likely USACE permit).
Inputs	Biological Assessment, Biological Opinion, BGEPA permit application, Bird Conservation Plan.
Application Fees	None
Outputs	Jeopardy Opinion or Non-Jeopardy Opinion, BGEPA permit, Migratory Bird Conservation Plan (typically).
Timeline	ESA consultation: approximately one year (under FAST-41). BGEPA permit (if applied for): approximately 6 months.
Risks	Jeopardy Opinion could halt project, take of MBTA protected species could result in penalties if USFWS recommended conservation measures are not followed.
Opportunities	Provide analysis for NEPA process.
Case Studies	Icebreaker Wind, Lighthouse Wind, Galloo Island, Duke Energy Renewables WY.

3.1.5 National Historic Preservation Act Section 106 Consultation

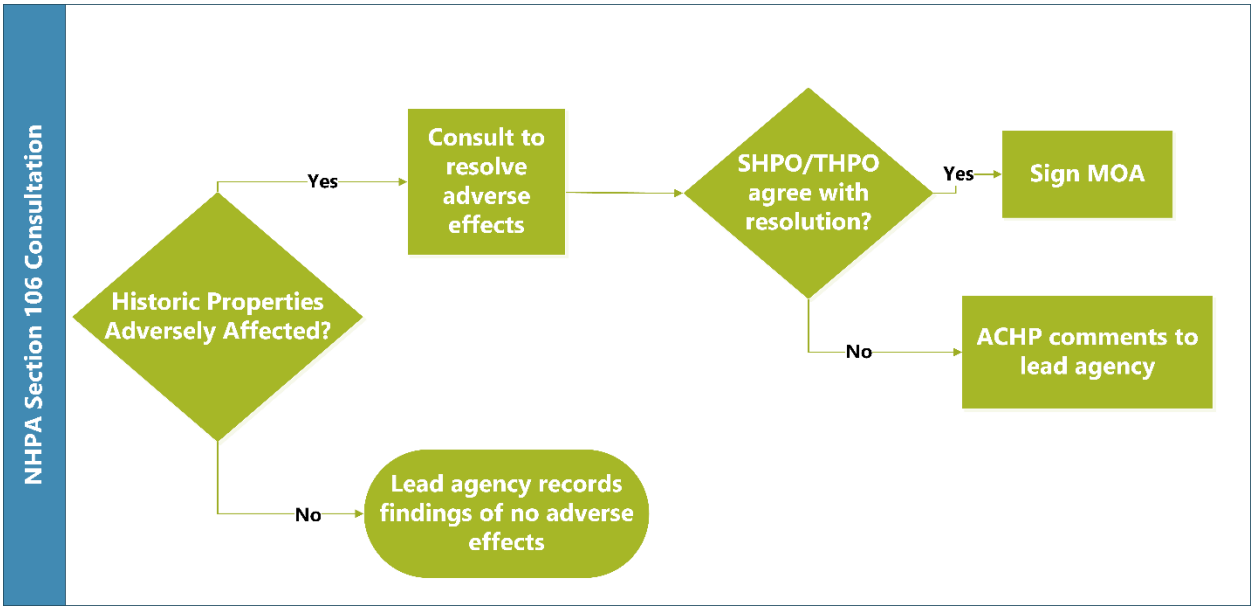
Section 106 of NHPA requires federal agencies to consult with the appropriate State Historic Preservation Office (SHPO) and/or Tribal Historic Preservation Office (THPO) to evaluate and mitigate impacts to historic properties or cultural resources as a result of federal actions. Section 106 review is typically incorporated into the NEPA process and would therefore involve USACE consulting with the SHPO/THPO for Great Lakes Wind projects, according to Section 14.09 of the New York State Historic Preservation Act (SHPA). The findings of a review of the impacts to historic and cultural resources are documented in NEPA documents (e.g., EA, EIS) and can lead to the development of mitigation measures to be taken during construction and operation of a final project. (National Park Service 2012)

A general overview of the Section 106 Consultation process is shown in Figure 6. If adverse effects may occur, the lead agency works with the SHPO/THPO to avoid or minimize those effects (National Park Service 2012). If the lead agency fails to address the adverse effects, the Advisory Council on Historic Preservation (ACHP) will submit comments to the lead federal agency (National Park Service 2012). The windfarm developer also has a role in Section 106 Consultation. If consultation is triggered, the applicant can be required to secure qualified consultants to conduct historical and cultural resources desktop studies and surveys to gather information on existing resources and potential mitigation measures (ACHP 2021).

New York State Historic Preservation Act

For environmental permit applications to NYSDEC, consultation through the online Cultural Resource Information System (CRIS) system is required. The information from CRIS is provided to NYSDEC, and the applicant and SHPO consult, based on the information submitted, to ensure that the proposed activities do not violate the State Historic Preservation Act (SHPA), which is similar in structure to the federal NHPA. However, Section 14.09 review under SHPA is not required if the federal area of potential effect matches the state area of potential effect. Because federal actions such as the USACE permitting would almost certainly trigger NHPA Section 106 Consultation for Great Lakes wind projects, Section 14.09 review would likely not be required if the State and federal areas of potential effect are the same.

Figure 6. Overview of the National Historic Preservation Act (NHPA) Section 106 Consultation Process



3.1.5.1 Approval Criteria and Thresholds

NHPA Section 106 Consultation is not an approval or permit—it is a consultation by the lead federal agency for which the lead agency must consider the consultation findings in its decision-making process. If the lead federal agency determines that a project may affect historic properties, it will engage the SHPO (in this case, the New York SHPO) and/or relevant THPO. The SHPO/THPO will then evaluate whether there are adverse effects to the historic property based on the criteria found at 36 CFR §800.5. These regulations define an adverse effect as any activity that may directly or indirectly diminish:

- Location
- Design
- Setting
- Materials
- Workmanship
- Feeling
- Association

The materials and studies required for NHPA Section 106 Consultation are summarized in section 8.

Table 6 provides a summary of NHPA Section 106 Consultation review requirements.

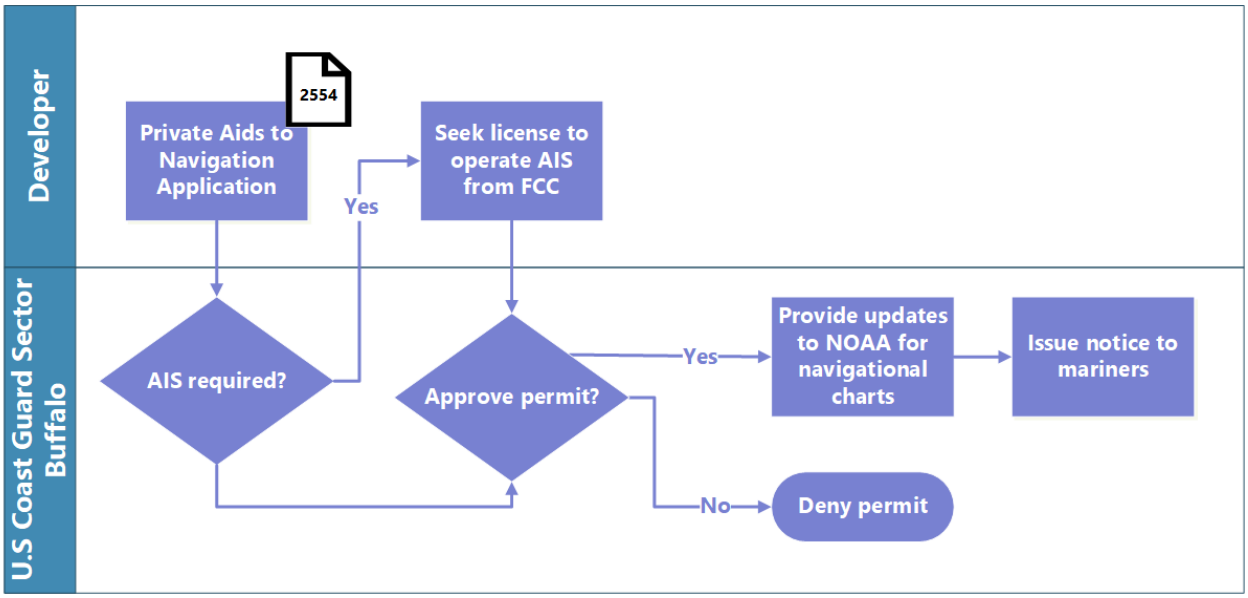
Table 6. Summary of National Historic Preservation Act (NHPA) Section 106 Consultation Review Requirements

Requirement	NHPA Section 106 Consultation
Statutory Reference	16 U.S.C. § 470
Regulatory Reference	36 CFR Part 800
Responsible Agency	Lead NEPA agency, SHPO and THPO
Triggers	Potential effects on historic and cultural resources.
Inputs	Developer conducts historical and cultural resource studies as requested by lead agency and SHPO/THPO.
Application Fees	None
Outputs	Memorandum of Agreement or a Programmatic Agreement.
Timeline	Occurs as part of the NEPA consultation process–within the 2-year timeline of NEPA under FAST-41 and current NEPA regulations.
Risks	Changes to project scope and siting to meet requirements.
Opportunities	Provide analysis for NEPA process.
Case Studies	Cape Wind as the project location was deemed eligible for listing on the National Register of Historic Places.

3.1.6 USCG Consultation and Private Aids to Navigation Permit, Navigational Safety Risk Assessment

Under 33 CFR Parts 62, 64, 66 et seq USCG has authority to determine whether an obstruction is a hazard to navigation, and what markings, lights, or fog signals (i.e., aids to navigation) may be required for the safe navigation of marine traffic. If a New York Great Lakes Windfarm is commercially developed, the wind turbines would be privately owned and would therefore require a Private Aid to Navigation (PATON) permit. Wind developers in marine and aquatic environments often deploy meteorological buoys or towers in the site assessment phase, and these buoys would also require a PATON permit. An overview of the PATON permit process is provided in Figure 7.

Figure 7. Overview of the Private Aid to Navigation (PATON) Permitting Process



The PATON permitting process generally occurs late in the overall federal permitting process. For example, during interviews, USCG officials stated that PATON permit applications in Atlantic offshore wind projects are submitted after a ROD is issued under NEPA, and final project design and siting details are known; however, the PATON permit is not part of the NEPA process. During interviews, USCG 9th District officials stated that a lighting plan may be required by the lead agency, would be submitted in advance of the PATON permit form and USCG and FAA review and provide guidance to the lead agency on its consistency with domestic law/policy and international recommendations (International Association of Marine Aids to Navigation and Lighthouse Authorities 0-139). The PATON permitting process includes submitting USCG Form 2554. Recently, USCG began allowing the use of Automatic Identification Systems (AIS) devices mounted to PATONs to increase safety. These devices require a Federal Communications Commission license because they transmit information about the PATON's position and status through the electromagnetic spectrum. USCG will review the PATON permit application over a duration of about 30 to 60 days, depending upon the complexity of the proposed project. During interviews, USCG officials stated that PATON permit applications will not be approved until a final USACE CWA Section 404/RHA Section 10 permit has been issued. Once the PATON permit is approved, several notices to mariners are issued with information on current and upcoming site assessment, construction, or operations activities. USCG also shares the details of the PATON permit with the NOAA Office of Coast Survey, which will update navigational charts to ensure mariners are aware of the new PATONs.

Before the PATON permitting process, USCG would likely act as a cooperating agency under NEPA and provide recommendations to the NEPA lead agency (e.g., USACE). USCG navigation risk assessment methods for offshore renewable energy are dictated by Navigation and Vessel Inspection Circular No. 01-19, which provides marine planning guidelines, including setbacks from windfarms, and States that USCG may recommend that the offshore renewable energy developer conduct a Navigational Safety Risk Assessment (NSRA). As a recent example, USCG required a NSRA to be prepared for the proposed Icebreaker Wind project in Lake Erie.

As a cooperating agency under NEPA, USCG does not have authority to approve or deny siting for offshore renewables projects—it provides recommendations to the lead agency which has authority through their major federal action. For example, if USACE were the lead NEPA agency, it could (and likely would) decline to grant a CWA Section 404/RHA Section 10 permit unless the project siting adhered to USCG recommendations. The PATON permitting process is also not used as a mechanism to approve or deny siting considerations, as the PATON permit is not applied for until siting has already been determined. The primary way that USCG can preemptively dictate offshore renewable energy siting is through the Ports and Waterways Safety Act (33 U.S.C. 1223[c]), which gives USCG authority to conduct Port Access Route Study (PARS) and subsequently establish regulatory routing measures within which obstructions are prohibited. There is no requirement for USCG to conduct PARS and establish routing measures. It is at the discretion of USCG whether to pursue PARS and the establishment of regulatory routing measures. It is reasonable to infer that if a significant amount of Great Lakes Wind energy is developed and presents a cumulative risk to vessel navigation in the Great Lakes, USCG may initiate one or more PARS with the goal of establishing routing measures. During an interview with USCG 9th District officials it was clear that the decision to conduct a PARS would rely heavily upon the siting location of Great Lakes Wind. The Great Lakes region has primary shipping lanes identified on navigational charts via the Lake Carrier Association (LCA) track lines; if any of the proposed windfarm infrastructure is sited in close proximity to the LCA lines or could impede safe access to and/or from ports or other places, a PARS would be necessary.

3.1.6.1 Approval Criteria and Thresholds

Unlike other permit and regulatory approvals discussed in this chapter, PATON approval is not dependent upon environmental or socioeconomic impacts. It requires adherence to USCG's technical requirements for the PATON. Requirements for lighting can be found at 33 CFR §66.01-11 and other technical requirements are found at 33 CFR §62 Subpart B.

The materials and studies required for PATON permit applications are summarized in section 8. Table 7 provides key details of the USCG PATON permit process.

Table 7. Summary of Private Aid to Navigation Permit (PATON) Requirements

Requirement	USCG consultation and PATON permit.
Statutory Reference	14 U.S.C. 542, 543, 544; 43 U.S.C. 1333
Regulatory Reference	33 CFR §62, 64, 66 et seq
Responsible Agency	USCG Sector Buffalo
Triggers	Construction of hazards to navigation in navigable waters of the U.S.
Inputs	PATON permit application, lighting plan, USCG Form CG-2255, NSRA.
Application Fees	None
Outputs	USCG PATON permit, conditions for lighting and markings.
Timeline	PATON permit application submitted after lighting plan is approved. USCG permit review requires approximately 30-60 days.
Risks	Minimal, developer must follow USCG direction on lighting and markings.
Opportunities	NSRA and PARS can inform NEPA impacts to shipping and navigation and alternatives.
Case Studies	Icebreaker Wind, Block Island Windfarm, Cape Wind, Nautilus Offshore.

3.1.7 *Federal Aviation Act* Obstruction Evaluation

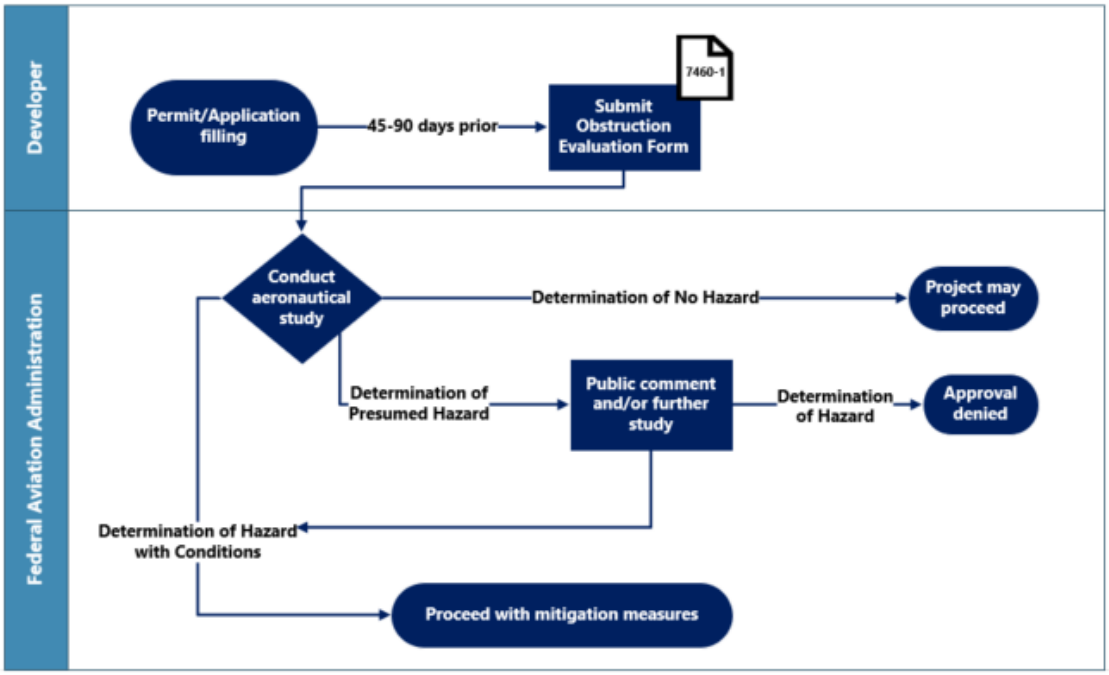
Under the Federal Aviation Act, the Federal Aviation Administration (FAA) requires proposed structures over 60 m (200 ft) to submit an application for an Obstruction Evaluation through a Form 7460-1 filing prior to construction. These requirements apply to any state, territory, and possession of the U.S. and within waters surrounding them. The Great Lakes are considered internal waters of the U.S., meaning they are controlled by their adjacent U.S. states and are therefore subject to the FAA obstruction evaluation requirements.[2] Once the FAA Obstruction Evaluation Group receives the Form 7460-1, it shares it with ten "business lines" for review and evaluation, including the DoD Military Aviation and Installation Assurance Siting Clearinghouse (also referred to as the DoD Siting Clearinghouse). The DoD Siting Clearinghouse serves as the single representative for all branches of the military and DoD communicates with other government agencies and private developers on issues that can affect military aviation obstruction and electronic communications and navigation systems. In interviews, FAA officials stated that all energy production related issues, including wind turbines, are routed to the DoD Siting Clearinghouse for evaluation.

Together the ten business lines determine whether the proposed project would have an "adverse effect" on air navigation. If no adverse effect is found, the project may proceed. Adverse effects are found if the project exceeds the obstruction standards at 14 CFR §77.17. One of these standards is a height of over 152 m (499 ft) above ground level. Because Great Lakes wind turbines are likely to be over 182 m (600 ft) in height, FAA would likely find an adverse effect at this stage of the review.

FAA then issues a Notice of Preliminary Findings which lists conditions which, if followed by the developer, would result in a favorable finding by FAA. The developer can choose to either agree to these conditions, terminate the project, or request further study. If further study finds a "substantial adverse effect," then the FAA will issue a "Determination of Hazard." Otherwise, the FAA will issue a favorable determination.

The FAA would evaluate the Form 7460-1 filing and determine whether the proposed structure poses a hazard to air navigation and may require marking and lighting in accordance with FAA Advisory circular 70/7460-1 L Change 1, Obstruction Marking and Lighting. Filing a FAA Form 7460-1 initiates the permitting and approval process. A general overview of the FAA Airport Obstruction Process is shown in Figure 8.

Figure 8. Overview of the Federal Aviation Administration (FAA) Obstruction Evaluation Process



3.1.7.1 Approval Criteria and Thresholds

Similar to the USCG, the FAA does not evaluate environmental or socioeconomic impacts. FAA evaluates whether the project poses a hazard to air navigation based on technical criteria. FAA conducts aeronautical studies to evaluate the risk posed by potential obstruction. Aeronautical studies involve the evaluation of the following elements of the National Airspace System:

- Impacts on arrival, departure, and enroute procedures for Visual Flight Rules operations.
- Impacts on arrival, departure, and enroute procedures for Instrument Flight Rules operations.
- Impacts on existing and planned public use airports.
- Airport traffic capacity
- Minimum altitudes including Minimum Obstacle Clearance Altitudes, Minimum Enroute Altitudes, Instrument Approach Procedures, and departure procedures.
- Potential effect on air traffic control radar and electronic navigational aids.
- Cumulative effects

If necessary and feasible, the FAA will require markings, lighting, or design alterations to mitigate hazards. Technical standards for hazard to navigation review are found at 14 CFR Part 77 Subpart C. The materials and studies required for FAA obstruction review are summarized in section 8. Table 8 provides a summary of key details of the process. NYSERDA has written FAA mitigation into offshore procurements.

Table 8. Summary of Federal Aviation Administration (FAA) Obstruction Evaluation Requirements

Requirement	FAA hazard to air navigation review.
Statutory Reference	49 U.S.C. § 106
Regulatory Reference	14 CFR Part 77
Responsible Agency	FAA Obstruction Evaluation Group.
Triggers	Planned construction of one or more structures over 61 m (200 ft) tall in the U.S.
Inputs	Complete FAA Form 7460-1, Notice of Proposed Construction or Alteration.
Application Fees	None
Outputs	Determination of No Hazard to Air Navigation.
Timeline	Submit form 60-90 days before planned construction start date.
Risks	FAA may require changes to planned structure before issuing determination.
Opportunities	Lighting may need to be coordinated with USFWS to mitigate risk to birds.
Case Studies	Icebreaker Wind, Block Island Windfarm, Galloo Island, Lighthouse Wind, Nautilus Offshore Wind, Duke Energy Renewables Wyoming.

3.1.8 National Marine Sanctuary Permitting

The National Marine Sanctuary Act (NMSA) authorizes NOAA to promulgate regulations that determine what activities can and cannot be conducted within a specific sanctuary. The NMSA requires significant coordination and input from state governments when a proposed National Marine Sanctuary is within a state's waters—this includes cooperation with NYS agencies for sanctuaries proposed in New York's territorial waters in Lake Ontario and Lake Erie (NOAA 2021).At the time the current report was finalized, there were two National Marine Sanctuaries within the Great Lakes—Thunder Bay National Marine Sanctuary in Lake Huron and Wisconsin Shipwreck Coast National Marine Sanctuary in Lake Michigan—with one other proposed sanctuary. The Lake Ontario National Marine Sanctuary is proposed within NYS waters in Lake Ontario.

NOAA published a Draft EIS for the proposed Lake Ontario National Marine Sanctuary in July 2021. The Draft EIS stated that the primary purpose and focus of the proposed marine sanctuary would be to protect historic shipwrecks and underwater cultural resources, including at least one submerged aircraft. The DEIS features several key sections that, in principle, could limit or prohibit Great Lakes Wind energy projects. Because National Marine Sanctuaries have the ability to limit activities within their boundaries via regulations, the Draft EIS was reviewed to explore whether the National Marine Sanctuary proposal would potentially limit, exclude, or place requirements on Great Lakes Wind. The Draft EIS includes the following:

- **Proposed Regulatory Concepts:** if the National Marine Sanctuary is established, NOAA will promulgate regulations that dictate what activities are and are not permitted within the sanctuary's boundaries.
- **Draft Management Plan:** if established, the National Marine Sanctuary would publish a Final Management Plan with goals, strategies, and activities for sanctuary staff to pursue to further the purpose of the sanctuary.
- **Co-Management with New York State:** The Draft EIS describes the shared responsibilities and authority of NOAA and the State of New York in determining and carrying out the final regulations and policies of the National Marine Sanctuary.

NOAA proposed five regulatory concepts, none of which appear to limit or place requirements on Great Lakes Wind development. NOAA and NYSDOS staff confirmed this interpretation during an interview. The regulatory concepts are:

- **Prohibit damage to the cultural and historical resources within the sanctuary**—this regulatory concept is designed to prevent damage to historic shipwrecks and aircraft wrecks with a focus on tourism and recreation that can inflict damage via anchoring. Offshore wind developers are already prohibited from damaging cultural resources through federal and NYS law; therefore, this regulatory concept does not appear to impact Great Lakes Wind development.
- **Prohibit grappling or anchoring on shipwreck sites**—similar to the first regulatory concept above, anchoring on shipwreck sites is already prohibited for wind energy developers and developers are accustomed to avoiding submerged historical artifacts.
- **Implement permit system for operating tethered systems at shipwreck sites**—this regulatory concept is targeted toward operation of submersible remote operated vehicles that pose threats to shipwrecks through collision, discarded ballast weights, and tether entanglement issues. To the extent that Great Lakes wind energy developers are likely to use tethered remote operated vehicles, they would likely plan to avoid all known shipwrecks and cultural resources. This regulatory concept explicitly excludes *towed* remote sensing equipment such as side scan sonar, which is used regularly for site characterization surveys.
- **Prohibit possessing, selling, purchasing, transporting, importing, or exporting any sanctuary resource**—this should not impact Great Lakes wind development.
- **Emergency regulations**—NOAA would have the authority to pass emergency regulations for a period of six months with an option to extend them—only once—for another six months. Emergency regulations would be established if there was an imminent risk posed to sanctuary cultural resources and a temporary prohibition would prevent damage to the resources. These emergency regulations would require approval by the governor of New York State to go into effect. During an interview, NOAA officials offered the following hypothetical example of an emergency regulation: if a new shipwreck were discovered, NOAA *could* implement an emergency regulation to temporarily prevent recreational diving on the site while researchers document and study the new site.

The Draft EIS also proposes that NOAA will establish several policy instruments to permit activities that are otherwise prohibited by sanctuary regulations, including permits, authorizations, and certifications. NOAA can approve general permits for activities related to education, research, or management; authorizations for activities that are otherwise prohibited by the sanctuary regulations but authorized by another federal, State, or local authority; certifications for actions that are otherwise prohibited by sanctuary regulations but were approved by a federal, State, or local authority before the regulations went into effect; and special use permits for activities needed to establish access to sanctuary resources or promote public use and understanding of sanctuary resources. An example of an activity that could require a special use permit for Great Lakes Wind is the continued presence of commercial submarine cables on or within the submerged lands of the sanctuary. The timing of the Great Lakes Wind project approval would determine whether authorizations or certifications would be appropriate, as certifications would be used if the project is approved before the sanctuary is designated.

The process for establishing a National Marine Sanctuary involves coordination by NOAA with other federal agencies and State governments to develop a management plan for the sanctuary and to promulgate regulations that govern specific activities within the boundaries of the sanctuary. The potential establishment of the Lake Ontario National Marine Sanctuary is important for this study because the sanctuary's regulations, *in principle*, could limit or prohibit Great Lakes Wind. However, the NYS government would have significant input to the substance of these regulations. If New York wishes to allow wind energy activities within a National Marine Sanctuary in its territorial waters, it should be able to influence the regulations to allow such activities. In email correspondence with NYSDOS, and an interview with NYSDOS and NOAA ONMS, officials confirmed that the proposed National Marine Sanctuary is not anticipated to have an impact on Great Lakes Wind activities. NYSDOS officials also confirmed that a proposed National Marine Sanctuary would require a New York State Coastal Management Program consistency review under Coastal Zone Management Act (CZMA), which represents another avenue for NYS officials to influence the proposed sanctuary. The governor of a state can refuse a sanctuary designation and/or its accompanying proposed regulations in state waters at the designation stage, so there is a direct avenue to ensure regulations meet the needs of wind development if desired by New York State. NOAA will also implement Section 304(d) consultation for federal actions that are within the sanctuary or could "enter and injure" sanctuary resources. It is not required that the lead agency follow recommendations provided in consultation, but it would be unusual for the lead agency to set aside such recommendations.

Table 9. Summary of National Oceanic and Atmospheric Administration (NOAA) National Marine Sanctuaries Permitting

Requirement	NOAA National Marine Sanctuary Permits, Authorizations and/or Certifications.
Statutory Reference	16 U.S.C § 1431 et seq
Regulatory Reference	15 CFR Part 922
Responsible Agency	NOAA Office of National Marine Sanctuaries.
Triggers	Activities that are otherwise prohibited by the sanctuary regulations but authorized by another federal, state, or local authority.
Inputs	Federal, state and/or local authorization documentation, and if applicable, permits.
Application Fees	None; special use permit fees assessed upon permit issuance.
Outputs	Authorization and/or certification of project activities; special use permit for continued presence of submarine cables.
Timeline	No statutory timeframe provided.
Risks	National Marine Sanctuaries, in principle, could prohibit wind projects.
Opportunities	Federal, state and local permit approvals could pave the way for sanctuary authorizations for Great Lakes Wind energy.
Case Studies	No case studies located in National Marine Sanctuaries.

3.2 New York State Regulatory Approvals and Permitting

This section describes the major NYS regulations and permitting approvals likely necessary for Great Lakes Wind energy, including requirements for utilities.

3.2.1 Office of Renewable Energy Siting Major Renewable Energy Facility Permit

In 2020, the NYS Legislature passed the Accelerated Renewable Energy Growth and Community Benefit Act, which required the ORES, housed within the NYSDOS, to promulgate regulations for permitting of major renewable energy projects. The new ORES regulations became effective in March 2021 and create a single regulatory and permitting process that encompasses all state permitting reviews applicable to renewable energy siting (19 NYCRR Part 900).

The regulations are applicable to all wind energy projects with capacity of 25 MW or greater and, due to a recent budget resolution, supplant and replace all regulatory requirements of State Environmental Quality Review Act (SEQRA), as well as any other NYS permits for applicable projects. Wind energy projects below 20 MW capacity remain subject to the SEQRA process, and for projects between 20 and 25 MW, the developer may "opt-in" to the Accelerated Renewable Energy Growth and Community Benefit Act process.

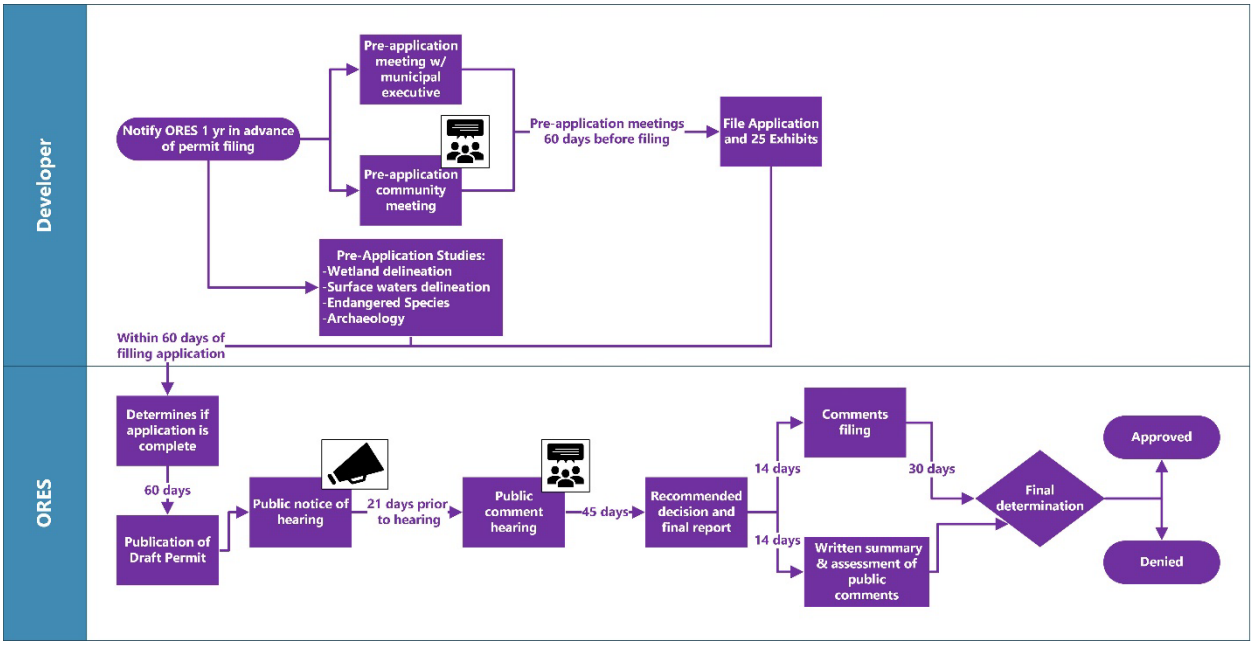
Figure 9 below provides a general overview of the Accelerated Renewable Energy Growth and Community Benefit Act process. The regulations require the developer to notify ORES at least one year prior to submitting a permit application. There are several pre-application activities including required meetings with the relevant municipal executive (e.g., mayor) and a meeting with host community members. There are several pre-application studies required, including surface water delineation, threatened and endangered species review, and an archaeology and historical preservation review. These and other technical reviews that are part of the process are led by ORES but conducted with the technical expertise of other state agencies such as NYSDEC, SHPO, and THPO.

The permit application is extensive and includes 25 Exhibits that address various environmental and socioeconomic impacts of the project such as air quality, water quality, visual impacts, state listed endangered and threatened species, and cultural resources (see section 8 for a full list of materials

required for the permit application). The 25 Exhibits essentially cover a comparable range of impact issues as other NYS processes, including SEQRA, but differ from these other processes in that there is a single office (ORES) and single permit to administer. These exhibits also feed into or leverage several other NYS permitting processes as follows:

- Exhibit 3: Location of Facilities and Surrounding Land Use requires an analysis of the project's conformance with the NYS Coastal Management Program including any Local Waterfront Revitalization Plans (LWRPs).
- Exhibit 4: Real Property requires submission of easements and grants which would include Submerged Land Easements granted by the NYSOGS.
- Exhibit 13: Water Resources and Aquatic Ecology requires submission of a request for CWA Section 401 Water Quality Certificate (WQC).
- Exhibit 16: Effect on Transportation requires certification that, if required by federal regulations, the developer has submitted the project for review under FAA obstructions rules including the outcome of Accelerated Renewable Energy Growth and Community Benefit Act review.

Figure 9. Overview of the Accelerated Renewable Energy Growth and Community Benefit Act Process



3.2.1.1 Approval Criteria and Thresholds

At the time the current study was written, NYSDOS had recently established the Office of Renewable Energy Siting and associated policies and procedures to implement the Accelerated Renewable Energy Growth and Community Benefit Act regulations. The materials and studies required for the permit applications are summarized in section 8. Table 10 provides a summary of the key details of the Accelerated Renewable Energy Growth and Community Benefit Act process.

Table 10. Summary of Accelerated Renewable Energy Growth and Community Benefit Act Requirements

Requirement	*Accelerated Renewable Energy Growth and Community Benefit Act.*
Statutory Reference	EXC § 94-c
Regulatory Reference	19 NYCRR Part 900
Responsible Agency	NYSDOS/ORES
Triggers	Wind energy projects over 25 MW in total capacity.
Inputs	Pre-application activities, 94-c permit application and accompanying 25 Exhibits.
Application Fees	Fee of $1,000 per 1,000 KW (1 MW) of capacity.
Outputs	Approval or rejection of permit.
Timeline	Pre-application notification 1 year before permit submission. ORES has 1 year to review completed permit application.
Risks	New process that is untested.
Opportunities	One integrated process with all state permitting requirements (not including federally delegated permits and/or programs).
Case Studies	None

3.2.2 State Environmental Quality Review Act

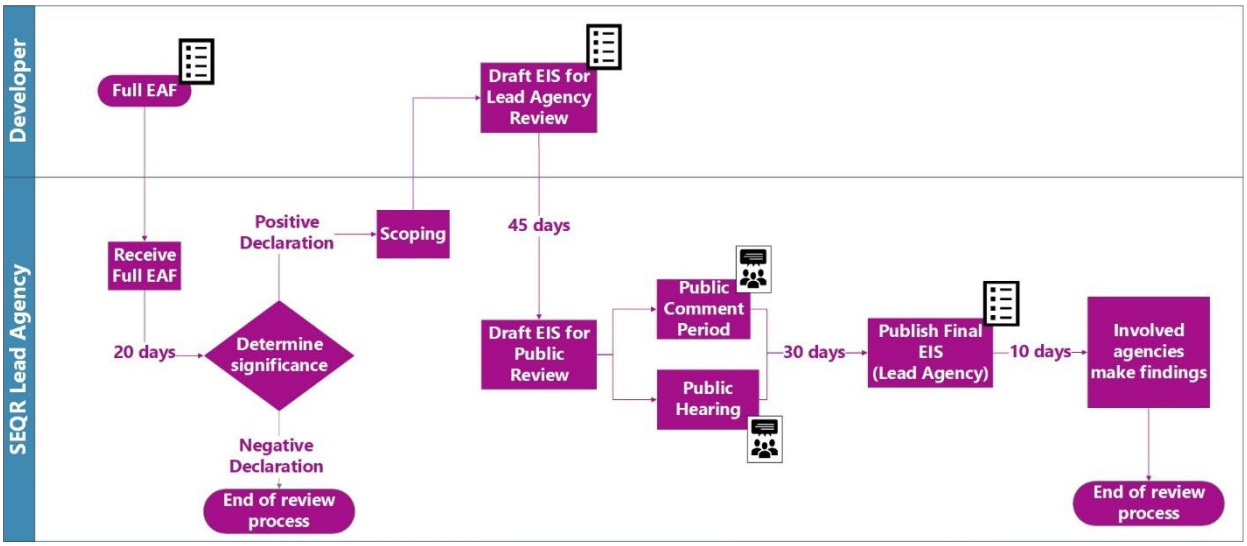
The New York SEQRA is modeled on NEPA and requires all state and local government agencies to consider the environmental and socioeconomic impacts of projects and incorporate the results into their discretionary decision making. A Great Lakes Wind project with a capacity under 20 MW would not be reviewed under the Accelerated Renewable Energy Growth and Community Benefit Act regulations (see section 3.2.1) and, due to the multiple state agency approvals required, would be subject to SEQRA. If subject to review under Article VII, the portions of the project related to transmission lines or facilities would not be subject to SEQRA. Like NEPA, SEQRA involves several levels of review based upon the scope of the project and severity of impacts. To determine the level of review required under SEQRA, the activity is categorized as Type I, Type II, or Unlisted. A Great Lakes Windfarm would likely be classified as a Type I Action based on several criteria, including but not limited to, the height of the structures being over 30 m (100 ft) high (the turbines). Because of the Type I classification, the developer would need to

prepare a Full Environmental Assessment Form (EAF). The lead state agency evaluates the Full EAF and makes a "determination of significance," which determines whether an EIS is required. Importantly, if a federal EIS is completed under NEPA, an EIS is *not* required under SEQRA as long as the federal EIS is sufficient to make findings under SEQRA. As with NEPA, the SEQRA lead agency can vary by project and is selected from involved NYS agencies based on the criteria found at NYCRR 617.6 (b)(5)(v). The three criteria used to determine the SEQRA lead agency include the following:

- The primary location of an action's impacts, i.e., statewide, regional, or local (if the impacts are of primarily local significance, all other considerations being equal, the local agency involved will be lead agency).
- The agency that has the broadest governmental powers for investigating the impacts.
- The agency that has the greatest capability for the most thorough environmental assessment of the action.

Figure 10 below is a general overview of the SEQRA process. (NYSERDA 2010)

Figure 10. Overview of State Environmental Quality Review Act (SEQRA) Process



3.2.2.1 Approval Criteria and Thresholds

Like NEPA, SEQRA is not a true approval or permitting process. It requires State and local agencies to determine whether a proposed action may have a significant adverse effect on the environment based on a comparison of reasonably expected impacts to regulatory criteria. To make this determination, the lead

SEQRA agency must consider the "magnitude" and "importance" of impacts. Magnitude refers to the size or scope of the impacts, and importance refers to how widespread the impacts are to receptors (i.e., affected resources or communities). The regulations at 6 NYCRR 617.7 provide illustrative criteria for determining significance. These criteria are not exhaustive, but are indicators:

- An adverse change in:
  - Air quality
  - Ground or surface water quality or quantity
  - Traffic or noise
  - Solid waste production
  - Erosion
  - Flooding
  - Leaching or drainage
- Removal or destruction of large quantities of vegetation or fauna
- Interference with movement of migratory species
- Impacts to habitat
- Impacts to threatened or endangered species
- Impairment of a NYS designated Critical Environmental Area
- Conflict with a community's current plans or goals
- Impairment of the character of important historical, archaeological, architectural, or aesthetic resources.
- Major change to the quantity or type of energy used
- Hazard to human health
- Substantial change in use or intensity of land use
- Encouraging or attracting an unusually large number of people to a place
- Creation of demand for actions that would cause the above impacts

If, after considering these and additional factors, the State agency determines that the impacts will potentially be significant, the agency will make a "positive declaration." If a positive declaration is made, an EIS must be prepared under SEQRA unless a federal EIS is prepared that allows involved agencies to make findings and satisfies the regulatory requirements of SEQRA (NYSDEC 2020).

The materials and studies required for the SEQRA process are summarized in section 8. Table 11 provides a summary of key SEQRA process details.

Table 11. Summary of State Environmental Quality Review Act (SEQRA) Requirements

Requirement	SEQRA Review
Statutory Reference	ECL §8-0109(2), ECL §8-0109(4), ECL §8-0103(7), ECL § 8-0103(9).
Regulatory Reference	6 NYCRR Part 617
Responsible Agency	Lead state agency (development of SEQRA documents). NYSDEC (review of associated permits).
Triggers	Development of a project that is not subject to review under the Accelerated Renewable Energy Growth and Community Benefit Act.
Inputs	Submission of an EAF and a Coastal Assessment Form.
Application Fees	Optional; varies based on actual cost of preparing and/or reviewing the EIS. Not to exceed 0.5% of total project value.
Outputs	EIS and SEQR findings statement
Timeline	180 days to 3 years
Risks	Timeline and amount of information required to be submitted dependent on whether EIS is required.
Opportunities	May not be required if NEPA EIS already undertaken.
Case Studies	Galloo Island, Lighthouse Wind

3.2.3 New York State Department of Environmental Conservation Permits Governed by the Uniform Procedures Act

The New York Uniform Procedures Act (UPA; ECL Article 70) provides uniform procedures for permits issued by the NYSDEC at 6 NYCRR Part 621. The uniform procedures may apply to multiple NYSDEC permits applicable to Great Lakes Wind, including the four following examples:

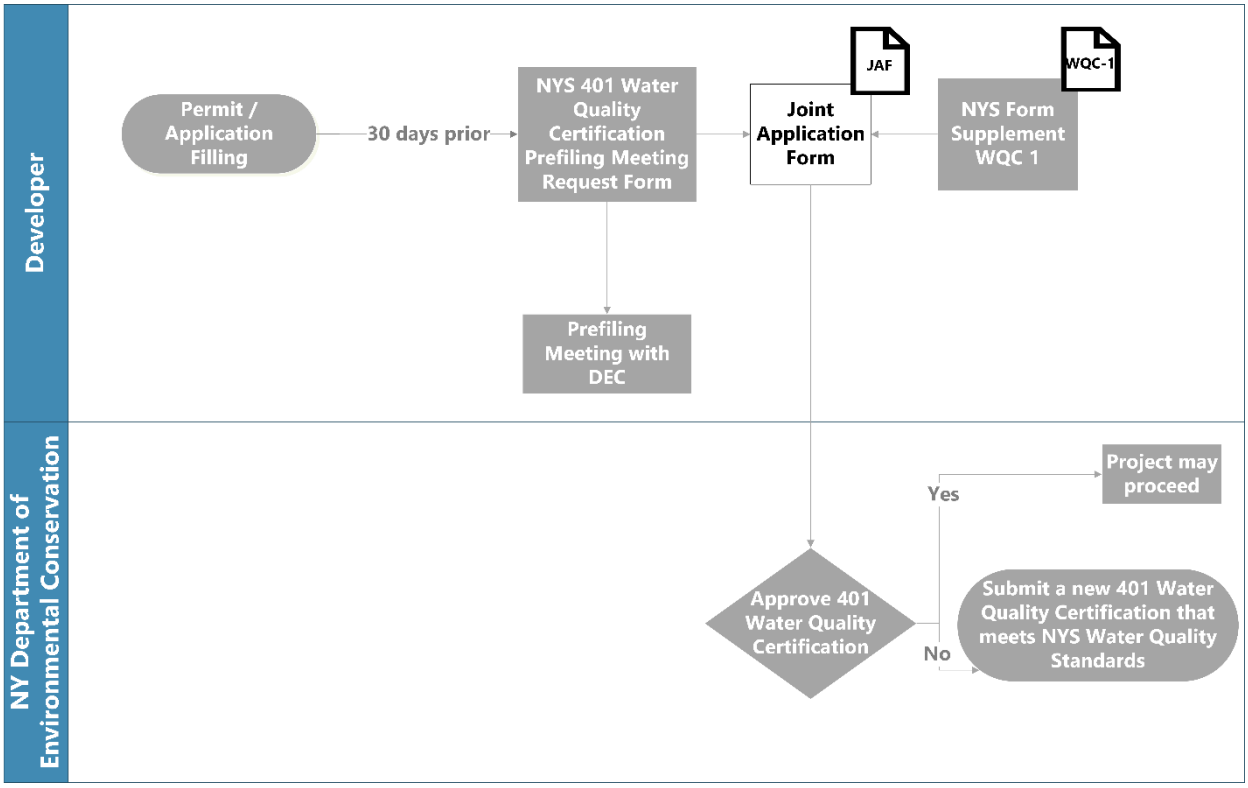
- CWA Section 401 Water Quality Certification (section 3.2.3.1).
- Protection of Waters (Excavation or Placement of Fill in Navigable Waters) (section 3.2.3.2).
- Coastal Erosion Management Permit (section 3.2.3.5).
- Incidental Take Permit (section 3.2.3.7).

Applicants are required to submit all UPA permit applications simultaneously. The regulations state that if the project is subject to SEQRA, these permit applications cannot be complete until an EAF has been submitted; a SEQRA lead agency has been established; and either a negative declaration is filed or draft EIS has been accepted by the lead agency. The regulations encourage pre-application conference meetings with NYSDEC and provides timeframes for NYSDEC notifying an application whether the application is complete. For major UPA actions, there is a public comment period after applications are determined complete, and an option for NYSDEC to hold a public hearing.

3.2.3.1 Clean Water Act Section 401 Water Quality Certification

Under Section 401 of the CWA, a federal agency may not issue a permit for activities that could result in a discharge to a state's waters without receiving a Section 401 WQC from a state agency, verifying compliance with the State's water quality requirements. In order for the USACE to issue a permit for dredge and fill activities, a Section 401 WQC is required from the State of New York. A brief overview of the 401-certification process is shown in Figure 11 below. The developer would indicate the request for 401-certification on the JAF.

Figure 11. Overview of Clean Water Act (CWA) Section 401 Water Quality Certification (WQC) Process



3.2.3.2 Approval Criteria and Thresholds

Section 401 of the CWA requires states, including New York State, to certify that any federally permitted activity that will result in a discharge to navigable waters will comply with state Water Quality Standards. While a review of NYS Water Quality Standards is beyond the scope of this study, the NYS 401 WQC process can be summarized as a check that discharge of dredged or fill materials would not violate the Water Quality Standards established for Lake Erie or Lake Ontario. (EPA 2019)

The materials and studies required for 401 WQC are summarized in section 8. Table 12 provides a summary of CWA Section 401 certification key details.

Table 12. Summary of Clean Water Act (CWA) Section 401 Certification Review Requirements

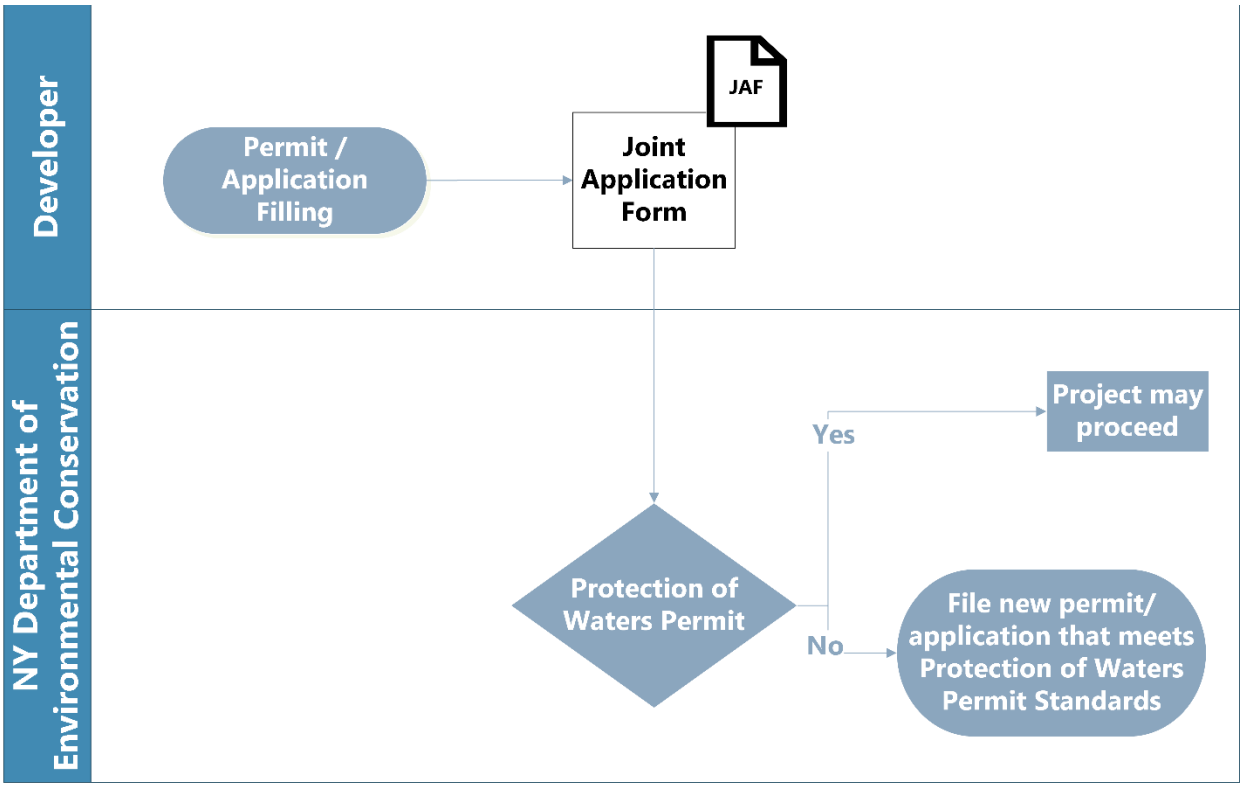
Requirement	CWA Section 401 WQC
Statutory Reference	33 U.S.C. 1341
Regulatory Reference	40 CFR § 121 (federal) 6 NYCRR 621.4 (b) (New York State)
Responsible Agency	Environmental Protection Agency (EPA) (federal). NYDPS or ORES (state agency depends on amount of energy generated and length of transmission lines).
Triggers	Federal action that discharges to navigable state waters
Inputs	WQS-1, JAF
Application Fees	None
Outputs	Section 401 WQC
Timeline	Authorities must act within 1 year of certification request.
Risks	Required before any other federal agency may issue a permit or license to conduct any activity that may result in any discharge into waters of the United States.
Opportunities	Is integrated into the Accelerated Renewable Energy Growth and Community Benefit Act process for major renewable energy projects.
Case Studies	Galloo Island cable installation.

3.2.3.3 Excavation or Placement of Fill in Navigable Waters Permit

NYSDEC requires a permit for placement of dredged or fill material in navigable waters, similar to the USACE CWA Section 404/RHA Section 10 permit. This permit would be required for the installation of the export cable and turbine foundations. The project would likely be designated as a major activity for permitting purposes because it may exceed thresholds, including fill of more than 100 cubic yards and excavation of more than 464.5 square m (5,000 square ft) of lakebed to bury the cable.

A general overview of the protection of waters permit application process is depicted in Figure 12. The process for submitting an application for placement of dredge or fill material includes submission of the JAF (NYSDEC 2021).

Figure 12. Overview of the Protection of Waters Permit Process



3.2.3.4 Approval Criteria and Thresholds

Per 6 NYCRR 608.8, NYSDEC would review the permit application and approve or deny it based on whether the proposal is in the public interest, in that:

- (a) the proposal is reasonable and necessary.
- (b) the proposal will not endanger the health, safety, or welfare of the people of the State of New York.
- (c) the proposal will not cause unreasonable, uncontrolled, or unnecessary damage to the natural resources of the State, including soil, forests, water, fish, shellfish, crustaceans and aquatic and land-related environment.

The materials and studies required for NYSDEC dredge and fill permit applications are summarized in section 8. Table 13 provides a summary of dredge and fill permit review requirements.

Table 13. Summary of Dredge and Fill Permit Review Requirements

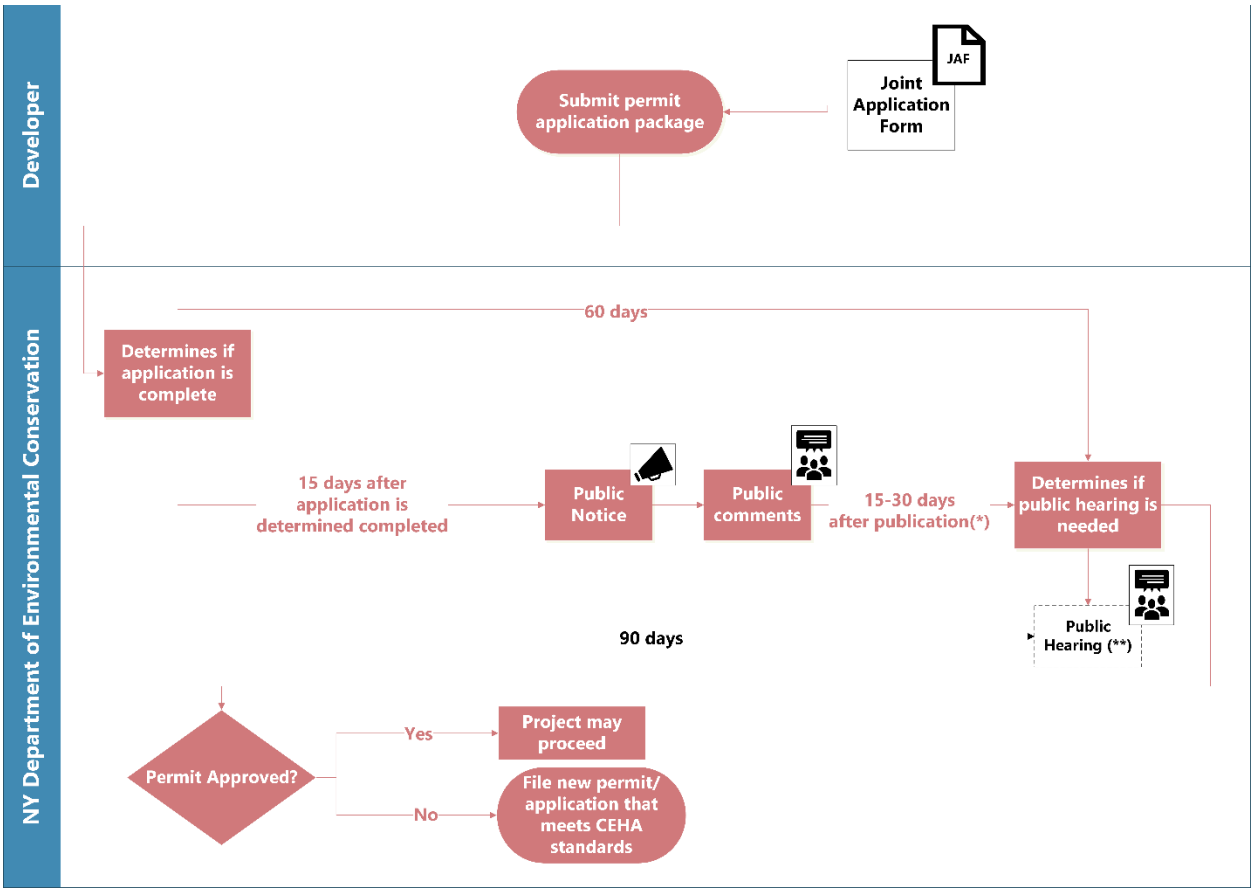
Requirement	Protection of waters—placement of dredge or fill materials.
Statutory Reference	NYS ECL § 15-0501 (2015).
Regulatory Reference	6 NYCRR 608
Responsible Agency	NYSDEC
Triggers	Placement of dredged or fill material.
Inputs	JAF
Application Fees	None
Outputs	Article 15 Protection of Waters Permit.
Timeline	6-9 months depending on public consultation timelines.
Risks	Must be consistent with NYS Coastal Management Program.
Opportunities	Leverages the JAF; coordinate mitigation with USACE RHA/CWA permitting.
Case Studies	Galloo Island underwater cable installation would apply.

3.2.3.5 Coastal Erosion Hazard Area (CEHA) Permit

The State of New York designates certain parts of its coast that are particularly vulnerable to erosion as CEHAs and requires a CEHA permit for any project taking placing in a designated CEHA. A Great Lakes Wind project in NYS waters could require a CEHA permit for its export cable landfall (where the export cable meets the shoreline) if it occurs in a CEHA area.

The general CEHA permit process is shown in Figure 13. For certain municipalities, CEHA permit approval is delegated to the local municipality, which would then be responsible for ensuring the project meets the regulatory requirements for CEHA by conducting a review of relevant project activities and coordinating with the applicant to obtain the required information. For all other municipalities, NYSDEC reviews and makes decisions on CEHA permits.

Figure 13. Overview of Coastal Erosion Hazard Area (CEHA) Process



* Applications supported by SEQRA negative declaration and SEQRA EIS have different deadlines for comments submission.

** Public hearing may not occur.

3.2.3.6 Approval Criteria and Thresholds

Per the regulations at 6 NYCRR 505.6, a CEHA permit would only be issued if it:

- is reasonable and necessary, considering reasonable alternatives.
- is unlikely to cause an increase in erosion.
- prevents or minimizes adverse impacts on:
  - Natural protective features such as beaches, bluffs, dunes, nearshore areas, and the vegetation on these features.
  - Existing erosion protection structures.
  - Natural resources including fish, wildlife, and shellfish beds.

The materials and studies required for CEHA permit applications are summarized in section 8.

Table 14 provides key details of the CEHA permit process.

Table 14. Summary of Coastal Erosion Hazard Area (CEHA) permit Review Requirements

Requirement	CEHA permit for designated CEHA areas.
Statutory Reference	ECL § 34-0102
Regulatory Reference	6 NYCRR Part 505
Responsible Agency	NYSDEC
Triggers	Activities in CEHA area if 94-c and/or Article VII do not apply.
Inputs	CEHA permit application package.
Application Fees	None
Outputs	Coastal Erosion Management Permit.
Timeline	Up to 120 days if there is a public hearing.
Risks	Cable landfall within a CEHA area could be challenging to permit.
Opportunities	CEHA maps provide guidance for developers on avoiding high erosion areas.
Case Studies	None

3.2.3.7 Incidental Take Permit

Under the NYS Environmental Conservation Law (ECL) Article 11 Section 11-0535 and the regulations at 6 NYCRR Part 182, an Incidental Take Permit from the NYSDEC is required for any taking of species listed as threatened or endangered under this law. The regulations define "take" to include killing of individuals as well as actions that would result in harm, including adverse impacts to habitat occupied by listed species.

Incidental Take Permits are not required for activities affecting species listed as "species of special concern," which are species identified as at risk for being listed as threatened." Table 15 provides an overview of the of NYS ECL-listed species within the study area. For the purpose of determining presence of ECL-listed species, the study area is defined as the NYS waters jurisdiction in Lake Ontario and Lake Erie and the shoreline extending one mile landward.

Table 15. Overview of Number of New York State Environmental Conservation Law (ECL)-Listed Species Within Study Area

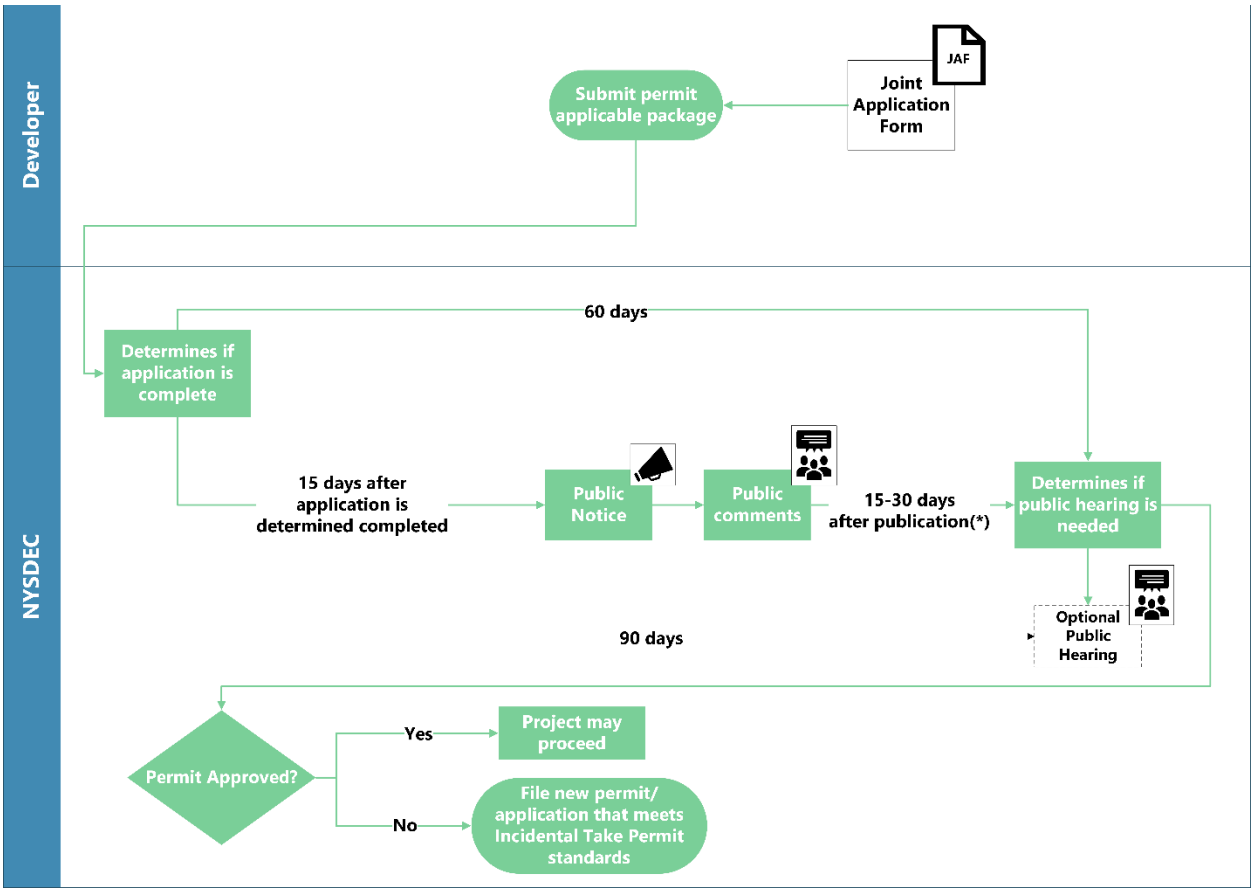
Listing	Taxa	Species
New York State ESA Endangered	Birds	Black Tern (*Chlidonias niger*) Loggerhead Shrike (*Lanius ludovicianus*) Peregrine Falcon (*Falco peregrinus*) Short-eared Owl (*Asio flammeus*) Piping plover (*Charadrius melodus*)
	Invertebrates	Clubshell (*Pleurobema clava)* Northern riffleshell (*Epioblasma torulosa rangiana*) Rayed bean (*Villosa fabalis)*
	Fish	Deepwater Sculpin (*Myoxocephalus thompsoni*) Pugnose Shiner (*Notropis anogenus*), Round whitefish (*Prosopium cylindraceum*)
	Terrestrial species	American Burying Beetle (*Nicrophorus americanus*) Bog (Bogbean) Buckmoth (*Hemileuca species*) Bog Turtle (*Glyptemys muhlenbergii*), Queen snake (*Regina septemvittata*)
New York State ESA Threatened	Birds	Bald Eagle (*Haliaeetus leucocephalus*) Common Tern (*Sterna hirundo*) Henslow's Sparrow (*Ammodramus henslowii*) Least Bittern (*Ixobrychus exilis*) Least Tern (*Sternula antillarum*) Northern Harrier (*Circus cyaneus*) Pied-Billed Grebe (*Podilymbus podiceps*) Sedge Wren (*Cistothorus platensis*) Upland Sandpiper (*Bartramia longicauda*) Red knot (*Calidris canutus rufa*)
	Fish	Eastern Sand Darter (*Ammocrypta pellucida*) Lake chubsucker (*Macrhybops isstoreriana*) Lake Sturgeon (*Acipenser fulvescens*) Mooneye (*Hiodon tergisus*) Northern Sunfish - formerly Longear Sunfish (*Lepomis peltastes*)
	Terrestrial species	Blanding's Turtle (*Emydoidea blandingii*)
New York State ESA Special Concern	Birds	Red-headed Woodpecker (*Melanerpes erythrocephalus*)
	Invertebrates	Fringed Valvata (*Valvata lewisi*) Mossy Valvata (*Valvata sincera*)
	Fish	Black Redhorse *(Moxostoma duquesnei*) Redfin Shiner (*Lythrurus umbratilis*)
	Terrestrial species	Eastern Spiny Softshell (*Apalone spinifera*)

The regulations at 6 NYCRR Part 182 have the following key definitions:

- **Take** is defined as the "pursuing, shooting, hunting, killing, capturing, trapping, snaring and netting of any species listed as endangered or threatened in this part, and all lesser acts such as disturbing, harrying or worrying."
- **Incidental take** is defined as the "taking of a species listed as endangered or threatened … that is incidental to, and not the intended purpose of, an otherwise lawful activity."'
- **Occupied habitat** is defined as the "geographic area in New York State within which a species listed as endangered or threatened in this part has been determined by the department to exhibit one or more essential behaviors."
- **Essential behaviors** are defined to include "includes behaviors associated with breeding, hibernation, reproduction, feeding, sheltering, migration and overwintering."

An overview of the Incidental Take Permitting process is provided in Figure 14. Potential permit applicants can request from NYSDEC a determination as to whether the proposed activity is likely to result in take of a listed species. NYSDEC is required to provide a written response within 30 days. The permit process, like that for the CEHA, CWA Section 401 WQC, and Excavation or Placement of Fill in Navigable Waters permits is governed by the Uniform Procedures Act and the regulations at 6 NYCRR Part 621. As with the other permits governed under Uniform Procedures Act, there is a public notice published of the complete permit application, a 15- or 30-day public comment period, and an optional public hearing.

Figure 14. Overview of Incidental Take Permit Process



Approval Criteria and Thresholds

To issue an Incidental Take Permit, the NYSDEC must determine that:

- The proposed activity is otherwise lawful, and the taking listed species is incidental to, and not the purpose of, the activity.
- NYSDEC has agreed to a mitigation plan and implementation agreement submitted by the applicant.
- The implementation of the permit conditions and the mitigation plan would result in a net conservation benefit to the species in question. This determination would be based upon the best science available including:
    - The species' capability to survive and reproduce, and any adverse impacts on those abilities based upon:
        - Population trends
        - Threats to the species
        - Reasonably foreseeable impacts on the species from other related projects or activities.

Table 16. Summary of Incidental Take Permit Details

Requirement	New York State ESA Incidental Take Permit
Statutory Reference	ECL Article 11 Section 11-0535
Regulatory Reference	6 NYCRR Part 182
Responsible Agency	NYSDEC
Triggers	Incidental take of listed species.
Inputs	Incidental Take Permit application, mitigation plan.
Application Fees	None
Outputs	Incidental take permit.
Timeline	Up to 120 days if there is a public hearing.
Risks	Species of special concern cannot be covered under the permit and require additional input from NYSDEC.
Opportunities	Coordinate mitigation with ESA consultation.
Case Studies	Lighthouse Wind, Galloo Island.

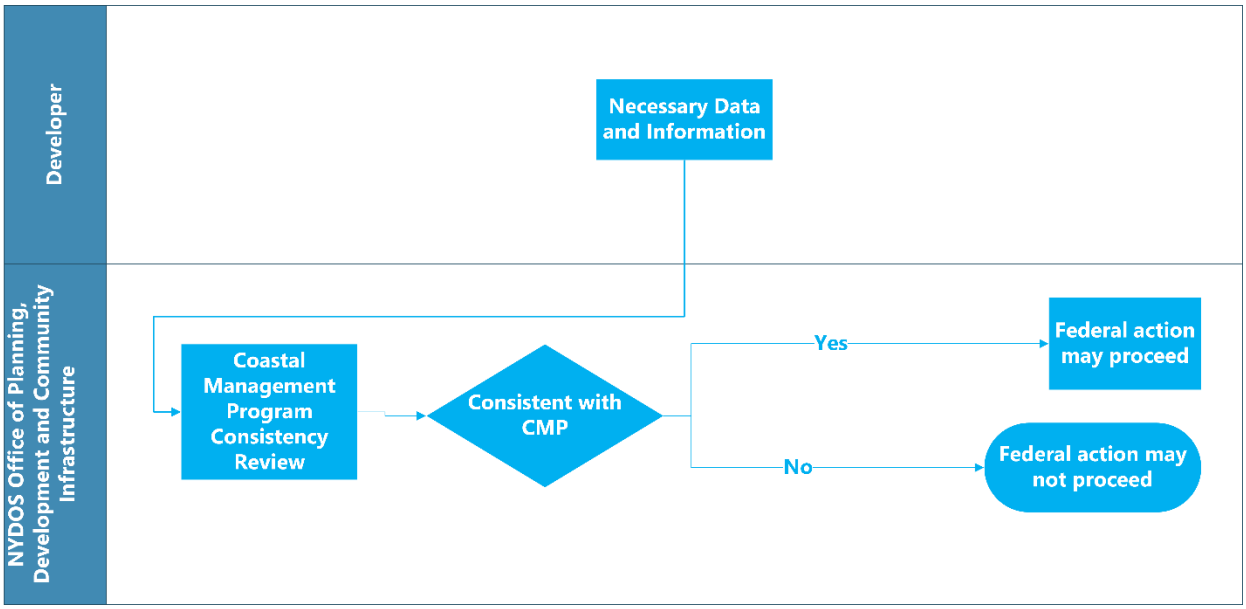
3.2.4 Coastal Zone Management Act and the New York State Coastal Management Program

Coastal Zone Management Act (CZMA) encourages states to create coastal management programs to protect their coastal zones, which can include the Great Lakes. Once the federal government approves a state's Coastal Management Plan (CMP) under the CZMA, that state may certify that a federal activity is consistent with the state Coastal Management Program in order for the activity to proceed—in effect providing states with a veto over some federal activities in their coastal zones if they are not consistent. CZMA can also apply outside the defined coastal zone of a state if there are reasonably foreseeable effects to coastal resources and applicable enforceable polices in the state's approved coastal management program.

The State of New York has a federally approved Coastal Management Program which is administered by NYSDOS, so while the CZMA is a federal statute, the most relevant regulatory entity for CZMA consistency for Great Lakes Wind energy is the NYSDOS, who would need to concur with or object to the certification that federal activities, like the granting of a USACE permit, are consistent with the CMP. At the federal level, CZMA is implemented by the NOAA Office for Coastal Management, and disputes and requests regarding consistency certification are generally addressed by this office. Certain municipalities within New York also have LWRPs, which are part of the CMP. In areas with LWRPs, the LWRP provides local refinement of the CMP policies.

Figure 15 provides a brief overview of the Coastal Management Program consistency certification process, which begins with the submission by the developer of a Federal Consistency Assessment Form (FCAF) and all necessary data and information to NYSDOS or a Consistency Determination by a lead federal agency conducting NEPA. No federal consistency review can occur unless and until an activity is actively undergoing federal review and decision-making processes.

Figure 15. Overview of the Coastal Zone Management Act (CZMA) Consistency Certification Process



3.2.4.1 Approval Criteria and Thresholds

NYSDOS reviews submissions for CZMA consistency to evaluate whether the proposed activities comply with the 44 enforceable policies of the New York State Coastal Management Program. While it is beyond the scope of this study to review and apply the 44 policies to potential Great Lakes Wind projects, NYSDOS would conduct such a review (NYSDOS 2020).

The materials and studies required for CZMA consistency review are summarized in section 8. Table 17 provides key details of CZMA consistency review.

Table 17. Summary of Coastal Zone Management Act (CZMA) Consistency Review Requirements

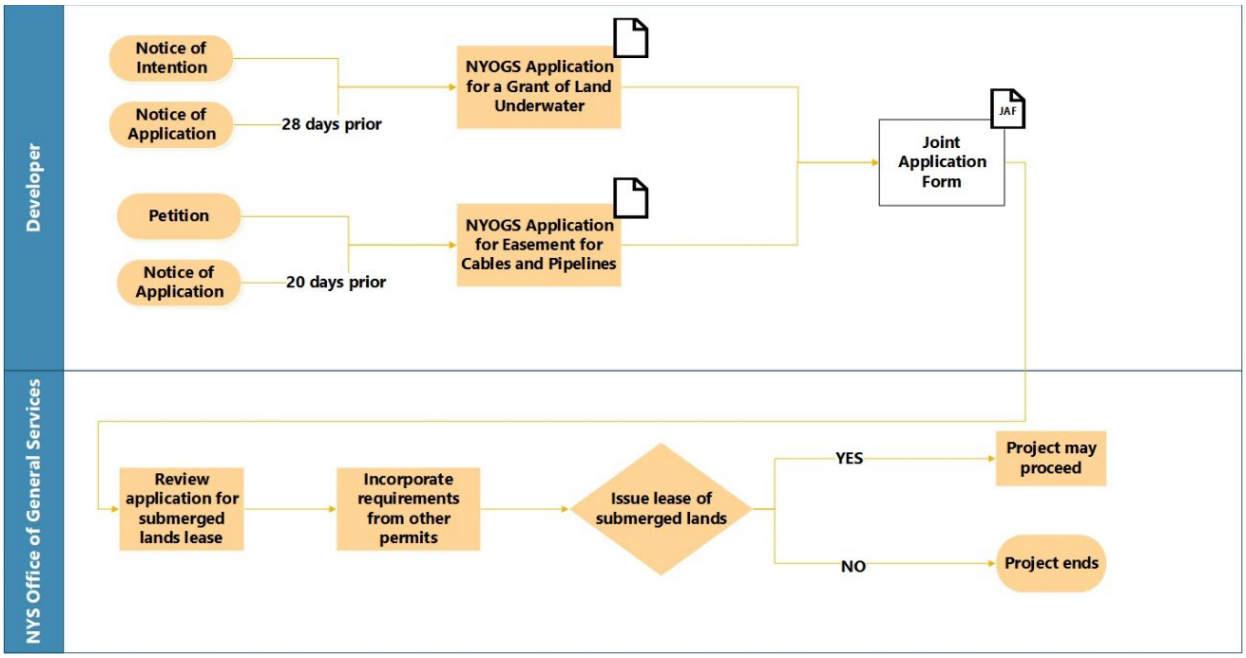
Requirement	CZMA consistency certification.
Statutory Reference	16 U.S.C. Chapter 33 (federal) EXC § 910 (New York State)
Regulatory Reference	15 CFR Part 930 19 NYCRR § 600
Responsible Agency	Federal approval of state programs: NOAA. CZMA consistency certification: NYSDOS.
Triggers	Federal activities within New York State's coastal zone.
Inputs	FCAF, necessary data and information, and/or Consistency Determination by the lead federal agency.
Application Fees	None
Outputs	Consistency certification concurrence, concurrence with conditions, or objection finding.
Timeline	Once submission is deemed complete, typically, 1-2 months to review, but may take up to 6 months. May take longer if stay agreements are included.
Risks	State has ability to find federal activities inconsistent, which may result in the federal agency not issuing its permit (though federal agencies can supersede inconsistency findings on Consistency Determinations and developers can appeal to the Secretary of Commerce for relief on inconsistency findings).
Opportunities	Mitigation or other measures to address other statutes can be developed in a manner that addresses state enforceable policies (optimized mitigation planning)
Case Studies	Galloo Island due to cables running through navigable waters of New York State, proposed alteration of wetlands, the addition of docks and dredging.

3.2.5 Easements of Lands Underwater

Construction of Great Lakes Wind turbines and associated export cables would require permission from the State of New York as the State owns the New York lakebed portions of Lake Ontario and Lake Erie. In order to obtain the right to use the lakebed for the wind project, the developer must obtain a submerged lands lease from the NYSOGS under Public Lands Laws, Article 7, Section 75. The regulations under 9 NYCRR Subtitle G, Part 270 give NYSOGS authority to grant an "area easement" which would cover the submerged lands on which the turbine foundations, inter-array cables, and any substations would be located; and 9 NYCRR Subtitle G Part 271 pertains to a "cable easement" that would cover the export transmission cable. Both types of easements would need to be secured by the windfarm developer.

The general process for obtaining leases for lands underwater is shown in Figure 16. NYSOGS requires copies of all other federal and State permits required for the project and would not grant the lease or easement until all other permits are approved. NYSOGS can also use the lease itself as an instrument to require mitigation measures or conditions and other requirements resulting from other permitting or review processes. There is also a fee associated with application for the leases.

Figure 16. Overview of New York State Easement of Lands Underwater Process



3.2.5.1 Approval Criteria and Thresholds

Per 9 NYCRR 270-3.2, NYSOGS would review the permit application in consultation with three main agencies: the NYSDEC, NYSDOS, and Office of Parks, Recreation and Historic Preservation. The application would be approved or denied based on the following factors:

- Environmental impact of the project.
- Values for natural resource management, public recreation, and commerce.
- Size, character, and effects of the project in relation to neighboring uses.
- Potential for interference with navigation, public uses of waterway and riparian/littoral rights.
- Water dependent nature of use.
- Adverse economic impact on existing commercial enterprises.
- Effect of the project on the natural resource interests of the State in the lands.
- Consistency with the public interest for purposes of fishing, bathing, and access to navigable waters.
- The need of the owners of private property to safeguard their property.

The materials and studies required for easement of land underwater applications are summarized in Materials and Studies Needed for Permit Applications. Table 18 provides a summary of easements of land underwater.

Table 18. Summary of Easements of Lands Underwater Requirements

Requirement	New York State Easements of Lands Underwater
Statutory Reference	NYS PBL § 75
Regulatory Reference	9 NYCRR Part 270
Responsible Agency	NYSOGS
Triggers	Use of submerged New York State lands.
Inputs	JAF Application for Use of Land Underwater
Application Fees	Fee based on assessed value of adjacent upland property as vacant.
Outputs	Area easement and cable easement.
Timeline	Approximately 3 to 4 months for review; will be issued after all other state and federal permits are obtained.
Risks	Lack of "adjacent upland landowner," required for the state to issue a submerged lands lease.
Opportunities	Other permit conditions can be adopted as terms of the lease or grant.
Case Studies	Galloo Island underwater cable installation would apply.

3.2.6 New York Public Service Law Article VII

Under NYS Public Service Law Article VII, installation of a "major utility transmission facility" requires the developer to acquire a Certificate of Environmental Compatibility and Public Need from the NYS Public Service Commission (NYSPSC). The NYSPSC is a five-member decision making body that makes final decisions on all applications under Article VII, while the Department of Public Service is the state agency that carries out decisions made by the NYSPSC. Major utility transmission facilities are defined to include electric transmission lines of length one mile or longer and capacity of 125 kV or lines 16 km (10 miles) or longer with capacity of 100 kV and less than 125 kV. This includes transmission cables buried beneath the substrate of State waters, and therefore would almost certainly include any export cables associated with Great Lakes Wind projects.

The application for the Certificate of Environmental Compatibility and Public Need involves nine general exhibits (applicable to all types of transmission facilities including gas lines) and six exhibits specific to electrical transmission facilities. Two weeks prior to the application being filed, the applicant must publish public notice of their intent to file in local newspapers in all areas that would be affected by the project. Once the application is submitted and determined complete by the NYSPSC, an Administrative Law Judge is assigned to the case if hearings are necessary to gather public input and consider evidence. Hearings are often necessary to help the NYSPSC determine whether the criteria for a Certificate of Environmental Compatibility and Public Need are satisfied (Figure 17). A copy of the application must be provided by the applicant to the following: Department of

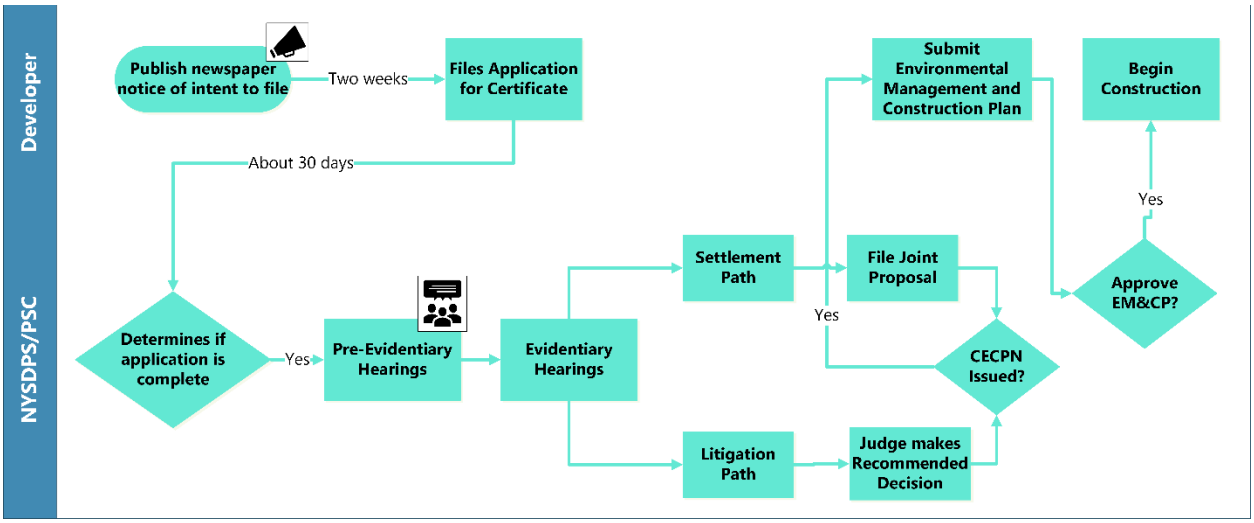
Environmental Conservation, Department of Economic Development, the Secretary of State, Department of Agriculture and Markets, and the Office of Parks, Recreation and Historic Preservation, the State legislators where the project would be located or pass through, and each municipality in which any portion of the facility is proposed to be located.

There are two likely ways to proceed from this point into the evidentiary process. The first is settlement and the second is litigation. For settlement, there are exploratory settlement discussions to see if concerns by the parties can be addressed and result in a negotiated settlement. If this seems to be a viable route, the applicant will file a formal Notice of Impending Settlement Negotiations, which would start formal settlement negotiations. This would establish terms for a Joint Proposal, which would be signed by the parties and the applicant and filed with the judge and NYPSC. Settlements can be applicable to the full proposal or just focus on specific issues. Settlement discussions must be kept in strict confidence among the applicant and the parties. In the litigation approach, parties will file testimony on disputed issues and participate in an evidentiary hearing with initial briefs and reponses. After the hearing and briefs, the judge will make a recommendation to the NYPSC. When that recommendation is shared with the parties, further briefing may occur.

Based on input received during hearings, the NYSPSC will make a final decision on whether to grant a Certificate of Environmental Compatibility and Public Need. Following certification, the NYSPSC typically requires applicants to submit additional materials to confirm compliance. This includes an Environmental Management and Construction Plan (EM&CP), which must be approved by the NYSPSC before construction can begin.

In April 2021, the NYSPSC promulgated a new regulation that sets for an expedited, nine-month Article VII review process. The process is applicable to electric transmission facilities being constructed on existing rights of way. For eligible projects, this would expedite the Article VII review process. Because the expedited process is only available to projects constructed along existing rights of way, it would be inapplicable to a first ever New York Great Lakes Wind project, but it could be applicable for subsequent projects if they were to use the existing export cable rights of way (Cullen Dykman 2021).

Figure 17. Overview of Article VII Process



3.2.6.1 Approval Criteria and Thresholds

The NYSPSC evaluates each certificate application based on the following criteria and makes a decision whether to grant the certificate.

- Basis of the need for the facility.
- Nature of the probable environmental impact.
- Extent to which the facility minimizes adverse environmental impact, given environmental and other pertinent considerations.
- What part, if any, of the electric transmission line shall be constructed underground.
- Extent to which the facility conforms to the long-range plan for the electric power grid and interconnected utility systems to serve the electric system with economy and reliability.
- Confirms that the location conforms with applicable State and local laws, except that the Commission may refuse to apply local laws determined to be unreasonably restrictive in view of the existing technology, cost, economics or needs of the consumers.
- That the construction and operation of the facility is in the public interest (NYSPSC 2010).

Table 19. Summary of Article VII Requirements

Requirement	New York Public Service Law Article VII
Statutory Reference	NYS PBL Article VII
Regulatory Reference	16 NYCRR Part 85-88
Responsible Agency	NYSDPS
Triggers	Construction of electrical transmission cables.
Inputs	Application for Certificate of Environmental Compatibility and Public Need
Application Fees	Intervenor Fund fee of between $50,000 and $450,000 depending upon transmission line length and other factors.
Outputs	Certificate of Environmental Compatibility and Public Need
Timeline	12 months (but can be extended)
Risks	Complex judicial process
Opportunities	Potential for future projects to use expedited nine-month process.
Case Studies	Galloo Island

3.2.7 Points of Collaboration

NYS's territorial waters in Lake Ontario and Lake Erie are adjacent to the territorial waters of the Canadian Province of Ontario, creating potential opportunities to coordinate across the international boundary. Within the boundaries of the U.S., Lake Erie is a multi-state body of water with boundaries with New York State, Pennsylvania, and Ohio. This section discusses potential points of collaboration with Canada, the Province of Ontario, and other U.S. states that could influence regulatory and permitting considerations.

Province of Ontario: The Province of Ontario has jurisdiction over the Canadian waters of Lake Ontario and Lake Erie. At the time this report was written, the Province of Ontario was implementing a moratorium on wind energy projects within the Great Lakes. This was confirmed in email correspondence with the Ontario Ministry of Environment, Conservation and Parks, and was described in a 2011 press release from the government of Ontario (Province of Ontario 2011). The moratorium was initiated at the time the Trillium Great Lakes wind project was being proposed (see section 5.4).

International Joint Commission (IJC): The IJC is an international body of the U.S. and Canadian governments charged with implementing the Boundary Waters Treaty, signed by Canada and the United States in 1909. The IJC reviews projects that influence the water level of the Great Lakes and investigates and makes recommendations on other transboundary issues (IJC 2020). The U.S. Department of State would facilitate engagement with State Department and Global Affairs Canada in the case that it was determined the IJC should be consulted. For the proposed Icebreaker Great Lakes wind project in

Ohio state waters, the IJC was consulted during the NEPA process. According to the DOE EA for Icebreaker Wind, "the proposed project would not require approval under the Boundary Waters Treaty and therefore would not require further action with the IJC" (DOE 2018). While proposed wind projects in NYS Great Lakes waters may receive the same response from the IJC, site-specific differences in impacts, and project characteristics like the number of turbines could trigger involvement from IJC.

Great Lakes Commission: The Great Lakes Commission is a public agency established by the Great Lakes Compact in 1955 "…to advance collective interests and responsibilities to promote economic prosperity and environmental protection and to achieve the balanced and sustainable use of Great Lakes-St. Lawrence River basin water resources" (Great Lakes Commission 2017). Signatories to the compact include the states of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin and the Canadian Provinces of Ontario and Quebec. It is not clear what role this body may play in Great Lakes Wind were it to move forward in New York State.

Great Lakes Water Quality Agreement: The Great Lakes Water Quality Agreement is a commitment between the United States and Canada to restore and protect the waters of the Great Lakes. It provides a framework for identifying binational priorities and implementing actions that improve water quality. The Environmental Protection Agency coordinates U.S. activities under this Agreement. Water quality is not likely to be affected by Great Lakes Wind at a level that would trigger concerns under this Agreement, but in the event water quality were an issue, the framework for international collaboration is available through this Agreement.

Great Lakes Treaty: The Great Lakes Treaty, or Convention on Great Lakes Fisheries between the United States and Canada, recognizes the joint and coordinated efforts between the United States and Canada are essential to determine the need for and types of measures to maximize sustained productivity in the Great Lakes fisheries of common concern. This treaty established a Great Lakes Fishery Commission that coordinates research programs. Great Lakes Wind planning, were it to occur, could benefit by studies of fisheries undertaken by this international body and by the expertise of this group. Common fisheries could be an international point of concern and collaboration. This treaty is codified by the United States as Public Law 89-557, the Great Lakes Fishery Act (16 U.S.C. 931-939c; 70 Stat. 242).

Migratory Bird Treaty: The Convention for the Protection of Migratory Birds was adopted between the United States and Great Britain (for Canada) in 1916 and protects certain species of birds which migrate between the United States and Canada. As with fisheries, international concerns, and opportunities for collaboration with regard to birds occur via this framework. This treaty is codified by the United States as the MBTA (16 U.S.C. 703-711; 40 Stat. 755) and is discussed in the context of federal law in sections 3.1.3 and 5.1.1. In addition to the federal considerations, the international basis of the MBTA affords a point of collaboration with the Canadian government to address protection of birds that could be affected by Great Lakes Wind projects and creates the potential for joint studies and engagement between the two governments.

Trilateral Committee of Wildlife and Ecosystem Conservation and Management: The Canada/Mexico/United States Trilateral Committee of Wildlife and Ecosystem Conservation and Management was established in 1995. The Trilateral Committee is headed by the directors of the Canadian Wildlife Service, the USFWS, and the Ministry of Environment and Natural Resources of Mexico. The United States, Canada, and Mexico signed a formal agreement to coordinate efforts to protect migratory bats as part of the annual meeting of the Trilateral Committee for Wildlife and Ecosystem Conservation and Management in 2015. This agreement can be a point of collaboration for considering international concerns about impacts to transboundary bats from potential Great Lakes Wind projects. Beyond bats, the Trilateral Committee is focused on cooperative conservation and sustainable use of biological resources, maintenance of the ecological integrity of North American ecoregions, and biodiversity conservation capacity building and cooperative cross-sectoral activities that will contribute to the reduction and mitigation of threats to shared species and ecosystems. Thus, this committee can be a touch point for engaging with Canada on any wildlife concerns that are not covered by other treaties and commissions.

The Jay Treaty: Since 1794, indigenous peoples have been guaranteed the right to trade and travel between the United States and Canada, which was then a territory of Great Britain. This right is recognized in Article III of the Jay Treaty, also known as the Treaty of Amity, Commerce and Navigation of 1794 and subsequent laws that stem from the Jay Treaty. There is the potential for indigenous peoples to have international interests in effects of Great Lakes Wind. The processes by which indigenous interests are addressed within the United States is described in section 3.2.3, but from an international perspective, in addition to direct engagement with indigenous peoples, the Jay Treaty could act as a point of connection for understanding transboundary indigenous interests that may be affected by potential Great Lakes Wind projects.

Public Trust Doctrine: Public trust doctrine is a common law doctrine that holds that certain resources like navigable waterways are held in trust by the State for the benefit of the public. While the doctrine was traditionally applied to resources like navigation and fishing, some states have expanded the concept of public trust doctrine to include groundwater, land, and scenic views, or aesthetics. In NYS, the definition of public trust lands includes the following: "those lands below navigable waters, with the upper boundary normally being the mean high waterline, or otherwise determined by local custom and practice. Public trust lands, waters, and living resources are held in trust by the state or by the trustees of individual towns for the people to use for walking, fishing, commerce, navigation, and other recognized uses of public trust lands." (19 NYCRR Part 600). Coastal policies include scenic quality policies, which limit impairment of scenic resources. This includes the following: "the addition of structures which because of siting or scale will reduce identified views or which because of scale, form or materials will diminish the scenic quality of an identified resource." (19 NYCRR Part 600: 600.5).

4 Comprehensive Process Overview

While section 3 provides the key federal and State permits and regulatory approvals individually, it is helpful to view and understand these approvals not as siloed, individual processes, but as a network of interconnected processes. The outcome of one regulatory process can impact another. One project activity can trigger several permitting processes, and permit application materials and studies can be leveraged to efficiently satisfy multiple permitting requirements. Some of the regulatory processes or combinations of processes described as applicable to Great Lakes Wind are not only new to U.S. wind, but new to the State of New York as of 2021 (e.g., the Accelerated Renewable Energy Growth and Community Benefit Act and its implementation alongside New York Public Service Law Article VII). As a result, there is some ambiguity in how these processes would be utilized for Great Lakes Wind; the permitting scenarios described below provide the best available information regarding which statutes will apply for different windfarm size and transmission line length scenarios.

To better understand these dynamics, this section provides cross-functional process flow charts that demonstrate the interactions of the multiple permitting authorities at the federal and State levels. As discussed above, certain key differences in project design, funding, and agency decisions can result in major differences in the permitting process; therefore, this section investigates two distinct permitting scenarios:

- **Scenario 1, Utility-scale project:** in this scenario the wind project has a total capacity of 25 MW or greater and transmission lines less than 16 km (10 mi) in length (but greater than 1 mile) with a design capacity greater than 125 kV that are connected to the generation facility, making the NYS Accelerated Renewable Energy Growth and Community Benefit Act and Article VII applicable. It is funded by a commercial developer, therefore USACE is the NEPA lead agency because it has what is likely to be considered the most significant federal authorization process.
- **Scenario 2, Demonstration-scale project:** in this scenario the wind project has a total capacity less than 20 MW, making it below the threshold for the NYS Accelerated Renewable Energy Growth and Community Benefit Act, and transmission lines greater than 16 km (10 mi) in length with a design capacity over 100 kV, making it subject to review under Article VII. As a result, NYS SEQRA review is potentially applicable (if a federal NEPA EIS is prepared it may serve to satisfy SEQRA) along with several other NYS permits that are not necessary for Accelerated Renewable Energy Growth and Community Benefit Act projects. The project is also funded by a commercial developer, making USACE the NEPA lead agency.[3] While the transmission line may require an Article VII Certificate, other project components such as the turbines, port infrastructure, etc., would be subject to other NYS permits and approvals.

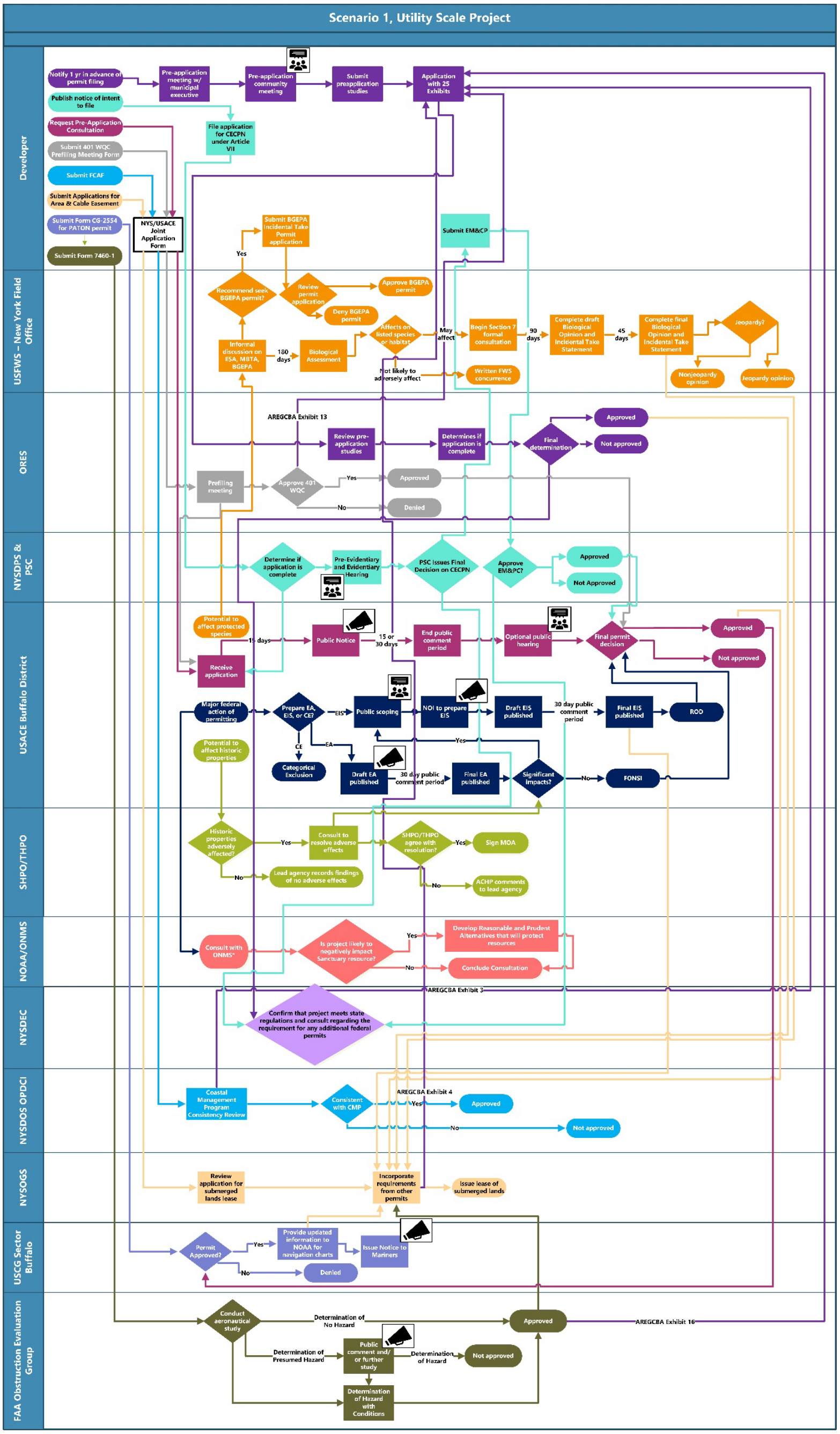
4.1 Scenario 1 Process Flowchart

The scenario 1 Utility-scale project permitting process is shown below. There are 11 (possibly12 if a sanctuary is designated) major permitting and regulatory approval processes:

- ORES: NYS Accelerated Renewable Energy Growth and Community Benefit Act permit for major renewable energy facilities; NYS WQC under CWA Section 401.
- NYSDPS and NYSPSC: Article VII.
- USACE: CWA Section 404/RHA Section 10 permit[4].
- USFWS: consultation for ESA and engagement on MBTA, and BGEPA.
- NOAA/ONMS NMSA Section 304(d) consultation (pending establishment of a Sanctuary).
- USACE: NEPA
- SHPO/THPO: NHPA Section 106 Consultation.
- NYSDEC: Guidance on federal permits that may be required by NYSDEC (e.g., State Pollutant Discharge Elimination System permit) and review of NYSDOS, ORES, NYSDPS and NYSPSC permits to ensure standards are met.
- NYSDOS: Division of Coastal Resources: New York State Coastal Management Program consistency certification under the CZMA.
- NYSOGS: New York State Submerged Lands easements for the windfarm and cables.
- USCG: PATON permit
- FAA: aviation and obstruction evaluation.

The processes below indicate “yes” or “no” decisions by agencies. Generally, these processes involve collaboration among the permitting agencies, consulting agencies, action proponent, and as appropriate, the public, to address issues that could result in a rejection of compliance. Collaborative discussions often would include recommendations by the agencies to change aspects of the project or add mitigation measures to achieve compliance. Agencies strive to achieve (1) the necessary findings for statutory compliance; (2) avoidance, minimization, and/or offset of impacts to their public trust resources; and (3) practicable solutions that would allow projects to proceed and remain viable if possible.

Figure 18. Scenario 1 Utility-Scale Project



* ONMS activities are only applicable if a National Marine Sanctuary is established.

Note: NYS Department of Transportation coordination and Federal Highway Administration approval for an exception to the NYS Utility Accommodation Plan are required for connecting the transmission from the lake to the POI.

The following discussion provides an analysis of each of the permitting processes including key dependencies and connections to other processes. Each color box in the descriptions below refers to the color of the permitting process shown in the permitting roadmap.

New York State Accelerated Renewable Energy Growth and Community Benefit Act Permit (starts at "Notify 1 year advance of permit filing" in Developer row in flowchart above): This process is the focus of the NYS regulatory and permitting processes for scenario 1. The Accelerated Renewable Energy Growth and Community Benefit Act states that no state agency may impose any other permitting requirement or conditions on a project subject to the Accelerated Renewable Energy Growth and Community Benefit Act. This means that the separate CEHA permit, Incidental Take Permit, and NYSDEC permits for dredge and fill materials are not necessary in this scenario. Other federally delegated permits, such as a State Pollutant Discharge Elimination System permit, may be required by NYSDEC. Receipt or confirmation of CWA Section 401 WQC, NYSOGS submerged land easements, NYSDOS Coastal Management Program consistency, and FAA obstruction evaluation feed into the Accelerated Renewable Energy Growth and Community Benefit Act process. Any conditions listed on the permit approval can be adopted into the lease or easements of submerged lands issued by NYSOGS. There is opportunity for public engagement and comment at the pre-application host community meeting, and a public comment hearing is held after draft permit conditions are publicly posted by ORES.

New York State Department of Public Service Article VII (starts at "Publish notice of intent to file" in Developer row in flowchart above): This process is necessary for the construction of transmission lines with 100 kV or more capacity ad exceeding 16 km (10 mi) in length, or 125 kV capacity and one mile in length; the end result of an approved application is a Certificate of Environmental Compatibility and Public Need (CECPN). Under Article VII, NYSPSC would control required approvals. Article VII has a 12-month limit for decision-making that can be extended. Article VII includes a pre-submission engagement with NYSPSC, public outreach, and an application that is sometimes followed by assignment of a judge and evidentiary hearings. A Notice of Impending Settlement Negotiations can be filed, and if successful, evidentiary hearings are not needed. Settlement results in a Joint Proposal signed by the applicant and parties to the action, including State agencies; all recent offshore wind projects subject to Article VII have entered Settlement. Alternatively, litigation can be undertaken if settlement does not seem possible during negotiations. For parts of the project that are subject to Article VII, all other State permits that would be applicable are dealt with substantively through the Article VII process and those permits are granted through issuance of the CECPN.

USACE CWA Section 404/RHA Section 10 permit [redacted] (starts at "Request Pre-Application Consultation" in Developer row in flowchart above): USACE Buffalo District's potential decision to issue a permit is the major federal action that triggers NEPA, making USACE the lead federal agency in this scenario. The NEPA ROD (for the EIS pathway) or FONSI (for the EA pathway) would record USACE's final decision on the CWA Section 404/RHA Section 10 permit. As the lead federal agency, USACE would also consult with USFWS on the ESA, address the MOU under EO 13186 for MBTA, and discuss BGEPA requirements with USFWS to assist the applicant in understanding if there is a need for a BGEPA permit. USACE would also consult under NHPA and may choose to provide a Consistency Determination to the State of New York under the CZMA. A public notice of permit application is posted by USACE and there is an optional public hearing on the pending permit application if USACE determines it is necessary. Conditions written into the USACE permit can be leveraged by NYSOGS and written into the submerged land lease or easement requirements.

NEPA review led by USACE [redacted] (starts at "Major federal action of permitting" in USACE Buffalo District row in flowchart above): The NEPA process incorporates evidence from all other federal permit reviews and consultations, including the USFWS (ESA, MBTA, and BGEPA), the New York SHPO and/or THPO (under NHPA Section 106 Consultation), and, if applicable in the future, ONMS (under NMSA Section 304[d] Consultation). USACE could also choose to submit a Consistency Determination to the State of New York under CZMA as part of the NEPA process. The outcomes of the USFWS BA can influence NEPA if the BA suggests impacts may rise to "significant" under the NEPA standards, which, among other things, can influence the NEPA lead agency's decision to prepare an EA or EIS. Section 106 Consultation can also influence the determination of significant impacts under NEPA. Mitigation measures identified in a ROD can be leveraged by NYOGS and written into the submerged land lease or easement requirements. At the time of this report, the Biden Administration has undertaken review of the NEPA regulations published in 2020. The regulations are likely to change again in the near future, which creates some uncertainty as to the anticipated process if Great Lakes Wind projects were proposed. For example, the cumulative impact assessment was shifted to consideration as part of affected environment under the 2020 regulations but seems likely to be moved back to environmental consequences consideration in future regulations. "Context" and "intensity" standards were replaced with "potentially affected environment" and "degree of effect" standards, though in practice, these standards can be similarly applied to analyses. In general, NEPA would likely proceed as described in this study regardless of changes likely to be made to the current regulations.

USFWS engagement and consultation (starts at "Potential to affect protected species" in USACE Buffalo District row in flowchart above): This process could include formal ESA Section 7 Consultation, and potentially an Incidental Take Statement, if ESA-listed species may be affected. USFWS also uses an informal engagement to review implications for MBTA and BGEPA and implement FWCA. MBTA is addressed through engagement under EO 13186 and the MOU between DoD (the Department in which USACE is housed) and Department of Interior (the Department in which USFWS is housed). The outcomes of these reviews can include information for the NEPA process, a recommendation for the applicant to apply for a BGEPA permit, and recommended conservation measures addressing MBTA. If a BGEPA permit is recommended, the developer can apply for a permit and submit it to USFWS for review and potential approval. ESA and MBTA conditions as outcomes of consultation and engagement with USFWS would be codified in USACE permits.

NHPA Section 106 Consultation (starts at "Potential to affect historic properties" in USACE Buffalo District row in flowchart above): If the project activities have potential to impact historical or cultural resources, such as shipwrecks, the lead federal agency, likely USACE, must consult with the SHPO and THPO to assess potential impacts and plan to avoid or mitigate them as necessary. The findings of Section 106 Consultation would be integrated into NEPA and would influence the determination of significant impacts. NHPA conditions as outcomes of consultation with SHPO/THPO would be codified in USACE permits.

NMSA Section 304(d) Consultation (starts at "Consult with ONMS" in NOAA/ONMS row in flowchart above): If a federal agency's action is likely to destroy, cause the loss of, or injure a sanctuary resource it is required to consult with the sanctuary. The sanctuary will recommend reasonable and prudent alternatives or measures that will protect sanctuary resources. The adoption of these measures is at the discretion of the permitting agency. The sanctuary cannot issue commercial permits for activities within its boundaries, but it can recognize the permits issued by other federal agencies as valid in the sanctuary by either an authorization or certification.

CWA Section 401 WQC (starts at "Submit 401 WQC Prefiling Meeting Form" in Developer row in flowchart above): The State of New York has authority to evaluate whether any federal permit would result in activities that could violate State Water Quality Standards under the CWA. This essentially gives the State of New York veto power over federal permits that could affect water quality, including the USACE CWA Section 404/RHA Section 10 permit. The Accelerated

Renewable Energy Growth and Community Benefit Act process requires the developer to submit an application for CWA Section 401 certification for applicable projects, and as the transmission lines are less than 10 miles in length, ORES would issue the WQC. This permit application is governed under the New York State Uniform Procedures Act.

New York State Coastal Management Program consistency review under CZMA **(starts at "Submit FCAF" in Developer row in flowchart above):** Similar to CWA Section 401 WQC, CZMA extends authority to NYS to review federal activities affecting the State's coastal zone (which can include federal waters) and determine whether the federal activity is consistent with State enforceable policies. USACE could provide a Consistency Determination either pre-emptively or at the request of the State of New York and/or the developer may provide a Consistency Certification as needed. The NYSDOS would determine whether the federal action is consistent, consistent with conditions, or inconsistent. As a federal agency, the USACE could choose to proceed even if NYSDOS finds the action inconsistent. In the case a developer's Consistency Certification is rejected, the developer can appeal to the Secretary of Commerce who has the authority to allow inconsistent actions to be permitted if they are in the national interest.

New York State submerged lands easements **(starts at "Submit Applications for Area & Cable Easement" in Developer row in flowchart above):** NYS must issue easements for development of the windfarm turbines and associated electrical cables. The NYSOGS has the ability to incorporate conditions and requirements from other federal and State permitting processes such as NEPA, USFWS consultation, and USACE permits into the conditions of the easements.

PATON permit **(starts at "Submit Form CG-2554 for PATON permit" in Developer row in flowchart above) and hazard to air navigation review** **(starts at "Submit Form 7460-1" in Developer row in flowchart above):** While these processes are critical to the success of Great Lakes Wind, they are relatively low-risk processes because their main impact is likely the USCG and FAA requiring certain marking and lighting for purposes of marine and air navigation. The USCG would likely require the developer to conduct an NSRA. If multiple projects are proposed, USCG would also likely conduct a PARS and provide recommendations for turbine spacing and configuration to provide adequate and safe passage for vessels and fishing activities to and from ports and allow for safe and effective search and rescue actions by the USCG.

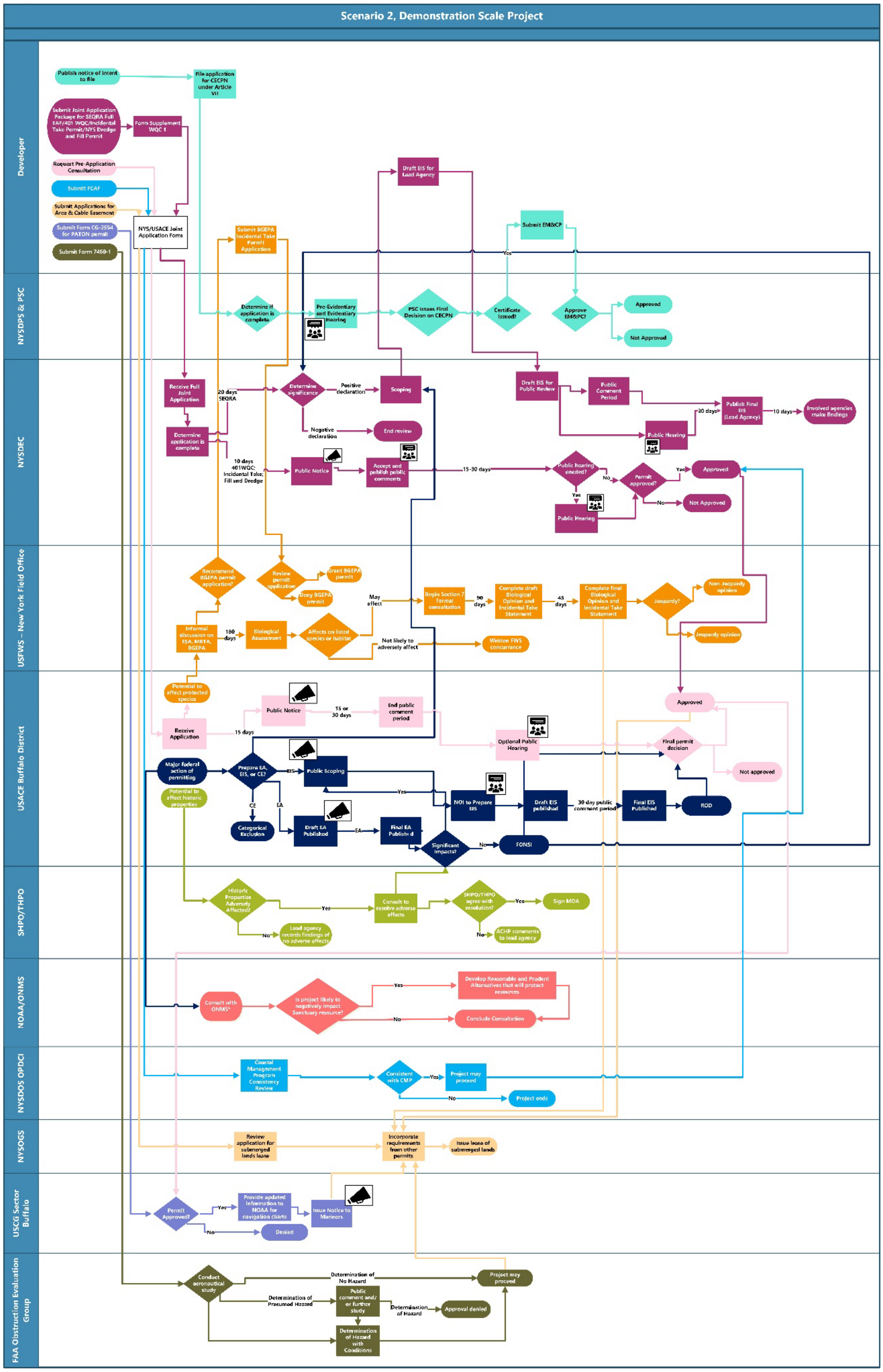
4.2 Scenario 2 Process Flowchart

The scenario 2 permitting process for a small demonstration-scale project is shown below. There are 13 (possibly 14 if a sanctuary is designated) major permitting and regulatory approval processes:

- NYSDEC: New York State SEQRA review (if there is not a federal EIS).
- NYSDEC: New York State Incidental Take Permit.
- NYSDEC: New York State protection of water–dredge and fill materials permit.
- USACE: CWA Section 404/RHA Section 10 permit.
- USFWS: consultation for ESA and engagement on MBTA and BGEPA.
- NOAA/ONMS: NMSA Section 304(d) consultation (pending establishment of a Sanctuary).
- USACE: NEPA
- SHPO/THPO: NHPA Section 106 Consultation.
- USCG: PATON permit.
- FAA aviation obstruction evaluation.
- NYSDEC: New York State WQC under CWA Section 401.
- NYSDOS Division of Coastal Resources: New York State Coastal Management Program consistency certification under the CZMA.
- NYSOGS: New York State Submerged Lands easements for the windfarm and cables.
- NYSDPS & NYSPSC: New York State Department of Public Service Article VII.

Note: Other permits and approvals may be required under NYSDEC in addition to WQC. NYSDEC is not always the lead agency and therefore, the final EIS may be prepared by another SEQR agency.

Figure 19. Scenario 2 Demonstration-Scale Project



Note: NYS Department of Transportation coordination and Federal Highway Administration approval for an exception to the NYS Utility Accommodation Plan are required for connecting the transmission from the lake to the POI.

Because scenario 2 is below the threshold for the Accelerated Renewable Energy Growth and Community Benefit Act process, the project would undergo review under SEQRA and would also be subject to additional permits not required for scenario: NYSDEC protection of waters for dredge and fill materials permit, and an Incidental Take Permit under the NYS ECL. The following discussion provides an analysis of the state permitting and regulatory review processes that are unique to scenario 2. The processes that occur in both scenario 1 and scenario 2 are not addressed here because they are discussed above in section 4.1 and would not be substantially different from a process perspective in scenario 2 (although the magnitude of impacts could be reduced due to the smaller scale of the project).

New York State SEQRA [redacted] (starts at "Submit Joint Application Package for SEQRA Full EAF/401 WQC/Incidental Take Permit/NYS Dredge and Fill Permit" in Developer row in flowchart above): A demonstration-scale Great Lakes Wind project would likely be considered a Type I SEQRA activity because of the presence of structures over 30 m (100 ft) high. SEQRA features public scoping at the outset of review and a public comment period and optional public hearing that occur after a draft EIS is published. Importantly, if a federal EIS is undertaken under NEPA that fulfills the requirements of a SEQRA review and enables involved agencies to make SEQRA findings, a SEQRA EIS is not required.

New York State Incidental Take Permit [redacted] (starts at "Submit Joint Application Package for SEQRA Full EAF/401 WQC/Incidental Take Permit/NYS Dredge and Fill Permit" in Developer row in flowchart above) and protection of waters permit [redacted] (same as above) These permitting processes are governed under the New York State Uniform Procedures Act and therefore have similar permitting review timeline and public notice requirements, although their substantive and technical requirements differ. All three processes feature public notice of a permit application, a public comment period on the application, and an optional public hearing. It is likely that notices for these three permits would be consolidated, and it is possible that other UPA State permits may be required.

4.3 Discussion of Permitting Scenarios

The permitting and regulatory differences between scenario 1 and scenario 2 demonstrate how the NYS regulatory process would differ based on the capacity of proposed Great Lakes Windfarms. Larger windfarms with greater than 25 MW capacity face both risks and opportunities with the Accelerated Renewable Energy Growth and Community Benefit Act. The Accelerated Renewable Energy Growth and Community Benefit Act process routes all NYS regulatory review and permitting processes through

once central or “anchor” process, meaning the developer’s administrative burden to prepare, submit, and track permits may be reduced, and NYS agencies’ burden of coordinating and reviewing permits may be reduced as well. The Accelerated Renewable Energy Growth and Community Benefit Act process poses the risk that it is new and relatively untested. It also lacks specific mention of offshore or Great Lakes Wind, suggesting that the regulations were created with onshore wind in mind. While the SEQRA process for small windfarms involves more permit applications, it has the benefit of a tested process and, critically, administrative burden on the developer (who can be required to develop a SEQRA EIS) could be significantly reduced if a federal EIS is published that fulfills SEQRA requirements and is sufficient to allow for findings by involved state agencies, which would make the State EIS unnecessary under SEQRA.

5 Case Studies: Permitting Challenges and Lessons Learned from Comparable Wind Energy Projects

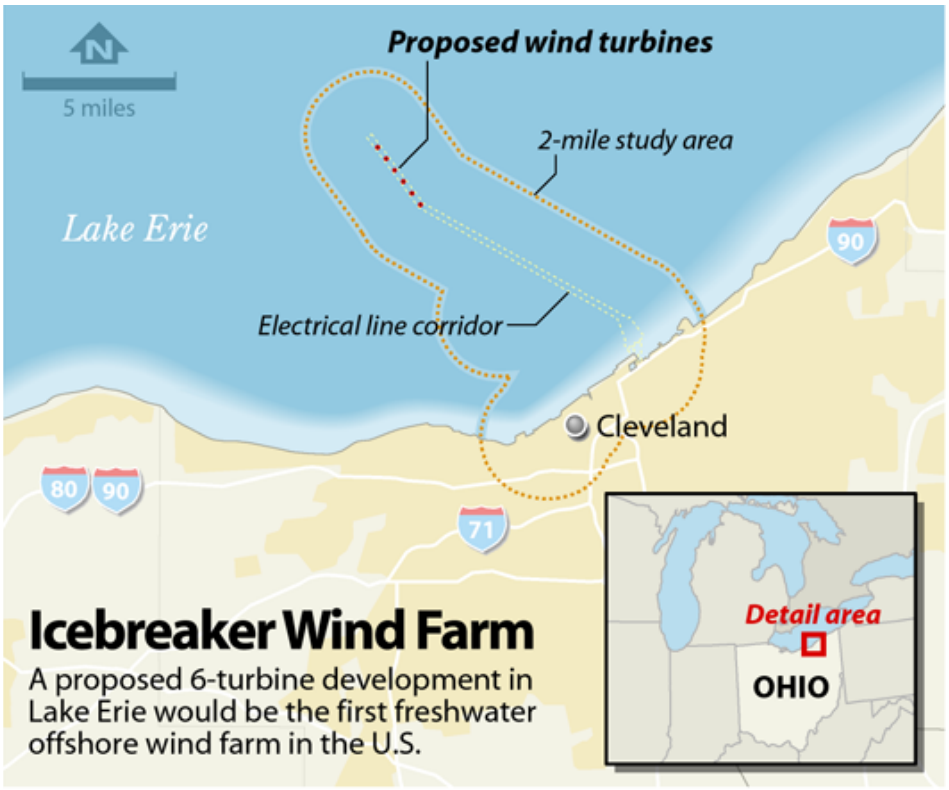
This section reviews several recent offshore and onshore wind projects and permitting challenges they faced to inform future permitting challenges that could be experienced by a New York State Great Lakes Wind Energy project. The projects described include several in other (i.e., non-Great Lakes) jurisdictions including the U.S. federal Outer Continental Shelf, Canadian Great Lakes waters, and onshore examples. While offshore wind and Great Lakes Wind both involve wind turbines within a body of water, there are critical differences between the two, and they should not be equated. Key differences include freshwater versus saltwater; federal versus state jurisdictional waters; differences in water depth, species present and viewshed constraints; and shipping interactions. Great Lakes Wind and offshore wind have many physical and regulatory differences, but because no Great Lakes Wind project has been proposed to date in New York State waters, the projects described in this section represent the most relevant analogs and examples from which to draw.

5.1 Icebreaker Wind

5.1.1 Background

Icebreaker Wind is a Great Lakes wind energy demonstration project in development for installation in Lake Erie, Ohio state waters (Figure 20). The planned 20.7 MW, six-turbine project would be located north of Cleveland and about 13 km (8 mi) from shore. Cables carrying electricity generated by the turbines would travel underwater and reach land in Cleveland. If development proceeds, Icebreaker will likely be the first freshwater wind project in the U.S. (LEEDCo 2021)

Figure 20. Proposed Icebreaker Wind Location (Pollack 2020)



Icebreaker is backed by a combination of private and for-profit organizations. The main developer is the Lake Erie Development Corporation (LEEDCo), a private, non-profit corporation. Other backers include Fred Olsen Renewables, a private company based in Oslo, Norway, the Sierra Club, the Environmental Defense Fund, and the Ohio Environmental Council (LEEDCo 2021).

Icebreaker Wind was competitively selected for a DOE financial assistance award under Funding Opportunity Announcement U.S. Offshore Wind: Advanced Technology Demonstration Projects (DE-FOA [Department of Energy Funding Announcement]-0000410). DOE is the lead federal agency for the project and for NEPA review (DOE 2018). The Ohio Power Siting Board (OPSB) is the lead state agency (LEEDCo 2021c).

The Icebreaker project secured a submerged land lease from the State of Ohio in 2014 and was awarded $40 million from DOE in May 2016 (LEEDCo 2021b). As the lead federal agency, the DOE completed an EA for the project and published a FONSI in October 2018. The EA and FONSI were eventually

included in the OPSB assessment of Icebreaker's siting permit application, first submitted in Feb 2017. However, despite the FONSI, the OPSB issued a certificate for the project in May 2020 that included 33 conditions aimed at restricting the project until further research could be completed regarding the effects of turbines on bird and bat migrations (OPSB 2020, Proffitt 2020).

5.1.2 Permitting Challenges

The conditional certificate issued by the OPSB is the most pressing permitting challenge for Icebreaker. While the certificate allows Icebreaker to begin construction, it is required to conduct bird and bat studies using radar (condition 21) and based on these studies, provide the OPSB with a bird and bat impact mitigation plan, including a collision monitoring plan (condition 18). Originally, there was a stipulation that Icebreaker must cease turbine operation at night from March 1 through November 1 as a mitigation measure, but this stipulation has since been removed by the OPSB. Annual bird and bat monitoring reports are being provided to the State of Ohio as part of an Avian and Bat MOU between the Ohio Department of Natural Resources and Icebreaker signed in 2017 (Gordon, et al. 2018).

In December 2019, the American Bird Conservancy (ABC) and Black Swamp Bird Observatory (BSBO) filed suit in federal court against the DOE and USACE. The ABC and BSBO allege that the DOE and USACE failed to comply with the Administrative Procedures Act as it pertains to NEPA and with the CWA, citing the sensitivity of the area's birds to collision risk (ABC Birds 2019). They argue that DOE should have evaluated the project with an EIS to comply with NEPA rather than an EA and FONSI. This was also a concern raised by USFWS in response to consultation on the EA, where USFWS recommended the DOE undertake an EIS (DOE 2017). The Icebreaker Wind project now has the necessary regulatory approvals but not all the funding it needs to get started with construction (Krouse 2021). Two residents argued before the Ohio Supreme Court on December 7, 2021 that a state board should not have granted a certificate that would allow construction of the Icebreaker Wind project on Lake Erie. There will likely be no high court ruling until well into 2022 or early 2023. The project could be at risk to losing private funding crucial to its success due to delays (Hancock 2021). As of January 2022, the DOE extended its federal grant, giving the project another year to secure further financing.

5.2 Galloo Island

5.2.1 Background

The Galloo Island Wind Project was a proposed onshore wind project located in the town of Hounsfield, NY, on Galloo Island in Lake Ontario, about 10 km (6 mi) from the town of Henderson (Figure 21). Because the project would be built on Galloo Island, it is not technically an in-water project, but the power transmission cables would pass underwater to make landfall and connect to the grid at a substation. Galloo Island itself is mostly deserted and its main inhabitants are a retired couple who act as caretakers (Goldstein 2019).

Figure 21. Proposed Location of the Apex Clean Energy Galloo Island Wind Project

Source: (Apex 2017)

Two separate developers have attempted to develop wind projects on Galloo Island, the first was Upstate NY Power Corporation and the second, Apex Clean Energy.

Upstate NY Power Corporation initially proposed that the project consist of about 80 turbines, about 10 km (6 mi) of underwater transmission lines and generate 252 MW of power. However, the developer abandoned the project in 2013 when they could not find a buyer for the electricity (Wolf 2019). Apex Clean Energy, a Virginia-based energy firm, took over the project in 2015 and proposed to construct a 24-turbine windfarm with about 53 km (33 mi) of transmission lines, with planned generation of 108 MW of power. Apex Clean Energy submitted an Article 10 application to the NYS Board on Electric Generation Siting in September 2017 (NYSDPS 2018); the multi-agency Siting Board had the authority to decide whether to grant a certificate of environmental compatibility. In November 2018, NYSDEC and NYSDPS withdrew from agreements with Apex Clean Energy when findings surfaced that an environmental survey failed to include the discovery of a Bald Eagle nest (Wood 2018).

According to the USACE/NYS Joint Application for Permit document submitted in 2018, the following permits were required from USACE:

- Section 404 Clean Water Act
- Section 10 Rivers and Harbors Act
- Nationwide Permit 12
- Nationwide Permit 51
- NY Regional Permit 87-000-1

The following permits were required from the NYS Office of General Services:

- State Owned Lands Under Water
- Utility Easement for underwater transmission line, pursuant to NY Public Lands Law 75(7)(b)
- Docks, Moorings, or Platforms

The adjusted rate for cable and pipeline easements in State-owned lands underwater reported by the NYS Office of General Services as of January 17, 2022 was $22.84 per linear foot for a 9 m (30-foot) wide easement.

A Coastal Consistency Concurrence application was required to be submitted to NYSDOS.

For the related transmission facility, some additional permits and approvals were anticipated (in addition to Article VII), including the following:

- General coverage under State Pollutant Discharge Elimination System General Permit (GP) for Stormwater Discharges from Construction Activity, GP-0-15-002
- Permit for Protection of Waters, ECL Article 15, 6 NYCRR Part 608
- Section 401 WQC

5.2.2 Permitting Challenges

Apex Clean Energy faced opposition from residents and environmental groups to obtain a certificate of environmental compatibility and public need authorizing the construction and operation of a major electric generating facility for the project under Article 10 of the New York State Public Service Law for the second iteration of the Galloo Island wind project. Some residents in the town of Henderson were opposed to the project based on concerns about property values (Botero 2016).

During the public consultation process, Apex Clean Energy was criticized for failure to conduct updated avian studies under the new development plans, instead relying on studies conducted under the initial attempt to develop a wind project on the island in 2007–2009 (Schneider 2017). This concern was echoed by the USFWS in a July 2017 letter to the NYSPSC, which argued that the older studies were outdated and had missed a key migration period. Further, Apex Clean Energy failed to mention the presence of a Bald Eagle nest on Galloo Island in its Article 10 application (Wolf 2019). The biologist who conducted the study argued that he had omitted the nest because it showed no signs of breeding when they surveyed it in 2017, but NYSDEC later confirmed the nest was active (Goldstein 2019). Following this, State agencies and Apex Clean Energy agreed to extend the review timeline (Wood 2018). The delay meant Apex could have missed the December 31, 2018 construction deadline to qualify for significant federal tax credits (Fenster 2019). Apex Clean Energy stated that they had withdrawn their applications for State permits in February 2019, indicating that the company was “open to reinitiating the permitting process for Galloo Island Wind with the expectation of delivering the project when the time is right” (Wolf 2019). In January 2022 the former owners of Galloo Island reacquired the property with the stated intent of preserving it as farmland.

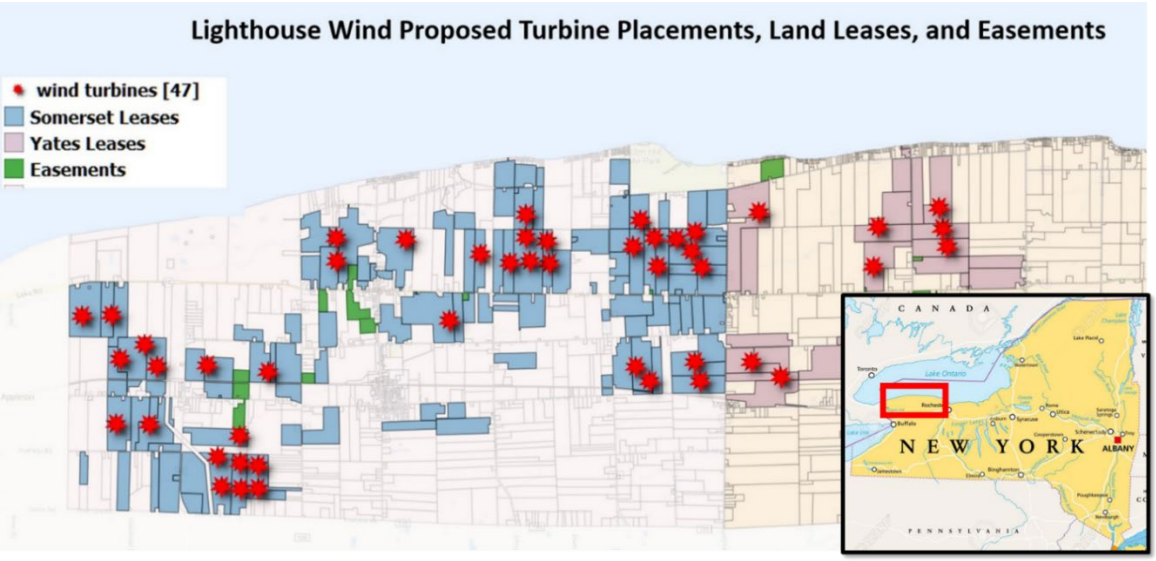
5.3 Lighthouse Wind

5.3.1 Background

Lighthouse Wind is a 47 turbine, 197 MW wind project planned for development along the south coast of Lake Ontario in Niagara County in the area of Somerset and Yates, NYS (Figure 22). The turbines were proposed to extend across approximately 19 km (12 mi) of Lake Ontario's southern coast and inland to about 5–6 km (3–4 mi) south of the lake (Cassell 2015). The wind resources and proximity to power transmission lines from a nearby coal-fired plant were drivers behind the project siting (Jerving 2019).

Figure 22. Map of Proposed Turbine Placement—Lake Ontario

Source: (SOS 2021)



Lighthouse Wind is under development by Apex Clean Energy, and in October 2019, the NYS Sierra Club, an environmental preservation club, endorsed Lighthouse Wind as being environmentally sound (Lighthouse 2015).

Lighthouse Wind began working with the community of Somerset and Yates on permitting activities in summer 2014 and filed a Preliminary Scoping Statement with the multi-agency Siting Board under Article 10 in November 2015 (Lighthouse 2015). There was strong opposition to the project and citizens formed the group Save Our Shores (SOS) in 2015 to oppose development of the project (SOS 2021). In early 2018, the Somerset Town Board adopted a series of zoning laws that ban wind turbines throughout Somerset (Fenster 2019). In April 2019, Apex Clean Energy announced they no longer planned to submit their Article 10 application (Hoffman 2020).

5.3.2 Permitting Challenges

Both Somerset and Yates initiated legal challenges to the project, and about 75% of public comments received by the multi-agency were in opposition to the project (Prohaska 2019). Residents were concerned that the presence of the windfarm would change the character of their community and impact wildlife (Jerving 2019). ABC lists include Lighthouse Wind as one of the 10 worst-sited wind projects in the U.S. for migratory birds (ABC Birds 2016). SOS claimed that the noise generated by the turbines could hurt human health and that the area is a critical bird and bat flyway (SOS 2021). In a January 2016 letter, the USFWS notified NYSDPS about contradictory claims Lighthouse had made within their public scoping statement as they pertained to the MBTA, BGEPA, and ESA. USFWS had shared radar data with Lighthouse which showed large aggregations of birds using the project area and potential turbine locations, yet Lighthouse had theorized that waterfowl, water bird, and shorebird mortality from the wind turbines would be uncommon and unlikely to occur. USFWS requested this statement be removed as it was overly generalized and based on data covering only spring migration (USFWS 2016). Based on this USFWS recommendation, one of the local laws passed in Somerset and Yates directed at curbing wind development prohibits wind turbines onshore within 5 km (3 mi) of the lake shore (Jerving 2019).

The Somerset town supervisor added that the State's Article 10 siting process has historically honored the laws and wishes of local communities, suggesting that Lighthouse Wind would have a difficult time overcoming local laws despite State legislation that allows siting of large energy projects to potentially overrule those laws (Fenster 2019, Jerving 2019). At the time the current report was finalized, the company had not specified whether it plans to submit the Article 10 application at a later date.

5.4 Trillium Power Wind 1

Trillium Power Wind 1 (TPW1) was a proposed 90–100 turbine, 450–500 MW Great Lakes windfarm planned for installation in Canadian waters in Lake Ontario, approximately 39 km (24 mi) southwest of Kingston, Ontario (Figure 23). The cables carrying electricity from the turbines would connect to two aquatic substations linked to the Lennox Transmission Station in Stella, Ontario. Project proponents argued that one advantage of the location was the reduced visual impacts because the turbines would not be visible from shore (World Heritage Encyclopedia 2020).

Figure 23. Proposed Location of Trillium Power Wind 1 in Lake Ontario

Source: (Dvorak 2013)

Trillium Power, the wind development corporation behind TPW1, first applied for land use permits for the TPW1 project in 2004. After a pause in development in 2006 during a temporary ban on Great Lakes wind projects, the company again began working toward developing the project in 2008. At that time, the Ontario government was developing the Green Energy Act and the Feed-in-Tariff program meant to subsidize the production of renewable energy in the province (Hill 2018). Trillium Power was set to secure initial financing for the project in February 2011; however, the Ontario Ministry of Environment issued a press release announcing a province-wide moratorium on Great Lakes wind and the cancellation of any projects that did not have a Feed-in-Tariff contract on that same day (Hill 2018). In September 2011, Trillium Power filed a lawsuit against the Ontario government for $2 billion, claiming damages from the wind moratorium (Kaiser 2014). To date, Trillium has been unsuccessful in advancing its lawsuit against the Ontario government to trial, and the moratorium on wind development in Ontario Great Lakes waters remains.

5.5 Nautilus Offshore Wind

5.5.1 Background

Nautilus Offshore Wind was a 3-turbine, 25 MW offshore wind pilot project planned for construction in State waters 4.5 km (2.8 mi) off Atlantic City, New Jersey, in the Atlantic Ocean. Nautilus Offshore Wind was being developed by Fisherman's Energy and EDF Renewables North America, a renewable energy producer and service provider (EDF Renewables 2021).

Nautilus Wind was originally proposed by Fisherman's Energy in 2009 as a six-turbine project but was scaled down after being rejected by the New Jersey Board of Public Utilities (BPU) for failing to demonstrate net economic benefits (Franco 2014, Meyers 2018). In 2012, the project received a $4 million DOE grant to assist with design, engineering and permitting (Zoppo 2018), followed by another grant of about $47 million in 2014 (NAW 2014). However, DOE withdrew funding in January 2017 after Nautilus Wind missed their deadline to find a buyer for the electricity (Meyers 2018). EDF Renewables acquired the project in April 2018 as an opportunity to test the State's readiness for offshore wind at a more manageable scale (Meyers 2018). In December 2018 the BPU rejected the project proposal, even though other permitting was already in place (Offshore WIND 2018).

5.5.2 Permitting Challenges

In rejecting Nautilus Wind's proposal, the BPU said the project would be too costly and did not meet the economic benefits standard under New Jersey's Offshore Wind Economic Development Act (Offshore WIND 2018). Because the State was already planning to acquire clean energy from larger wind projects, the net-benefits of Nautilus were not deemed great enough to justify the high cost of the generated electricity to ratepayers (Froese 2018).

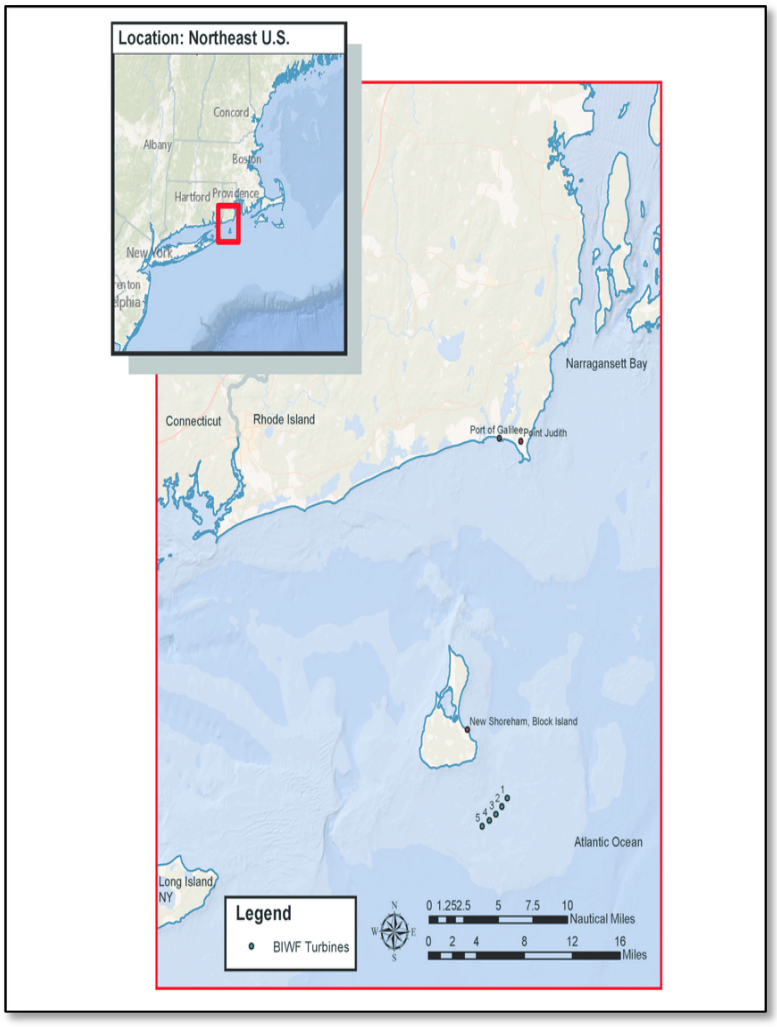
5.6 Block Island Windfarm

5.6.1 Background

Block Island Windfarm is a 30 MW, five-turbine offshore windfarm located 3.8 miles southeast of Block Island, Rhode Island (Figure 24). The wind turbines are in State waters while the transmission cable crosses federal waters. Power is transmitted from the turbines through 21-mile cables buried in the seabed, making landfall north of Scarborough Beach in Narragansett, Rhode Island. It is the first operational commercial offshore windfarm in the U.S. (Power Technology 2021).

Figure 24. Location of Block Island Windfarm in Rhode Island

Source: (Talya S. ten Brink 2018)



Block Island Windfarm was developed by Deepwater Wind, which was later acquired by the Danish firm Ørsted, and electricity generated by the project is sold under an agreement with National Grid. Financing was provided by Société Générale and KeyBank National Association and Deepwater Wind's existing owners, an entity of the D.E. Shaw Group. (Power Technology 2021).

In 2009, the State of Rhode Island approved Deepwater Wind to begin developing offshore wind pilot projects, and Deepwater Wind signed a power purchase agreement (PPA) with National Grid to sell the electricity generated by the turbines. However, in March 2010, the Rhode Island Public Utilities Commission (PUC) rejected the proposed power purchase agreement as too expensive for the ratepayer. To counter the rejection, the Rhode Island General Assembly passed a controversial law that compelled

the PUC to reconsider the power purchase agreement contract based on a new definition of "commercially reasonable" (Rhode Island Legislature 2021). In June 2011, the Rhode Island Supreme Court found that the testimony provided to the PUC, which argued that the project was commercially reasonable, was enough to justify approving the power purchase agreement. It also noted that "typically, this court does not question fact finding by the commission" (West, Block Island Times 2011). Final federal approval was granted in September 2014; construction began in mid-2015; and the windfarm officially began operation in December 2016 (Block Island Times 2014, Shuman, Block Island Times 2015, Trodson 2014).

5.6.2 Permitting Challenges

The power purchase agreement between Deepwater Wind and National Grid was the main permitting challenge for the Block Island Windfarm. Some community members opposed the increase in electricity prices to 24.4 cents per kilowatt hour (West, Block Island Times 2011, Jack 2011). The small scale of the Block Island Windfarm was cited as the reason for the relatively high electricity rates (Turaj 2013). Based on this public opposition, as noted above, the PUC rejected the power purchase agreement but updated their ruling to approve the project after new legislation was passed by the Rhode Island General Assembly.

The Block Island Wind facility's cable landing location at Fred Benson Town Beach was under repair during the fall of 2021, with construction to be continued into 2022, because the transmission cable became exposed (Meyer 2021). Challenges encountered when installing the cable, including hard seabed making it difficult to meet depth requirements and shifting sands in a harsh marine environment, were cited by National Grid and Deepwater Wind as leading to the cable becoming exposed in summer 2018 (Shuman 2019).

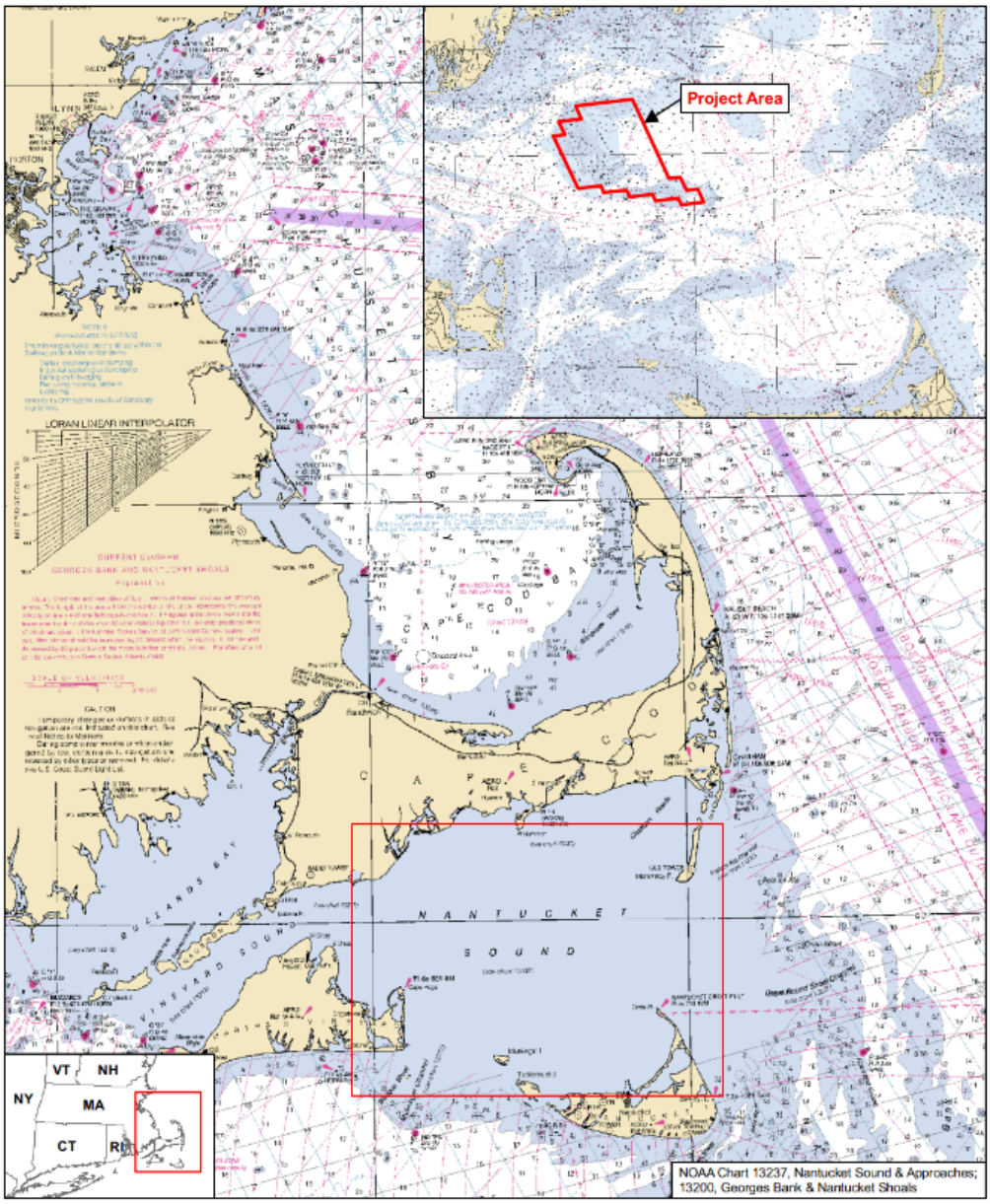
5.7 Cape Wind

5.7.1 Background

The Cape Wind Project was a proposed 130 turbine, 454 MW offshore wind project planned for development in federal waters on Horseshoe Shoal in Nantucket Sound off Cape Cod, Massachusetts during the early 2000s into the 2010s (Figure 25). The cables would have made landfall in West Yarmouth, Massachusetts (Power Technology 2017). It was the first offshore windfarm to be proposed in the U.S., but the project was abandoned in 2017 due to litigation and permitting difficulties.

Figure 25. Proposed Location of Cape Wind Energy Project

Source: (DOE 2012)



The project was developed by Energy Management, Inc. Financial backing of $400 million was provided by a consortium comprised of Bank of Tokyo-Mitsubishi UFJ, Natixis, and Rabobank, while Export Bank of Denmark committed to providing $600 million. In 2014, DOE issued a conditional commitment for a $150 million loan guarantee (DOE 2014). The project was supported by Mass Audubon, Massachusetts' largest nature non-profit, which in August 2013 concluded the project would not pose an ecologically significant threat to birds and their associated marine habitat (Clarke 2013).

In 2001, Cape Wind applied for a permit under Section 10 of the RHA, making USACE the lead federal agency for NEPA evaluation. However, the passage of the Energy Policy Act of 2005 amended the Outer Continental Shelf Lands Act to shift regulatory authority of offshore projects to the DOI, and the project was transferred. DOI issued a draft EIS in January 2008, final EIS in January 2009, and the project received State and local pre-construction permits by that same year (Talgo 2018, DOI 2009). DOI gave approval for the project in April 2010, despite a recommendation from the ACHP (through NHPA Section 106 Consultation) that the project be rejected (Krasny 2010). To receive approval from the FAA, Cape Wind was required to repair the nearby Otis Air Force Base's radar system. However, a series of legal battles brought on by locals opposing the project halted development (Talgo 2018). The delay and high cost caused by litigation meant that Cape Wind was not able to meet their contractual financing obligations by the December 31, 2014 deadline or begin construction to meet the May 1, 2015 deadline under its nine state and local permits (O'Sulivan 2015, Genter 2016). As a result, National Grid and Northeast Utilities terminated their PPAs in January 2015. When the Massachusetts State Legislature passed a bill requiring utilities to buy wind power in August 2016, Cape Wind was excluded from the bidding process as only projects at least 16 km (10 mi) offshore were included (Seelye 2017).

5.7.2 Permitting Challenges

Siting the turbines was a key issue for permitting the Cape Wind Project. After making significant strides in permitting the project, Nantucket Sound, where the turbines were sited, was deemed eligible for listing on the National Register of Historic Places in January 2010 (NPS 2010). Residents, business owners, Native tribes and local officials brought lawsuits against the project addressing possible cultural impacts, environmental impacts, reduced property values, navigational hazards, and energy costs (Seelye 2017). The project also faced legal challenges related to migrating birds, marine life, and the fishing industry (Froese 2019). The first of the lawsuits was filed by the Alliance to Protect Nantucket Sound and other environmental groups in federal court in Washington, D.C in June 2010. It alleged that Bureau of Ocean Energy Management and the USFWS were in violation of the ESA, MBTA, and NEPA (Lavoie 2010). In October 2016, after Cape Wind fought off more than a dozen lawsuits in its attempt to develop the project, it moved to dismiss its appeal seeking to extend state permits (Genter 2016). Due to significant opposition to the project, Energy Management Corporation cancelled the project in 2017.

5.8 Other Freshwater Windfarms

One of the unique aspects of Great Lakes Wind is the fact no wind projects have yet been constructed in the Great Lakes, let alone any body of freshwater in the U.S. While freshwater windfarms are rare, there is some precedent for such projects globally. Table 20 briefly presents six such projects in an effort to contextualize the uniqueness of Great Lakes Wind. Table 20 summaries the permitting challenges in general of the case studies.

Table 20. Freshwater Windfarms Worldwide

Project	Location	Capacity (MW)	Unique Aspects	Status	Reference
Windplanblauw	Lake Ijsselmeer, Netherlands	250	Partially onshore, partially within Lake Ijsselmeer.	Planned operation in 2023	(Power Technology 2021a)
Windfarm Fryslân	Lake Ijsselmeer, Netherlands	380	Entirely within Lake Ijsselmeer.	Under construction	(Windpark Fryslan 2021)
Westermeerwind	Lake Ijsselmeer, Netherlands	144	Located partially onshore and partially within a freshwater, inland lake that was previously connected to the ocean.	Operational	(Power Technology 2021b)
Irene Vorrink Windfarm	Lake Ijsselmeer, Netherlands	16.8	Entirely within Lake Ijsselmeer.	Decommissioning planned for 2021	(Vattenfall 2021)
Lely Windfarm	Lake Ijsselmeer, Netherlands	2	Entirely within Lake Ijsselmeer.	Decommissioned in 2016	(Offshore Wind.biz 2016)
Vindpark Vänern	Lake Vänern, Sweden	30	Located in a freshwater lake.	Operational	(4C Offshore 2021)

Table 21. Summary of Permitting Challenges Experienced by Past Projects

Project	Location/ Jurisdiction	Date Proposed	Project Size	Current Status	Key Permitting Challenges
Icebreaker Wind	Lake Erie, Ohio state waters	2014	6-turbine, 20.7MW	On hold, awaiting response from the Ohio Supreme Court on OPSB's certificate decision.	• Bird and bat impacts, studies, and mitigation. • Lawsuit from environmental groups over NEPA.
Block Island Wind	Turbines: RI Atlantic state waters Cables: Federal waters	2009	5-turbine, 30MW	Operational since 2016	• Initial rejection of PPA by PUC due to high energy prices, resolved when legislature modified criteria for approval.
Cape Wind	Massachusetts, Atlantic federal waters	2001	130-turbine, 454MW	Cancelled in 2017	• Lawsuits from residents and environmental groups on environmental, cultural resource, and viewshed impacts.
Galloo Island	Hounsfield, Lake Ontario, New York State waters	2015	24-turbine, 108MW	Withdrew Article 10 application in 2019	• Completeness of Article 10 application with regards to avian studies and presence of a bald eagle nest; challenges of visual and transmission line impacts.
Lighthouse Wind	On Lake Ontario's south shore in Niagara County, New York	2014	47-turbine, 197MW	No plan to submit Article 10 application	• USFWS disagreement with Lighthouse's public scoping statement siting turbines within critical migratory bird flyway. • Local laws recently enacted to outlaw turbine placement within 3 miles of shoreline.
Nautilus Offshore Wind	New Jersey Atlantic state waters	2012	3-turbine, 25MW	Project rejected by the BPU	• Rejected by BPU due to high cost and lack of net economic benefit to ratepayers.
Trillium Power Wind 1	Lake Ontario, Canadian waters	2004	90-100 turbine, 450-500MW	Pending, not officially cancelled	• Provincial government of Ontario moratorium on offshore wind projects in 2011.

6 Risks and Opportunities

This section discusses risks and opportunities posed by the permitting and regulatory review processes presented above. In this context, risk refers to the hurdles or difficulties that Great Lakes Wind projects could face, such as permit denials, litigation, or unachievable permit conditions, through the permitting and regulatory process. Opportunities refers to increases in the efficiency of the processes, the likelihood of successful permitting, and synergies between the permitting process and other NYS clean energy goals and building public support.

6.1 Risks

6.1.1 Grass Roots Community Opposition

Stakeholder groups and individuals will be in favor and against a Great Lakes Wind project. A Great Lakes Wind project would be subject to organized opposition that seeks to impact decisionmakers. This opposition often does not require citizen suit or other litigation but will be expected in any effort to develop Great Lakes Wind.

6.1.2 Policy Uncertainty and Compliance with Migratory Bird Treaty Act

New York State's territorial waters within Lake Ontario and Lake Erie are known to be home to numerous species of birds covered under the MBTA. Under MBTA, violations are a criminal offense (Ness and Feldman 2021), though proposed legislation may allow for civil penalties (House of Representatives 116-482 Migratory Bird Protection Act of 2020). Whether the MBTA protects birds from incidental or accidental takes, as opposed to purposeful take, has been debated for years, with the Department of Justice (DOJ) Solicitor issuing a legal opinion in January 2017 that incidental takes are prohibited under the MBTA. This legal opinion was suspended and eventually replaced in December 2017 with an opinion that incidental takes are not prohibited and that only active conduct against birds is within the purview of MBTA (Murdock, Clements and Trees 2020). However, the U.S. District Court for the Southern District of New York vacated that legal opinion in August 2020 (Ness and Feldman 2021). In January 2020, USFWS released a Notice of Proposed Rulemaking to codify the interpretation that prohibitions only apply to actions directed at birds, nests, or eggs (85 FR 5915). Accordingly, the USFWS prepared an EIS and ROD and promulgated a regulation that defines the scope of the MBTA as prohibiting only actions directed at migratory birds, thereby excluding actions that only incidentally take such birds on January 7, 2021 (86 FR 1134), USFWS published a notice to delay the implementation of the January 7, 2021 final rule of the MBTA as it applies to conduct resulting in injury or death of

migratory birds (86 FR 8715). On May 7, 2021, USFWS published a proposal to revoke the January 7, 2021 final regulation that limited the scope of the MBTA (86 FR 24573). In addition, USFWS opened a public comment period and solicited public comments on issues of fact, law, and policy raised by the MBTA rule published on January 7, 2021. The public comment period closed on June 7, 2021. USFWS rescinded the rule effective December 3, 2021 (86 FR 54642).

Proposed legislation (House of Representatives 116-482 Migratory Bird Protection Act of 2020) calls upon the Secretary of Interior to regulate incidental take through a general permit process. As of the finalization of this study, this legislation has not been enacted and no permit process is in place. Generally, as long as the bird conservation measures recommended by USFWS as part of the engagement under MOUs established through EO 13186 are implemented, USFWS does not recommend prosecution to DOJ when migratory birds are taken, but prosecution is possible and has occurred in some circumstances.

The importance of whether incidental take is within the jurisdiction of the MBTA is that wind energy projects can inadvertently cause bird deaths. Penalties for violating the MBTA may be severe, given violations are prosecuted under criminal law (Baur, et al. 2013). As more wind energy projects are built, fatalities are increasingly problematic. This is especially true when species of concern are involved, though separate processes exist for permitting and mitigating take of ESA-listed species. The USFWS and DOJ implemented misdemeanor violations against Duke Energy for more than 163 migratory bird deaths, including 14 Golden Eagles, within a three-year period resulting a settlement agreement of $1 million in restitution and a comprehensive compliance plan to minimize mortalities for four wind energy projects in Wyoming (Baur, et al. 2013). The lack of regulations and the changing of DOJ opinions and potential to address prosecution differently across presidential administrations is a significant risk for wind projects in general, and Great Lakes is no exception.

6.1.3 Citizen Suits Over National Environmental Policy Act and Other Federal Statutes

The federal Administrative Procedures Act (APA) allows for "citizen suits," meaning citizens can sue a federal agency if they are adversely affected by that agency's actions. In 2019, ABC and BSBO sued the USACE and DOE under an APA citizen suit for not properly conducting NEPA for the Icebreaker Wind project. The conservation groups argued, among other things, that DOE improperly published a FONSI

and should have developed an EIS under NEPA. This underscores the potential risk posed by the NEPA lead agency not developing a full EIS. Likely strengthening the conservation groups' argument that the USFWS, in its concurrence letter under ESA to DOE recommended DOE develop a full EIS, highlighting the importance of fostering the support of USFWS and complying with their voluntary recommendations, including MBTA conservation measures.

6.1.4 New York State Article 78

Article 78 is a proceeding used to appeal the decision of a NYS or local agency if an interested party disagrees with the State or agency's decision. Some examples of arguments for an Article 78 proceeding are if the agency didn't follow its own rules when making the decision or the decision was not supported by substantial evidence. This can include individuals or advocacy groups challenging state agencies over improper implementation of SEQRA or Article VII, underscoring the need for legally and scientifically defensible documents.

6.1.5 New York State Submerged Lands Easements and Adjacent Upland Landowners

During conversations with NYSOGS, officials stressed that under NYS law, permission must be granted by the adjacent upland landowner for NYSOGS to issue an easement for submerged lands (i.e., where the turbines would be installed). In other words, NYSOGS must obtain permission from the owner of the land on the adjacent shoreline. In most routine cases, submerged lands easements involve docks, jetties, piers, and other structures that are, by their nature adjacent to dry land. However, a submerged lands "area" easement (*not* the cable easement) for a Great Lakes Windfarm would almost certainly have no *adjacent* upland landowner because the turbines for Great Lakes Windfarms would be sited several miles from shore for better wind resources and reduced visual impacts. Therefore, according to officials at NYSOGS, the State currently lacks the ability to legally issue a submerged lands lease for the turbines for a parcel of submerged land that is not adjacent to the shoreline, since the cable that would connect from the submerged area to shore would not constitute a connection or adjacency. NYSOGS officials stated that NYS legislation could fix this issue with revisions to the language in the current law.

6.1.6 New York State Accelerated Renewable Energy Growth and Community Benefit Act (94-c)

The NYS Accelerated Renewable Energy Growth and Community Benefit Act directed NYSDOS to promulgate regulations for reviewing major renewable energy projects. These regulations became effective in March 2021 and represent both an opportunity and a risk to Great Lakes Wind projects. The regulations offer an opportunity as they consolidate several NYS permitting processes into a single process led by ORES, potentially eliminating duplication and complexity; however, the regulations are relatively untested, posing the risk that State agencies still need to develop standard operating procedures to execute the regulations and that undiscovered challenges with the process that may exist. Further, the regulations make no explicit mention of offshore wind energy or Great Lakes Wind, suggesting that the regulations may have been developed for onshore wind projects without consideration of some of the unique factors that influence offshore or Great Lakes development.

6.1.7 Proposed Lake Ontario National Marine Sanctuary

As discussed in section 3.1.7 there is a proposed National Marine Sanctuary in NYS territorial waters in Lake Ontario. In July 2021 NOAA published a draft Environmental Impact Statement and Management Plan for the proposed sanctuary (NOAA 2021). Although NYS officials at NYSDOS are coordinating closely with NOAA, other agencies, and stakeholders on the potential marine sanctuary, the proposal represents both a risk and opportunity for Great Lakes wind projects as the sanctuary rules could, in principle, be tailored to promote or limit wind energy projects. The draft EIS includes impact analysis on energy generation or transmission, which would include future wind projects, and the conclusion is no impact. NOAA's rationale is that with proper siting and the required rigorous federal and State reviews for such projects, these projects would not impact sanctuary resources. A sanctuary would create an additional NOAA permit, authorization, and/or certification for potential impacts to sanctuary resources and/or consultation during the federal authorization process for Great Lakes wind projects, as Section 304 (d) of the NMSA provides for consultation with sanctuaries if sanctuary resources may be injured by federal actions, including "enter and injure" situations in which the activity takes place outside the sanctuary, but an impact may occur to sanctuary resources (e.g., sound from pile driving, turbidity, or disturbed pollutants entering the sanctuary). Sanctuary resources may be narrowly or broadly defined, though in the case of the proposed sanctuary may be limited to shipwrecks.

6.1.8 New York State Agency Discretion Over Great Lakes Wind Authorization

NYS agencies have significant discretion over Great Lakes Wind projects through CWA Section 401 WQC (responsibility of NYS agencies, which will vary depending on project size and characteristics) and Coastal Management Program consistency review (responsibility of NYSDOS). Without both of these certifications, USACE cannot issue a permit for CWA Section 404, and without the consistency review, USACE cannot issue a permit for Rivers and Harbors Act (RHA) Section 10, likely leaving a Great Lakes Wind project unable to proceed. If regulatory requirements are not met, agency officials cannot approve certifications and permits will not be issued, leading to great risk to the project approval and continued progress.

6.2 Opportunities

6.2.1 Contributions to New York State Climate Goals

Likely the broadest benefit of Great Lakes Wind and a key driver behind interest in the potential for such projects is the potential to reduce greenhouse gas emissions and make progress toward NYS's climate goals. The Accelerated Renewable Energy Growth and Community Benefit Act sets goals for an 85% reduction in greenhouse gas emissions by 2050 and 9,000 MW of offshore wind by 2035. At the time this report was written, the State of New York had contracted with 4,316 MW of offshore wind energy in the Atlantic Ocean, and Great Lakes Wind could contribute to closing the gap to the 9,000 MW target.

6.2.2 Fixing America's Surface Transportation Act

The Fixing America's Surface Transportation Act was enacted in December 2015. Title 41 of the Act (FAST-41; 42 U.S.C. § 4370m) created the Federal Permitting Improvement Steering Council, composed of agency deputy secretary-level members, and chaired by an executive director appointed by the president. FAST-41 establishes new procedures that standardize interagency consultation and coordination practices. FAST-41 codifies into law the use of a permitting dashboard to track project timelines. The approach is meant to improve interagency coordination and expedite timelines to complete NEPA and issue authorizations. Participation in FAST-41 is voluntary. To be eligible for FAST-41, a project must (1) be subject to NEPA; (2) be likely to require a total investment of more than $200,000,000; and (3) not qualify for abbreviated authorization or environmental review processes

under any applicable law. Thus, some Great Lakes Wind projects could qualify and choose to participate in FAST-41. To become a covered project under FAST-41, applicants must submit a FAST-41 Initiation Notice. In the event a project qualifies, FAST-41 can be an opportunity to take advantage of the permitting dashboard, agency coordination framework, and steering council guidance and support for the NEPA and federal authorization processes.

6.2.3 New York State Accelerated Renewable Energy Growth and Community Benefit Act

These new regulations are discussed above as a risk, but they are also an opportunity. Rather than rely on the SEQRA process, Article 10 process, and several other permitting processes under the purview of NYSDEC, the regulations involve the submission of a consolidated application package, a consolidated process for public review and input, and a single organization, ORES, to oversee the process. If implemented successfully, these factors could save time and reduce duplication of effort.

6.2.4 Eliminating Redundancies Among Federal and State Reviews

The federal government and NYS have separate and unique authorities and jurisdiction over potential Great Lakes Wind projects, and addressing a particular concern (e.g., threatened species) at the federal level does not *necessarily* make State review redundant. However, existing law provides for several areas where federal review can eliminate or truncate redundant State level review. For example, NYS Regulations at 9 NYCRR 428.2 affirm that if the commissioner of the Division of Parks is consulted through NHPA Section 106 Consultation, review of a project under the New York SHPA is unnecessary, provided the federal and State actions have the same Area of Potential Effects to historical and cultural resources Similarly, under SEQRA (which would only apply to projects below the Accelerated Renewable Energy Growth and Community Benefit Act threshold) a NYS EIS is not necessary if a federal NEPA EIS is published that fulfills SEQRA EIS requirements and SEQRA findings can be made by the involved agencies using the NEPA EIS.

6.2.5 Optimizing Mitigation Plans Across Multiple Permitting Processes

Because each statute at the State and federal level has unique requirements and findings to be made, each implementing agency would review proposed projects and mitigation measures and potentially propose different or additional mitigation measures or project limitations to achieve compliance with each applicable law. This can create redundancies and conflicts in mitigation and/or substantively affect the practicability of projects from a logistical, safety, or cost perspective. An opportunity

in the environmental review and authorization process is for project applicants to integrate and optimize mitigation and any adjustments to the project to maximize environmental protection and compliance while minimizing the impacts of compliance to the project itself. Integrated mitigation plans need to clearly indicate which statutes are addressed by project logistical choices and mitigation measures so regulators can easily determine if statutory needs are met, but integrated plans can address redundancies and conflicts early. For example, if a seasonal construction limitation might reduce impacts on a fishery but would shift construction into a season that would increase potential to affect birds, this conflict can be identified and addressed. Another example is if there are multiple potential deterrent mitigation measures to reduce potential for bird collision, and some of those deterrents would also reduce the likelihood of bat collisions, choosing a measure that addresses both rather than two different measures to address each reduces redundancy and the potential impacts of the mitigation measures on the project. Considering the findings requirements for each statute (e.g., no jeopardy for ESA, consistency with enforceable polices for CZMA) can assist in designing projects and mitigation measures that most efficiently achieve statutory goals. Ideally, mitigation would also be optimized in the context of engineering and siting choices (see section 3.2.4).

6.2.6 Optimize the Project Relative to the Permitting Risks

Addressing environmental compliance and major risks at the outset of proposed projects can allow the project itself to be optimized relative to permitting risks. First, siting is an important consideration and site choices should include consideration of major environmental and stakeholder risk factors. At the project stage, optimization can be achieved through development of a suite of design and engineering options and evaluation of how various options are potentially affected by permitting risk in addition to typical optimization factors, such as costs, effectiveness of energy capture and transfer, structural integrity in the proposed environment, etc. Permit risks do not outweigh safety and logistical needs, but there may be a range of engineering and equipment choices to achieve a successful outcome, and within that range, there may be more or less risk associated with permitting and environmental compliance. For example, without permitting and stakeholder considerations, building Great Lakes Wind close to shore would achieve lower costs for maintenance; however, the risk of litigation and permitting issues associated with nearshore projects may outweigh the cost reduction for maintenance of such siting.

6.2.7 Leveraging Studies for Multiple Permits

Several of the permitting and regulatory reviews involve the submission of similar or identical studies and materials. Identifying these common materials can help project sponsors reduce duplication of effort and could help agency reviewers understand where other regulators are evaluating similar materials, perhaps with differing goals or review criteria. A list of shared forms and common materials, studies, and plans are presented in the Table 22. A comprehensive list of all materials, studies, plans, and forms required for each application listed below is provided in section 8.

Table 22. Common Forms, Materials, Studies, and Plans Across Permit Applications

Permit Application	Agency	JAF	SEQRA EAF	FCAF	USGS Location Maps	Project/Site Plans	Photographs/ Drawings	List of Project Approvals	Project Description	Draft EIS	Planning/ Zoning (*)	Archaeological Surveys	Public Participation Plan	Land Survey
CWA 404	USACE	✓		✓	✓	✓	✓		✓	✓				
RHA Section 10	USACE	✓		✓	✓	✓	✓		✓	✓				
401 WQC	NYSDEC	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	
Excavation or Placement of Fill in Navigable Waters Permit	NYSDEC	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	
CEHA Permit	NYSDEC	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
State Incidental Take Permit	NYSDEC	✓	✓		✓	✓	✓		✓	✓		✓	✓	
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)		✓		✓	✓	✓	✓	✓		✓	✓		✓
Easement of Lands Underwater	NYSOG	✓	✓		✓	✓	✓	✓	✓	✓	✓			✓
CZMA Consistency	NYSDOS	✓	✓	✓		✓	✓		✓	✓				
BGEPA Permit	USFWS				✓		✓		✓					
Obstruction Evaluation	FAA				✓				✓					

7 Recommendations

This section provides recommendations for developers, NYS, and federal regulators for the most efficient and publicly supported Great Lakes Wind projects possible. This study does not take a position on *whether* Great Lakes Wind should be developed. Therefore, this section provides recommendations for the best permitting and regulatory approaches possible should the State pursue Great Lakes Wind.

- **Pursue utility-scale projects to capture the full benefits of clean energy and lower power prices.** Both demonstration-scale and utility-scale projects are likely to spark significant public interest, with some opposing projects based on viewshed and other local issues. The challenges in addressing these concerns would be significant for both a demonstration-scale and a utility-scale project. If NYS is able to successfully address these concerns, it is recommended that the State position itself to take advantage of the significant clean energy benefits by pursuing a utility-scale project.
- **The New York State Legislature should pass legislation to allow NYSOGS to allow easements for submerged lands that lack adjacent upland landowners.** Legislators should consult with NYSOGS on specific recommendations for legislative language (see section 6.1.4 for more details).
- **Reduce risks associated with Great Lakes Wind** for developers to ensure a competitive process with optimal outcomes for ratepayers. A similar approach to New York State's offshore wind planning, studies, working groups, and other de-risking activities would likely improve the value of Great Lakes Wind for the State.
- **Consult closely with the NOAA Office of Marine Sanctuaries** through NYS agencies, like NYSDOS, to ensure the proposed National Marine Sanctuary in Lake Ontario, and any other potential National Marine Sanctuaries, are compatible with Great Lakes Wind.
- **Leverage public engagement and incorporate Great Lakes Wind into climate goals**. Public input is an important part of determining the relative benefits and impacts of Great Lakes Wind.
- **Project proponents should conduct the following key steps for efficient regulatory management** which include, but are not limited to, the following (some of which have been initiated in this report):
    - Early engagement with regulators, relevant agencies, and key stakeholders.
    - Openly sharing information, regularly communicating project goals and objectives, avoiding premature commitments, and fulfilling commitments that are made.
    - Early establishment of project environmental goals.
    - Early identification of key issues and strategies, regulatory issues, and risks.
    - Regulator engagement and reviews of the permitting, engineering, construction, and logistics schedules.
    - Close communication and coordination between engineering and regulatory teams.
    - Avoid major scope changes that would require agencies to reassess the project.
    - Optimized and integrated mitigation plans.
    - Establishment of a clear timeline and plan for permit acquisition (milestones).
    - Effective management of change.

- **Conduct studies to reduce uncertainty around major permitting and stakeholder concerns.** The case studies and risks described in this report suggest that New York State could benefit by considering studies relative to the following:
    - Prioritize and conduct studies on bird and bat use of areas where wind turbines would potentially be built. In particular, ESA-listed species, bald and golden eagles, and birds for which large portions of the population transit the Great Lakes are of particular concern.
    - Studies to understand sediment composition and potential to disturb and release contaminants with cable laying and burial and turbine installation would reduce risks for WQC. USACE burial depth requirements can be problematic depending on bottom type and composition, so better understanding of those would also inform RHA/CWA 404 permitting.
    - As more understanding of the feasible technologies, wind speeds, bottom composition/geology, vessel corridor needs, and other logistics and project parameters become available (through this Great Lakes Wind Feasibility Study and other mechanisms), more thorough visual impact studies should be conducted, and siting should take visibility strongly into account.
    - Fisheries have been an important issue in Atlantic offshore wind. Better understanding of fisheries resource and use conflicts for siting and mitigation would be valuable.
    - Threatened and endangered species are also a focus of concern and can be difficult to study when they are rare (low-sample sizes). Developing studies that reasonably feed models or serve as proxies for rare species is more likely to achieve reduced uncertainty than standard survey approaches.
    - Design studies to answer specific questions and directly address environmental and stakeholder risks with realistic timeframes and costs. Where robust studies or models are not feasible or practicable, risk assessment with mitigation for high severity, and high-likelihood effects can reduce and avoid potential impacts.
    - Studies can benefit from regional and international collaboration and Indigenous Nations.
    - Cultural resources studies in consultation with Indigenous Nations, SHPO, and NOAA can identify important cultural sites, artifacts, and uses (e.g., subsistence fishing) near potential windfarm locations.

8 Materials and Studies Needed for Permit Applications

The table below summarizes the materials and studies that developers would need to submit in order to obtain the listed major federal and State permits likely necessary for Great Lakes Wind. The table is divided into four areas: federal/state approvals and permits, receiving agency, required forms and required materials and studies. Each required form or exhibit is associated with a list of required materials and studies, when applicable. Most permitting regimes were designed with mainly terrestrial activities in mind, so some of the listed required materials and studies may not be applicable to every Great Lakes Wind project or may only be applicable to cable landings crossing onto shore. Some materials and studies may require engagement with agencies to establish relevance or waive impracticable studies if possible (Table 23).

Table 23. Materials and Studies for Permit Application

Permit or Regulation	Receiving Agency	Required Forms or Exhibits	Required Materials and Studies
NEPA	USACE (lead)	RHA/CWA application	Any environmental or socioeconomic studies conducted will inform EIS. USCG PARS study and developer NSRA will inform alternatives. Consultation materials and studies are described below in this table (e.g., ESA, NHPA) Draft/Final EIS.
SEQRA (exempt if federal EIS is prepared that fulfills SEQRA requirements and SEQRA findings can be made by the involved agencies or *Accelerated Renewable Energy Growth and Community Benefit* Act followed)	NYSDEC	EAF	Project description Project operations Planning and zoning information List of project approvals Land and uses and cover types on project site. Information on natural resources on or near project site. Information on designated public resources on or near project site. Draft/Final Scope Draft/Final EIS
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	ORES Application Form	N/A
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 1—General Requirements	Certified copy of the charter of the corporation that owns the facility.

Table 23 continued

Permit or Regulation	Receiving Agency	Required Forms or Exhibits	Required Materials and Studies
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 2—Overview and Public Involvement	Description of main components of the facility. Report analysis that assembles and presents relevant and material facts of the proposed facility.
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 3—Location of Facilities and Surrounding Land Use	U.S. Geological Survey maps of proposed facility. Land uses maps A map of any existing overhead and underground major facilities for electric, gas or telecommunications transmission within the study area. Summary of any consultations with owners of major facilities for electric, gas or telecommunications that may be impacted by the facility. Map showing where the facility components will be located. A map of existing zoning districts and proposed zoning districts within the study area. Local plans for applicable lands and consistency with plans. Maps showing designated NYS coastal areas, inland waterways and local waterfront revitalization program areas, groundwater management zones, designated agricultural districts, flood-prone areas, critical environmental areas, and coastal erosion hazard areas that are located within the study area. A qualitative assessment of the compatibility of the facility. Analysis of conformance with relevant provisions of the New York State Coastal Management Program Policies and proposed or adopted Local Waterfront Revitalization Plans (in certain cases). Aerial photographs. Description of community character and analysis of impacts of facility construction. Phase 1 and 2 Environmental Statement Assessment (in certain cases). Land survey (in certain cases).
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 4—Real Property	A map of the facility site showing property boundaries with tax map sheet, block, and lot numbers. Property/right-of-way map. A demonstration that the applicant has obtained title to or a leasehold interest in the facility site.

Table 23 continued

Permit or Regulation	Receiving Agency	Required Forms or Exhibits	Required Materials and Studies
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 5—Design Drawings	Site plans of the proposed facility. Typical elevation drawings indicating the length, width, height, material of construction, color and finish of all buildings, structures, and fixed equipment. Site suitability report. A list of engineering codes, standards, guidelines, and practices. Copies of manufacturer provided information.
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 6—Public Health, Safety and Security	A statement and evaluation that identifies, describes, and discusses all efforts made to avoid and minimize potential adverse impacts of the construction and operation of the facility. Maps of the study area and analysis showing relation of the facility site to local risk factors. Site Security Plan Safety Response Plan Statement that applicant has provided required plans to relevant stakeholders.
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 7—Noise and Vibration	Noise impact studies. A map of the study area showing the location of sensitive sound receptors in relation to the facility. Pre-construction baseline noise conditions evaluation. Evaluation of future noise levels during construction of the facility. Geographic Information System files used for noise modeling. Identification and evaluation of reasonable noise abatement measures for construction activities. Site plan and elevation details of substations, as related to the location of all relevant noise sources.
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 8—Visual Impacts	Visual Impact Assessment Visual Contrast Evaluation Visual Impacts Minimization and Mitigation Plan. Planting plans Lighting plans
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 9—Cultural Resources	A study of the impacts of the construction and operation of the facility, interconnections, and related facilities on archaeological/cultural resources within the project impact area. Unanticipated Discovery Plan. A study of the impacts on historic resources within the project impact area.

Table 23 continued

Permit or Regulation	Receiving Agency	Required Forms or Exhibits	Required Materials and Studies
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 10—Geology, Seismology and Soils	Geology, seismology, and soils studies. A map delineating existing slope. A proposed site plan showing existing and proposed contours at two-foot intervals. Description of excavation techniques to be employed. Plan describing all blasting operations. Assessment of potential impacts of blasting to environmental features. Identification and evaluation of reasonable mitigation measures regarding blasting impacts. Description of the regional geology, tectonic setting, and seismology of the facility site. Analysis of the expected impacts of construction and operation of the facility with respect to regional geology. Analysis of the impacts of typical seismic activity experienced in the facility site based on current seismic hazards maps. Map delineating soil types on the facility site and interconnection sites. Maps, figures, and analyses delineating depth to bedrock and underlying bedrock types, including vertical profiles showing soils, bedrock, water table, and typical foundation depths on the facility site. Evaluation to determine suitable building and equipment foundations.
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 11—Terrestrial Ecology	Identification and description of the type of plant communities present on the facility site, and adjacent properties within 30 m (100 ft) areas to be disturbed by construction. Analysis of the temporary and permanent impact of the construction and operation of the facility. List of the species of mammals, birds, amphibians, terrestrial invertebrates, and reptiles that are likely to occur based on ecological communities present at, and bird and bat migration routes through, the facility. An analysis of the impact of the construction and operation of the facility and interconnections on wildlife, wildlife habitats, and wildlife travel corridors, other than a NYS threatened or endangered species or species of special concern. Mitigation plan.

Table 23 continued

Permit or Regulation	Receiving Agency	Required Forms or Exhibits	Required Materials and Studies
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 12—NYS Threatened or Endangered Species	Wildlife site characterization report. Reports detailing the results of pre-application survey. Copy of the NYSDEC determination.
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 13—Water Resources and Aquatic Ecology	Groundwater studies. Surface water studies. A map or series of maps showing delineated boundaries of all federal, State, and locally regulated surface waters present on the facility site and within 30 m (100 ft) of areas to be disturbed by construction. Reports detailing the results of the surface water delineation survey. Description of the New York State listed Water Quality Standards and Classification, ambient standards, and guidance values. Low presence of aquatic invasive species and other characteristics of such surface waters, including intermittent streams, based on actual on-site surface water observations. Identification of any downstream surface water, drinking-water supply intakes nearest to the proposed facility. Demonstration of avoidance and minimization of impacts to such NYS protected waters (in some cases). Compensatory Mitigation Plan (in some cases). Spill Prevention and Control Plans Analysis of the impact of the construction and operation of the facility on biological aquatic resources. Invasive Species Control and Management Plan (in some cases). Request for a WQC and copy of all pertinent federal permit applications related to the WQC.

Table 23 continued

Permit or Regulation	Receiving Agency	Required Forms or Exhibits	Required Materials and Studies
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 14—Wetlands	A map or series of maps showing jurisdictional boundaries of all federal, State and locally regulated wetlands, and adjacent areas present on the facility site and within 30 m (100 ft) of areas to be disturbed by construction. Reports detailing the results of the delineation survey. Qualitative and descriptive wetland functional assessment. Analysis of all off-site wetlands within 30 m (100 ft) beyond the limit of disturbance that may be hydrologically or ecologically influenced by development of the facility. Impact minimization summary (in some cases). Compensatory Mitigation Plan (in some cases).
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 15—Agricultural Resources	Land assessment within the study area. Map showing agricultural land uses and development restrictions. Map showing locations of known or suspected sub-surface drainage systems (including outlets), surface drainages, irrigation lines, or other unique agricultural facilities. U.S. Department of Agriculture soil mapping for the facility site. Map showing NYS Agricultural Land Classification Mineral Soil Groups 1 through 10 for impacted agricultural areas within the facility site. Agricultural Plan (in certain cases). Remediation Plan (in certain cases).

Table 23 continued

Permit or Regulation	Receiving Agency	Required Forms or Exhibits	Required Materials and Studies
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 16—Effect on Transportation	Conceptual site plan. Description of the pre-construction characteristics of the public roadways in the vicinity of the facility. Estimate of the trip generation characteristics of the facility during construction. Analysis and evaluation of the traffic and transportation impacts of the facility. Analysis and evaluation of the impacts of the facility on airports and airstrips, railroads, buses, and any other mass transit systems in the vicinity of the facility. Statement that applicant has received informal/formal Department of Defense review. Statement that applicant has consulted with relevant stakeholders and provided detailed map and description of proposed construction. Include copies of reviews and consultations.
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 17—Consistency with Energy Planning Objectives	Statement demonstrating the degree of consistency of the construction and operation of the facility with New York State energy policies.
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 18—Socioeconomic Effects	Socioeconomic effects studies.
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 19—Environmental Justice	Identification and evaluation of significant and adverse disproportionate environmental impacts of the facility on an Environmental Justice (EJ) area (if applicable). Summary of the applicant's final EJ analysis.

Table 23 continued

Permit or Regulation	Receiving Agency	Required Forms or Exhibits	Required Materials and Studies
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 20—Effect on Communications	Detailed description of the proposed telecommunications interconnection. Statement describing the anticipated effects of the facility and the electric interconnection between the facility and the point of interconnection on the communications systems. Identification of all existing underground cable and fiber optic major transmission telecommunication lines within a 1.6 km (1 mi) radius of the facility and the electric interconnection between the facility and the point of interconnection. Statement describing the anticipated effects of the facility and the electric interconnection between the facility and the point of interconnection on the communications systems. Description of post-construction activities that shall be undertaken to identify and mitigate any adverse effects on the communications systems. Description of how the interconnection and any necessary system upgrades will be installed, owned, maintained, and funded.
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 21 - Electric System Effects and Interconnection	Detailed description of the proposed electric interconnection. System reliability impact study. Evaluation of the potential significant impacts. Description of criteria, plans, and protocols for generation and ancillary facilities' design, construction, commissioning, and operation. Status report on equipment availability and expected delivery dates for major components including towers, turbines, solar panels, inverters, transformers, and related major equipment.
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 22—Electric and Magnetic Fields	A set of the aerial photos/drawings Electromagnetic fields study with calculation tables and field strength graphs for each identified right-of-way segment cross-section.
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 23—Site Restoration and Decommissioning	Decommissioning and Site Restoration Plan

Table 23 continued

Permit or Regulation	Receiving Agency	Required Forms or Exhibits	Required Materials and Studies
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 24—Local Laws and Ordinances	A list of all local ordinances, laws, resolutions, regulations, standards, and other requirements applicable to the project. Identification of the zoning designation or classification of all lands constituting the facility site.
Accelerated Renewable Energy Growth and Community Benefit Act	NYSDOS (ORES)	Exhibit 25—Other Permits and Approvals	List of any federal or federally delegated, or federal or State recognized Indigenous Nations, permit, consent, approval or license that will be required for the construction or operation of the facility.
CWA Section 404/RHA Section 10	USACE	Joint Application Form	Location map Project plans Photographs Purpose of the proposed project. Description of current site conditions. Proposed site changes. Type of structures and fill materials to be installed, and quantity of materials to be used (e.g., square ft of coverage, cubic yards of fill material and/or structures below ordinary/mean high water, etc.). Area of excavation or dredging, volumes of material to be removed, and location of dredged material disposal or use. Timing and amount of tree cutting or clearing. Work methods and type of equipment to be used. Planned sequence of activities. Pollution control methods and other actions proposed to mitigate for environmental impacts. Erosion and silt control methods that will be used to prevent water quality impacts. Alternatives considered to avoid regulated areas. If no feasible alternatives exist, explain how the project will minimize impacts.
CWA Section 404/RHA Section 10	USACE	Environmental Questionnaire	Copy of any Environmental Impact Statement. Purpose of the proposed project. Photographs
CWA Section 404/RHA Section 10	USACE	N/A	Project drawings
CWA Section 404/RHA Section 10	USACE	FCAF	Questionnaire
CWA Section 404/RHA Section 10	USACE	N/A	Public Participation Plan

Table 23 continued

Permit or Regulation	Receiving Agency	Required Forms or Exhibits	Required Materials and Studies
CEHA	NYSDEC	Joint Application Form	Location map Project plans Photographs Purpose of the proposed project. Description of current site conditions. Proposed site changes. Type of structures and fill materials to be installed, and quantity of materials to be used (e.g., square ft of coverage, cubic yards of fill material and/or structures below ordinary/mean high water, etc.). Area of excavation or dredging, volumes of material to be removed, and location of dredged material disposal or use. Timing and amount of tree cutting or clearing. Work methods and type of equipment to be used. Planned sequence of activities. Pollution control methods and other actions proposed to mitigate for environmental impacts. Erosion and silt control methods that will be used to prevent water quality impacts. Alternatives considered to avoid regulated areas. If no feasible alternatives exist, explain how the project will minimize impacts.
CEHA	NYSDEC	N/A	Landowner designating an authorized agent (permits are only issued to landowner). Photographs Aerial photos Stamped and signed land surveys. Description of construction methods.
CEHA	NYSDEC	N/A	Public Participation Plan
PATON	USCG	CG2254 (Private Aids to Navigation Application) NSRA	Information about the Private Aid to Navigation (type, color, geographic position, depth of water). NSRA instructions can be found at Navigation and Inspection Circular 01-19.

Table 23 continued

Permit or Regulation	Receiving Agency	Required Forms or Exhibits	Required Materials and Studies
New York State Easement of Lands Underwater	NYSOG	Application for use of Land Underwater	Certified copy of the deed of applicant's adjacent upland. Copies of adjoining waterfront owner's deeds. Full size copy of the tax map. A drawing or survey delineating the applicant's upland property boundaries and State-owned lands to be used, including in-water docks and structures (existing or proposed). Photograph(s) of the project area, showing the project in relation to adjacent property lines. Plan and profile showing the existing or proposed work or structure. Map made by a licensed land surveyor and/or professional engineer, showing the location of the proposed structure(s), the upland property of the applicant (developer) and those of adjoining properties along the waterfront Metes and bounds description of the lands applied for. Duplicate copy of any permit or letter issued by the USACE Affidavits of service of notice to the city, town or village and affected landowners. Diagrams (in certain cases).

Table 23 continued

Permit or Regulation	Receiving Agency	Required Forms or Exhibits	Required Materials and Studies
New York State Easement of Lands Underwater	NYSOG	Joint Application Form	Location map Project plans Photographs Purpose of the proposed project. Description of current site conditions. Proposed site changes. Type of structures and fill materials to be installed, and quantity of materials to be used (e.g., square ft of coverage, cubic yards of fill material and/or structures below ordinary/mean high water, etc.). Area of excavation or dredging, volumes of material to be removed, and location of dredged material disposal or use. Timing and amount of tree cutting or clearing. Work methods and type of equipment to be used. Planned sequence of activities. Pollution control methods and other actions proposed to mitigate for environmental impacts. Erosion and silt control methods that will be used to prevent water quality impacts. Alternatives considered to avoid regulated areas. If no feasible alternatives exist, explain how the project will minimize impacts.
New York State Easement of Lands Underwater	NYSOG	Environmental Assessment Form (EAF)	Marine project information. Purpose, scope, and potential impacts of the project.
New York State Easement of Lands Underwater	NYSOG	Application for a Grant of Land Underwater Form of notice of intention Form of notice of application	N/A
New York State Easement of Lands Underwater	NYSOG	Application for Use of Land Underwater Easement for Structures Form of petition Form of notice of petition	N/A
FAA Airport Obstruction	FAA	Form 7460-1	Location map Project description Demonstrate compliance with FAA. Advisory circular 70/7460-1 L Change 1.

Table 23 continued

Permit or Regulation	Receiving Agency	Required Forms or Exhibits	Required Materials and Studies
CZMA Consistency Certification	NYSDOS	Federal Consistency Assessment Form (FCAF)	Project description Coastal assessment Questionnaire Identify, by their policy numbers, which coastal policies are applicable. Briefly assess the effects of the activity upon the applicable policies. State how the activity is consistent with each applicable policy. Copy of the completed federal agency application.
NHPA 106 Consultation	SHPO/THPO	N/A	Assessment of siting relative to historic properties listed on or eligible for listing on the National Register of Historic Places. Identify and assess archeological sites that the planned actions might affect. In water, pre-construction geophysical surveys would include interpretation for wrecks, cultural sites, and other sites of archaeological value. See Exhibit 9 of NYSDOS above for potential required materials and studies by SHPO/THPO.
ESA	USFWS	N/A	Biological Assessment may be submitted by lead agency. Section 7 Consultation process.
MBTA	USFWS	N/A	There is no process for permitting under the MBTA. Bird Conservation Plan.
Eagle Take Permit (Incidental Take)	USFWS	Form 3-200-71	Pre-application eagle survey (in certain cases). Description of project activity. Explanation of why permit is needed. Maps and photographs of project location. Description of eagle activity. Location of eagle nests, roots and/or use areas. Disturbance Take Questionnaire. Description of mitigation measures.
Eagle Nest Take Permit	USFWS	Form 3-200-72	Description of project activity. Description of eagle activity. Statement outlining how the eagle nest will be removed, destroyed, or relocated. Description of mitigation measures.
Highway Work Permit and Use and Occupancy Agreement	New York State Department of Transportation (NYSDOT)	Highway Work Permit Application for Utility Work (PERM 32)	Description of project activity. Indicate whether any overhead and/or underground work will be done. Plans and specifications for any work that involved construction within the State highway right-of-way.

9 References

4C Offshore. 2021. *Vindpark Vänern Offshore Wind Farm.* Accessed September 9, 2021. https://www.4coffshore.com/windfarms/sweden/vindpark-v%C3%A4nern-sweden-se06.html

ABC Birds. 2019. *American Bird Conservancy.* 12 11. Accessed 05 13, 2021. https://abcbirds.org/article/bird-conservation-groups-file-lawsuit-in-federal-court-over-icebreaker-wind-project/

—. 2016. *Report: 10 Of The Worst-Sited Wind Energy Projects For Birds.* 3 24. Accessed 5 18, 2021. https://abcbirds.org/10-worst-wind-energy-sites-for-birds/

ACHP. 2021. *Section 106 Applicant Toolkit.* June 4. https://www.achp.gov/digital-library-section-106-landing/section-106-applicant-toolkit

Apex. 2017. *Application of Galloo Island Wind LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article 10 to Construct a Wind Energy Project. Figure 2-1.* Article 10 Application, Albany, NY: New York Department of Public Service.

Ballotpedia. 2021. *Party control of New York state government.* Accessed May 24, 2021. https://ballotpedia.org/Party_control_of_New_York_state_government

Baur, Donald, Arthur Haubenstock, Patrick Ryan, and Nidhi Thakar. 2013. *U.S. Fish And Wildlife Service Imposes First-Ever Criminal Penalties For Bird Deaths Caused By Wind Projects.* December 03. Accessed April 16, 2021. https://www.jdsupra.com/legalnews/us-fish-and-wildlife-service-imposes-f-63637/

Block Island Times. 2014. *Block Island Times.* 9 5. Accessed 5 14, 2021. https://www.blockislandtimes.com/article/block-island-wind-farm-now-fully-permitted/40436

Botero, Julia. 2016. *Study finds Galloo Island wind farm may hurt Henderson property values.* 4 7. Accessed 5 17, 2021. https://www.wrvo.org/post/study-finds-galloo-island-wind-farm-may-hurt-henderson-property-values

Cassell, Barry. 2015. *Lighthouse Wind argues at New York PSC against delay of review for its project.* 12 30. Accessed 5 17, 2021. https://www.transmissionhub.com/articles/2015/12/lighthouse-wind-argues-at-new-york-psc-against-delay-of-review-for-its-project.html

CEQ. 2018. "Environmental Impact Statement Timelines (2010-2017)." Washington, DC. https://ceq.doe.gov/docs/nepa-practice/CEQ_EIS_Timelines_Report_2018-12-14.pdf

Clarke, Jack. 2013. *Mass Audubon - Final Position on The Cape Wind Energy Project.* 8 6. Accessed 5 14, 2021. https://www.massaudubon.org/content/download/7685/142415/file/Final-position-on-Cape-Wind-2013.pdf

Cullen Dykman. 2021. *New Regulations Expedite New York Article VII Proceedings for Certain Proposed Electric Transmission Lines.* May 11. Accessed September 9, 2021

https://www.cullenllp.com/blog/new-regulations-expedite-new-york-article-vii-proceedings-for-certain-proposed-electric-transmission-lines/

DOE. 2017. "EA-2045_Apendix_A_Public_Scoping_Documents.pdf." *Energy.gov/nepa.* 10 10. Accessed 5 13, 2021. https://www.energy.gov/sites/prod/files/2018/09/f55/EA-2045_Appendix_A-1_Public_Scoping_Documents.pdf

—. 2014. *Energy Department Offers Conditional Commitment to Cape Wind Offshore Wind Generation Project.* 7 1. Accessed 5 14, 2021. https://www.energy.gov/articles/energy-department-offers-conditional-commitment-cape-wind-offshore-wind-generation-projec-0

DOE. 2012. *Environmental Impact Statement for the Proposed Cape Wind Energy Project.* EIS, Washington, DC: U.S. Department of Energy.

DOE. 2018. *Final Environmental Assessment LEEDCo Project Icebreaker Lake Erie, City of Cleveland, Cuyahoga County, Ohio.* Environmental Assessment, US Department of Energy.

DOI. 2009. *U.S. Department of the Interior - Cape Wind Final Environmental Impact Statement.* 1. Accessed 5 14, 2021. https://www.boem.gov/renewable-energy/studies/cape-wind-final-environmental-impact-statement-feis#:~:text=The%20Final%20Environmental%20Impact%20Statement,built)%2C%20and%20proposed%20mitigation

DOJ. 2013. *Department of Justice - Utility Company Sentenced in Wyoming for Killing Protected Birds at Wind Projects.* 11 22. Accessed 5 21, 2021. https://www.justice.gov/opa/pr/utility-company-sentenced-wyoming-killing-protected-birds-wind-projects

Dvorak, Paul. 2013. *Canada's Trillium Power successful with Ontario far-offshore wind ruling at Ont Court of Appeal: $2.25 billion claim to proceed.* 11 30. Accessed 5 19, 2021. https://www.windpowerengineering.com/canadas-trillium-power-successful-ontario-far-offshore-wind-ruling-ontario-court-appeal-2-25-billion-claim-proceed/

EDF Renewables. 2021. *EDF Renewables - Who We Are.* 5 18. Accessed 5 18, 2021. https://www.edf-re.com/about-us/who-we-are/

EPA. 2019. "Clean Water Act Section 401: State Certification of Water Quality." *EPA.* Accessed May 18, 2021. https://www.epa.gov/cwa-401/clean-water-act-section-401-state-certification-water-quality

EV Wind. 2010. *The first Vänern offshore wind farm inaugurated.* 5 24. Accessed 5 19, 2021. https://www.evwind.es/2010/05/24/the-first-vanern-offshore-wind-farm-inaugurated/5723

Feldman, Van Ness and. n.d.

Fenster, Tim. 2019. *Apex withdraws application for distant wind project.* 2 12. Accessed 5 17, 2021. https://www.niagara-gazette.com/news/local_news/apex-withdraws-application-for-distant-wind-project/article_034dab62-9d27-5356-afd6-7fefdafc7d57.html

Fitzsimmons, Emma. 2013. *Wind Energy Company to Pay $1 Million in Bird Deaths.* 11 22. Accessed 5 21, 2021. https://www.nytimes.com/2013/11/23/us/wind-energy-company-to-pay-1-million-in-bird-deaths.html

Franco, Mark Del. 2014. *Another Industry Setback: N.J. Whacks Fishermen's Offshore Wind Demo Project.* 3 20. Accessed 5 20, 2021. https://nawindpower.com/another-industry-setback-nj-whacks-fishermens-offshore-wind-demo-project

Froese, Michelle. 2019. *Lessons Learned from Cape Wind.* 7 30. https://www.windpowerengineering.com/lessons-learned-from-cape-wind/

—. 2018. *New Jersey Board approves offshore wind certificate funding, denies Nautilus Wind pilot.* 12 19. https://www.windpowerengineering.com/new-jersey-board-approves-offshore-wind-certificate-funding-denies-nautilus-wind-pilot/

Genter, Ethan. 2016. *Cape Wind reverses, drops appeal.* 11 6. Accessed 5 14, 2021. https://www.capecodtimes.com/news/20161006/cape-wind-reverses-drops-appeal

Goldstein, Joseph. 2019. *A Climate Conundrum: The Wind Farm Vs. The Eagle's Nest.* 6 25. Accessed 5 17, 2021. https://www.nytimes.com/2019/06/25/nyregion/ny-clean-energy-law-wind.html

Gordon, Caleb, Ashley Matteson, Jennifer Strucker, and Rhett Good. 2018. *Icebreaker Wind Bird and Bat Monitoring, Lake Erie Ohio, Annual Report.* Cheyenne: Western EcoSystems Technology, Inc.

Great Lakes Commission. 2017. *Strategic Plan for the Great Lakes Commission 2017 - 2022.* strategic plan, Great Lakes Commission. https://www.glc.org/wp-content/uploads/2013/07/GLC-strategic-plan_Final_Adopted-Jan-13-2017.pdf

Hancock, L. 2021. *Cleveland.com.* Accessed January 13, 2022. https://www.cleveland.com/open/2021/11/ohio-supreme-court-to-hear-arguments-over-state-certificate-to-allow-icebreaker-wind-project-on-lake-erie.html

Hill, Brian. 2018. *Trillium Power releases new evidence alleging Ontario Liberals destroyed documents during $500M lawsuit.* 4 30. Accessed 5 19, 2021. https://globalnews.ca/news/4175888/trillium-power-alleges-ontario-government-destroy-documents-lawsuit/

Hoffman, Connor. 2020. *Lighthouse Wind's fate still to be decided.* 1 19. Accessed 5 17, 2021. https://www.lockportjournal.com/news/local_news/lighthouse-winds-fate-still-to-be-decided/article_48ca7cbc-0843-5c82-be9d-ea1925f46f83.html

IJC. 2020. *Role of the IJC.* Accessed May 24, 2021. https://ijc.org/en/who/role.

Jack, Pippa. 2011. *Block Island Times.* 5 13. Accessed 5 14, 2021. https://www.blockislandtimes.com/article/wind-farm-costs-under-scrutiny-ri-supreme-court/28112

Jerving, Sarah. 2019. *Proposel wind turbines generating conflict.* 2 13. Accessed 5 18, 2021. https://www.investigativepost.org/2019/02/13/proposed-wind-turbines-generating-conflict/

Kaiser, Gordon. 2014. *Trillium Wind: Can Developers Sue when Government Wind Projects are cancelled?* 5. Accessed 5 19, 2021. https://energyregulationquarterly.ca/case-comments/trillium-wind-can-developers-sue-when-government-wind-projects-are-cancelled#sthash.htG0714V.dpbs

Krasny, Ros. 2010. *Cape Wind, first U.S. offshore wind farm, approved.* 4 28. Accessed 5 13, 2021. https://www.reuters.com/article/idUSTRE63R42X20100428

Krouse, P. 2021. *Cleveland.com.* Accessed January 13, 2022. https://www.cleveland.com/news/2021/12/ohio-legislature-adjourns-for-year-without-providing-financial-support-to-proposed-icebreaker-wind-farm-in-lake-erie.html

Lavoie, Denise. 2010. *12t lawsuit filed over Cape Cod wind farm plans.* 6 25. Accessed 5 14, 2021. http://archive.boston.com/news/local/massachusetts/articles/2010/06/25/1st_lawsuit_filed_over_cape_cod_wind_farm_plans/

LEEDCo. 2021c. *Environmental - Permits and Site Control.* Accessed 5 20, 2021. http://www.leedco.org/index.php/70-resources/155-environmental#Private_Aid_Nav

—. 2021. *Icebreaker Wind FAQs.* Accessed May 4, 2021. http://www.leedco.org/files/Icebreaker_Wind_FAQs.pdf

—. 2021. "Supreme Court of Ohio Notice of Appeal of Intervenors-Appellants W. Susan Dempsey and Robert M. Maloney." *Ohio Public Utilities Commission.* 2 1. Accessed 05 13, 2021. http://dis.puc.state.oh.us/DocumentRecord.aspx?DocID=a406fbb1-5212-478b-b227-2a2aa827d61f

—. 2021b. *The Project: Icebreaker Wind.* 5 19. Accessed 5 19, 2021. http://www.leedco.org/index.php/about-icebreaker

Lighthouse. 2015. *Lighthouse Wind - About.* 12 31. Accessed 5 17, 2021. https://www.lighthousewind.com/about_lighthouse

Loss, S R, T Will, and P P Marra. 2013. "The Impact of Free-Ranging Domestic Cats on Wildlife of the United States." *Nature Communications* 4: 1396. https://www.nature.com/articles/ncomms2380

Maps Of World. 2021. *Marps Of World.* Accessed 5 18, 2021. https://www.mapsofworld.com/usa/states/new-york/new-york-county-map.html

Meyer, Renee. 2021. *Block Island Times.* 1 14. Accessed 5 14, 2021. https://www.blockislandtimes.com/article/pivotal-moment-cable-reburial-project/58571

Meyers, Ellen. 2018. *NJ BPU rejects EDF Renewables' Nautilus Offshore Wind Project.* 12 18. Accessed 5 18, 2021. https://www.spglobal.com/marketintelligence/en/news-insights/trending/pYE22Joz4xGzDY2v3CE9iQ2

Murdock, Erick J., E. Carter Chandler Clements, and Linda C Trees. 2020. *Hunton Andrews Kurth.* March 17. Accessed March 25, 2021. at https://www.lexology.com/library/detail.aspx?g=f998bdf0-499b-42d7-9f13-9805ccf161ae

National Park Service. 2012. "National Historic Preservation Act, Section 106, A Quick Guide for Preserving Native American Cultural Resources." *National Park Service.* Accessed May 12, 2021. https://www.nps.gov/history/tribes/Documents/106.pdf

NAW. 2014. *U.S. Offshore Wind Developer Fishermen's Energy Signs $46.7M Federal Grant.* 8 8. Accessed 5 19, 2021. https://nawindpower.com/us-offshore-wind-developer-fishermens-energy-signs-036467m-federal-grant

Ness, Van, and Feldman. 2021. *Van Ness Feldman The Power of Collaboration.* February 2. Accessed March 25, 2021. https://www.vnf.com/final-migratory-bird-treaty-act-ruling-faces-substantial-hurdles

NNY 360. 2018. *Turn it down: Local siting board should deny Apex's Article 10 application.* 11 18. Accessed 5 17, 2021. file:///C:/Users/Tanya.Prinzing/Downloads/%7B6A51091A-6FEF-43C1-87E2-E54BF37961FF%7D.pdf

NOAA. 2021. *National Marine Sanctuaries.* Accessed May 24, 2021. https://sanctuaries.noaa.gov/

Nordman, Eric. 2014. *West Michigan Wind Assessment - Offshore Wind Development and the Environment.* Accessed 5 19, 2021. https://www.michiganseagrant.org/wp-content/uploads/2018/08/Wind-Brief-10-Offshore-Wind-and-Environment.pdf

NPS. 2010. *National Parks Service Press Release.* 1 4. Accessed 5 14, 2021. https://www.nps.gov/aboutus/news/release.htm?id=944

NYSDEC. 2021. "Applicant's Guide to the State Historic Preservation Act." *New York State Department of Environmental Conservation.* Accessed May 20, 2021. https://www.dec.ny.gov/docs/permits_ej_operations_pdf/shpaapplguide.pdf

—. 2021. *Protection of Waters: Application Procedures.* Accessed May 18. https://www.dec.ny.gov/permits/6333.html

NYSDEC. 2020. "The SEQR Handbook." Handbook, Division of Environmental Permits, New York State Department of Environmental Conservation, Albany. https://www.dec.ny.gov/docs/permits_ej_operations_pdf/seqrhandbook.pdf

NYSDOS. 2020. "New York State Coastal Management Program and Final Environmental Impact Statement." *New York State Department of State.* https://video.dos.ny.gov/opd/programs/pdfs/NY_CMP.pdf

NYSDPS. 2018. "Application of Galloo Island Wind LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article 10 to Construct a Wind Energy Facility." *New York Department of Public Service.* 12 24. Accessed 5 17, 2021. file:///C:/Users/Tanya.Prinzing/Downloads/%7B28E193E1-34DF-4B2B-A381-2F8F036980D3%7D.pdf

NYSERDA. 2010. "New York's Offshore Wind Energy Development Potential in the Great Lakes: Feasibility Study." https://www.nyserda.ny.gov/-/media/Files/Publications/Research/Biomass-Solar-Wind/offshore-wind-energy-development.pdf

NYSPSC. 2010. "The Certification Review Process for Major Electric and Fuel Gas Transmission Facilities." https://www3.dps.ny.gov/W/PSCWeb.nsf/96f0fec0b45a3c6485257688006a701a/a021e67e05b99ead85257687006f393b/$FILE/Article%20VII%20Guide%20web%2010-13%20.pdf

Offshore WIND. 2018. *25MW Nautilus Pilot Project Gets Red Light from New Jersey BPU.* 12 19. Accessed 5 18, 2021. https://www.offshorewind.biz/2018/12/19/25mw-nautilus-pilot-project-gets-red-light-from-new-jersey-bpu/

Offshore Wind.biz. 2016. *Lely Offshore Wind Farm Is No More.* September 28. Accessed September 9, 2021. https://www.offshorewind.biz/2016/09/28/lely-offshore-wind-farm-is-no-more/

OPSB. 2020. *Ohio Public Utilities Commision Document Record.* 05 21. Accessed 05 13, 2021. http://dis.puc.state.oh.us/DocumentRecord.aspx?DocID=e66d5bd1-0cdf-44fb-8211-abc7fbf97f4f

O'Sulivan, Jim. 2015. *Boston Globe.* 1 6. Accessed 5 14, 2021. https://www.bostonglobe.com/metro/2015/01/06/major-setback-for-cape-wind-project/kggnYeAXRj03PyfIUn2iIM/story.html

Pollack, Nicole. 2020. *An Offshore Wind Farm on Lake Erie Moves Closer to Reality, but Will It Ever Be Built?* 11 26. Accessed 5 17, 2021. https://insideclimatenews.org/news/26102020/icebreaker-project-lake-erie-cleveland-wind-energy/

Power Technology. 2017. *Cape Wind Project, Massachusetts.* 5 11. Accessed 5 14, 2021. https://www.power-technology.com/projects/cape-wind-project-massachusetts/

—. 2021. *Projects: Block Island Wind Farm.* Accessed 5 13, 2021. https://www.power-technology.com/projects/block-island-wind-farm/

—. 2021b. *Westermeerwind Wind Farm.* Accessed September 9, 2021. https://www.power-technology.com/projects/westermeerwind-wind-farm/

—. 2021a. *Windplanblauw (Wind Plan Blue).* Accessed September 2, 2021. Windplanblauw (Wind Plan Blue).

Proffitt, James. 2020. *Great Lakes Now.* 6 1. Accessed 5 13, 2021. https://www.greatlakesnow.org/2020/06/lake-erie-wind-farm-icebreaker-board-conditions/

Prohaska, Thomas J. 2019. *Lake Ontario wind project is dead, Somerset supervisor says.* 4 11. Accessed 5 17, 2021. https://buffalonews.com/business/local/lake-ontario-wind-project-is-dead-somerset-supervisor-says/article_77814777-a190-5545-a0a3-c6db9182cc34.html

Province of Ontario. 2011. *Newsroom.* February 11. Accessed May 24, 2021. https://news.ontario.ca/en/release/16973/ontario-rules-out-offshore-wind-projects

Reitz, Mathew. 2019. *Developer pulls application for Galloo Island wind project.* 2 23. Accessed 5 17, 2021. http://www.oswegocountynewsnow.com/news/developer-pulls-application-for-galloo-island-wind-project/article_30b6a344-377d-11e9-93f6-d7b1aa534dce.html

Rhode Island Legislature . 2021. *State of Rhode Island General Laws.* 5 14. Accessed 5 14, 2021. http://webserver.rilin.state.ri.us/Statutes/TITLE39/39-26.1/39-26.1-7.HTM

Rohlf, D J. 2001. "Jeopardy under the Endangered Species Act: Playing a game protected species can't win." *Washburn Law Journal* 41(1): 114 - 163.

Schneider, Clifford P. 2017. *Galloo Application Incomplete.* 10 19. Accessed 5 17, 2021. file:///C:/Users/Tanya.Prinzing/Downloads/%7B2637291D-B2E7-4CD2-AD65-2A1593274D6A%7D.pdf

Seelye, Katharine. 2017. *After 16 Years, Hopes for Cape Cod Wind Farm Float Away.* 12 19. Accessed 5 14, 2021. https://www.nytimes.com/2017/12/19/us/offshore-cape-wind-farm.html

Shuman, Cassius. 2015. *Block Island Times.* 7 17. Accessed 5 14, 2021.https://www.blockislandtimes.com/article/wind-farm-construction-begins/43158

—. 2019. *Exposed cables to be reinstalled by 2021.* 5 9. Accessed 5 19, 2021. https://www.blockislandtimes.com/article/exposed-cables-be-reinstalled-2021/55613

SOS. 2021. *Save Our Shores - Why We Oppose.* 5 18. Accessed 5 18, 2021. http://lakeontarioturbines.com/why-we-oppose/

Talgo, Christopher. 2018. *Controversial Cape Wind Project Terminated.* 1 23. Accessed 5 14, 2021. https://www.heartland.org/news-opinion/news/controversial-cape-wind-project-terminated

Talya S. ten Brink, Tracey Dalton. 2018. "Perceptions of Commercial and Recreational Fishers on the Potential Ecological Impacts of the Block Island Wind Farm (US)." *Frountiers in Marine Science* 5: 1-13. https://doi.org/10.3389/fmars.2018.00439

The New York State Senate. 2021. *Senate Bill S6314.* Accessed May 24, 2021. https://www.nysenate.gov/legislation/bills/2021/s6314

Tozer, D.C. 2016. "Marsh bird occupancy dynamics, trends, and conservation in the southern Great Lakes basin: 1996 to 2013." *Journal of Great Lakes Research - doi: 10.1016/j.jglr.2015.10.015* 136-145.

Trodson, Lars. 2014. *Block Island Times.* 11 12. Accessed 5 14, 2021. https://www.blockislandtimes.com/article/bi-wind-farm-clears-final-federal-hurdle/41176

Turaj, Stephanie. 2013. *Block Island Times.* 7 19. Accessed 5 14, 2021. https://www.blockislandtimes.com/article/ceo-deepwater%E2%80%99s-electricity-will-be-competitively-priced/33417

USACE. 2014. *National Environmental Policy Act.* March 14. Accessed May 31, 2021. https://www.spk.usace.army.mil/Portals/12/documents/regulatory/Reg_workshop/2014-03-14/NEPA.pdf

—. 2021. "Nationwide Permits." *US Army Corps of Engineers.* Accessed May 11, 2021. https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll7/id/16845

—. 2021. "U.S. Army Corps of Engineers Permitting Process Information ." *USACE.* Accessed May 17, 2021. https://www.lrl.usace.army.mil/Portals/64/docs/regulatory/Permitting/PermittingProcessInformation.pdf

USFWS and NMFS. 1998. "Endangered Species Act Consultation Handbook." Department of Interior and Department of Commerce. Accessed June 1, 2021. https://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf

USFWS. 2016a. *Programmatic Environmental Impact Statement for the Eagle Rule Revision.* December. Accessed August 26, 2021. https://www.fws.gov/migratorybirds/pdf/management/FINAL-PEIS-Permits-to-Incidentally-Take-Eagles.pdf

—. 2021. *Regulations Governing Take of Migratory Birds.* January 07. Accessed April 16, 2021. https://www.federalregister.gov/documents/2021/01/07/2021-00054/regulations-governing-take-of-migratory-birds

USFWS. 2020. *Regulations Governing Take of Migratory Birds.* Record of Decision. Final Environmental Impact Statement, USFWS.

—. 2021. *Regulations Governing Take of Migratory Birds; Delay of Effective Date.* September 02. Accessed April 17, 2021. https://www.federalregister.gov/documents/2021/02/09/2021-02667/regulations-governing-take-of-migratory-birds-delay-of-effective-date

—. 2016. *US Fish and Wildlife Service letter to NYS Public Service Commission re: Public Scoping Statement for Lighthouse Wind.* 1 12. Accessed 5 17, 2021. http://lakeontarioturbines.com/wp-content/uploads/2018/11/USFWS-to-DPS-1-12-2016.pdf

—. 2020. *Wildlife Concerns Associated with Wind Energy Development.* January 02. Accessed April 17, 2021. https://www.fws.gov/midwest/wind/wildlifeimpacts/index.html

Vann, Adam. 2021. "Congressional Research Service." *Wind Energy: Offshore Permitting.* March 08. Accessed 2021. https://crsreports.congress.gov/product/pdf/R/R40175

Vattenfall. 2021. *Irene Vorrink – a nearshore wind farm.* Accessed September 9, 2021. https://powerplants.vattenfall.com/irene-vorrink/

West, Dan. 2011. *Block Island Times.* 7 1. Accessed 5 14, 2021. https://www.blockislandtimes.com/article/deepwater-wins-appeal-supreme-court/28432

—. 2011. *Block Island Times.* 5 3. Accessed 5 14, 2021. https://www.blockislandtimes.com/article/lower-power-rates-deepwater-funding-are-focus-community-concern/28216

Windpark Fryslan. 2021. *Windpark Fryslan.* Accessed Septmeber 9, 2021. https://www.windparkfryslan.nl/the-wind-farm/

Wolf, Marcus. 2019. "Galloo Island Wind Farm Opponents Applaud Withdrawal; Supporters Lament." *Energy Central News*, February 12. https://energycentral.com/news/galloo-wind-farm-opponents-applaud-withdrawal-supporters-lament

Wood, Brandon. 2018. *Judges: Galloo Island study neglected bald eagles.* 11 14. Accessed 5 17, 2021. http://www.oswegocountynewsnow.com/news/judges-galloo-island-study-neglected-bald-eagles/article_056c8ab2-e78e-11e8-9aaf-13ec8985436c.html

World Heritage Encyclopedia. 2020. *World Heritage Encyclopedia.* 6 25. Accessed 5 19, 2021. http://www.self.gutenberg.org/articles/eng/Trillium_Power_Wind_1?View=embedded

Zoppo, Avalon. 2018. *State rejects wind project off Atlantic City's coast.* 12 18. Accessed 5 18, 2021. https://pressofatlanticcity.com/news/local/state-rejects-wind-project-off-atlantic-citys-coast/article_add8be89-7025-5ae3-b999-02e37cc270e1.html

Endnotes

[1] Many of these public interest review criteria are similar to concerns raised by public stakeholders during NYSERDA's public outreach sessions that were conducted to gather input on Great Lakes Wind.

[2] This is contrasted with the Atlantic offshore environment where the FAA obstruction evaluation requirements only apply to the area within 12 nautical miles of shore. This places many of the current Outer Continental Shelf offshore wind projects outside of the coverage area for FAA evaluation.

[3] In the case that a demonstration project were funded by a federal agency or department, such as DOE, that agency or department would likely be the lead federal agency for NEPA. The process would be essentially the same, but USACE would not act as the lead agency.

[4] As part of USACE permitting, NEPA would be implemented and consultations that address federal actions would also take place and result in any necessary mitigation measures, project adjustments, or other terms to achieve compliance with applicable federal laws. USACE would also likely act as the federal broker to U.S. Departments for engagement with international commissions or other bodies associated with relevant international treaties.

NYSERDA, a public benefit corporation, offers objective information and analysis, innovative programs, technical expertise, and support to help New Yorkers increase energy efficiency, save money, use renewable energy, and reduce reliance on fossil fuels. NYSERDA professionals work to protect the environment and create clean-energy jobs. NYSERDA has been developing partnerships to advance innovative energy solutions in New York State since 1975.

To learn more about NYSERDA's programs and funding opportunities, visit nyserda.ny.gov or follow us on Twitter, Facebook, YouTube, or Instagram.

New York State Energy Research and Development Authority

17 Columbia Circle
Albany, NY 12203-6399

toll free: 866-NYSERDA
local: 518-862-1090
fax: 518-862-1091

info@nyserda.ny.gov
nyserda.ny.gov

State of New York
Kathy Hochul, Governor

New York State Energy Research and Development Authority
Richard L. Kauffman, Chair | Doreen M. Harris, President and CEO