New York State Energy Research and Development Authority

A Review of Regulatory and Policy Requirements for Hydrokinetic Power Projects in New York State

Final Report

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A Review of Regulatory and Policy Requirements for Hydrokinetic Power Projects in New York State

Final Report

Prepared for the
New York State Energy Research and Development Authority

Albany, NY
nyserda.ny.gov

Gregory G. Lampman
Project Manager

Prepared by:
Pace Energy and Climate Center

Franz T. Linz
Anne Marie Hirschberger
Alex Casadonte

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1. INTRODUCTION

The generation of electricity through hydrokinetic in-stream energy conversion shows great promise for New York State with its abundant waterways and access to the ocean. New York State has long been a leader in driving investment in renewable energy. The State has established an ambitious goal of getting 30 percent of its electricity from renewable sources by 2015. Achieving this goal, and going beyond it in the future, means embracing many different forms of renewable generation. This paper reviews the regulatory and policy requirements for hydrokinetic power projects in New York State.

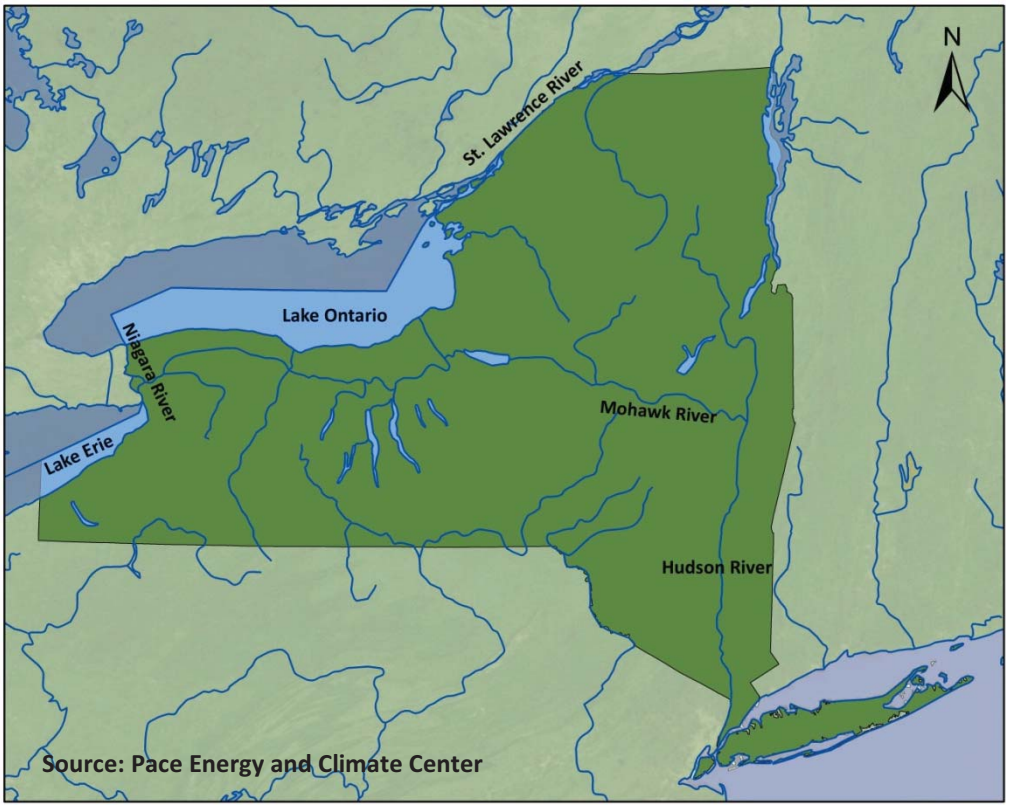
The paper begins with a brief examination of the different environments in New York that are possible sites for hydrokinetic power installations. A limited review of the types of hydrokinetic installations will follow. Because a number of the regulatory approvals necessary relate to potential environmental impacts, the paper very briefly outlines the potential environmental impacts. The review of federal regulatory requirements comes next, followed by an examination of state requirements and the State's role in approving projects. The paper concludes with reflections on key opportunities and challenges facing hydrokinetic power installations in New York State.

2. CONTEXT FOR REVIEW

2.1. New York State Waterways. Any review of legal and policy requirements for a hydrokinetic project depends in part on the geographic location of the project. New York State offers many waterways that could serve as the potential site of a hydrokinetic project. The State boasts 127 miles of coastline.[2] Major rivers include the Hudson, St. Lawrence, Niagara and Mohawk Rivers. New York State's East River is the site of one of the very first tidal in-stream energy conversion projects—the Roosevelt Island Tidal Energy (RITE) project.

[2] *U.S. International Borders: Brief Facts,* Congressional Research Service (CRS) 2006*, available at* http://www.fas.org/sgp/crs/misc/RS21729.pdf.

Figure 1. Map of New York State Waterways



A number of potential sites for hydrokinetic installations involve neighboring jurisdictions. For example, the St. Lawrence River straddles the national border with Canada. The Long Island Sound borders on the state of Connecticut. Rivers like the Hudson, East and Harlem are largely tidal rivers, implicating a certain set of regulatory requirements. In this review, we seek to address all of these different geographic contexts from a state and federal regulatory vantage point. A review of the legal and regulatory requirements of Canada, its provinces, or other states is outside the scope of this paper.

2.2. <u>Possible Installations</u>. Just as different geographic locations may implicate different regulatory requirements for hydrokinetic projects, so too may different technologies. Indeed, harnessing the kinetic energy in naturally flowing water has inspired a variety of technical designs, each likely to impact the natural environment in different ways. This regulatory and policy review will point out those circumstances where different designs might lead to different regulatory or policy considerations.

2.2.1. Key Components of Hydrokinetic Turbines. This paper does not attempt to exhaustively review the technical dimensions of current hydrokinetic installation technologies.

Because jurisdictional triggers often depend on the specific activities undertaken, however, the key components of hydrokinetic turbine installations are noted below.[3]

- The Hydrokinetic Device/Turbines. The design of the turbines varies and will evolve as the technology continues to advance. Currently, there are more than 250 devices in various stages of development. The U.S. Department of Energy (DOE)Wind and Waterpower Program identifies the technologies according to the following categories:
    - Axial flow turbines,
    - Cross flow turbines, and
    - Reciprocating devices.

- Riverbed Mounting System. The riverbed mounting system will vary significantly among devices and locations, and could include installed drilled surface penetrating or underwater monopiles, concrete or individual gravity-based systems, gravity based systems with multiple devices (such as the triframe mount licensed by Verdant), or mooring systems that allow devices to be surface-mounted with guy wires and floating platforms. All of these systems must be economically and accurately deployed and retrieved and be stable and suitable for long-term operation and maintenance activities in fast water on the river bed with limited or no fixed anchoring.

- Cables, Land-based Facilities and Interconnection. These facilities are site-specific and are similar to any electric generating facility, and they take into consideration the size of the project and the shoreline characteristics. The cables from the individual turbines are low voltage and likely are grouped together and brought to shore into common landing vaults. Underwater cabling can be achieved with alternate configurations such as weighting or trenching at the shoreline. This allows a standard transformer/substation interconnect to be made to the electrical system.

2.3. Potential Environmental Impacts from Hydrokinetic Power Installations. Only a small number of in-stream turbines are in operation, and so actual experience with environmental impacts from these installations is limited.[4] Environmental assessments to date have identified the following potential areas of concern:[5]

- Alteration of current, surface waves and sediment transfer during turbine operation;
- Destruction of the habitat of benthic organisms during installation;

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[3] This section is based upon the companion technical primer, *Ocean Renewable Energy Coalition and Verdant Power, Marine Hydrokinetic Technology—Background and Perspective for New York State*, April 2012, pp. 2-4.

[4] Although hydrokinetic projects are relatively new in the U.S., it may be possible to learn from European hydrokinetic installations. *See generally OES-IA Annex IV: Environmental Effects of Marine and Hydrokinetic Devices: Report from the Experts' Workshop* (2010), *available at* http://www.pnnl.gov/main/publications/external/technical_reports/PNNL-20034.pdf. FERC is also assembling a database of international projects in order to learn from their technologies and legal processes.

[5] National Oceanic and Atmospheric Administration, *Environmental Effects of Tidal Energy Development: Proceedings of a Scientific Workshop*, March 22-25, 2010, p. 19, *available at* http://depts.washington.edu/nnmrec/workshop/docs/workshop_report_low_res.pdf.

- Creation of noise pollution during installation, operation, maintenance and decommissioning;
- Emission of electro-magnetic fields from the transmission cables and power trains during operation;
- Toxicity of protective coatings;
- Threat of oil spills and lubricant leaks from either the turbines themselves or maintenance boats;
- Interference with animal movements and migrations during all phases; and
- Threat of rotor blade strikes on animals during operation.

It should also be noted that experience to date has been limited to small numbers of turbines in a limited array. Multiple-turbine installations present the potential for more significant impacts.

3. POLICIES DRIVING RENEWABLE ENERGY IN NEW YORK

3.1. Federal Policies Affecting Hydrokinetic Power

3.1.1. National Ocean Policy. In 2009, President Obama issued Executive Order 13547, "Stewardship of the Ocean, Our Coasts and the Great Lakes" adopting the recommendations of the Interagency Ocean Policy Task Force (Task Force) and establishing a National Ocean Policy, or NOP.[6] The NOP establishes a broad policy to preserve coastal resources and to conduct responsible scientific studies to inform ocean resources decision-making. The NOP also establishes the National Ocean Council (NOC), and inter-agency group whose primary responsibility is to enforce the NOP.

A key priority of the NOC is creation of a Coastal and Marine Spatial Planning (CMSP) framework.[7] CMSP is defined as "a comprehensive, adaptive, integrated, ecosystem-based, and transparent spatial planning process, based on sound science, for analyzing current and anticipated uses of ocean, coastal, and Great Lakes areas."[8] According to the Task Force, one of the major benefits is improving "the ability of these authorities to seamlessly coordinate their objectives with broader planning efforts by participating in the CMSP process for areas within and beyond their jurisdictional waters."[9] As described by the NOC, CMSP "provides a public policy process for society to better determine how [ocean, coastal and Great Lakes] areas are sustainably used and protected" for present and future generations,[10] and the NOC has expressly

[6] Exec. Order No. 13,547, 75 Fed. Reg. 43023, "Stewardship of the Ocean, Our Coasts and the Great Lakes," *available at* http://www.whitehouse.gov/files/documents/2010stewardship-eo.pdf.
[7] *Final Recommendations of the Interagency Ocean Policy Task Force*, p. 41, *available at* http://www.whitehouse.gov/files/documents/OPTF_FinalRecs.pdf.
[8] *Id.*
[9] *Id* at 46.
[10] More specifically, CMSP is a "comprehensive, adaptive, integrated, ecosystem-based, and transparent spatial planning process, based on sound science, for analyzing current and anticipated uses of ocean, coastal, and Great Lakes areas." National Ocean Council, *Coastal and Marine Spatial Planning*, http://www.whitehouse.gov/administration/eop/oceans/cmsp (last visited Apr. 16, 2012).

recognized that coastal and marine spatial planning applies to hydrokinetic projects.[11] When effectively executed, spatial planning can streamline the approval of specific projects in pre-determined zones, lessening the need for exhaustive background studies by project proponents.

3.1.2. Federal Renewable Energy Standard. On March 1, 2012, U.S. Senator Jeff Bingaman introduced the *Clean Energy Standard Act of* 2012 (CESA), the first proposal to create a federal clean energy standard in the current Congress. CESA would require the nation's electric utilities to supply up to 84 percent of their electricity sales from qualifying energy resources by 2035.[12] This proposal is similar to President Obama's proposal.[13] Most observers do not expect the proposal to pass in the current Congress.

3.1.3. Other Federal Efforts. Aside from federal legislation promoting renewable energy, there are some financial incentives available through the federal government, such as loan guarantees, production tax credits, investment tax credits, and a renewable energy production incentive.[14] The federal government has invested a total of about $50M in supporting the development of marine and hydrokinetic power in the U.S. since 2008.[15] The DOE dedicated about $37M in 2010 alone, which represented "the largest single investment of federal funding to date in the development of marine and hydrokinetic energy technologies."[16] Recently, the DOE has also released reports that assessed the potential for tidal and wave power offshore.[17] According to the DOE,

> To support the development of technologies that can tap into these vast water power resources, DOE's Water Power Program is undertaking a detailed technical and economic assessment of a

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[11] National Ocean Council, *Legal Authorities Relating to the Implementation of Coastal and Marine Spatial Planning*, p. 15, *available at* http://www.whitehouse.gov/sites/default/files/microsites/ceq/cmsp_legal_compendium_2-14-11.pdf.

[12] Bradbury, James and Kennedy, Kevin, *Proposed Clean Energy Standard Could Wake up U.S. Energy Policy*, http://insights.wri.org/news/2012/03/proposed-clean-energy-standard-could-wake-us-energy-policy (last visited Apr. 16, 2012).

[13] For a description of the President's proposal, *see* http://www.whitehouse.gov/the-press-office/2011/01/25/fact-sheet-state-union-president-obamas-plan-win-future (last visited Apr. 15, 2012).

[14] DSIRE, Financial Incentives, http://www.dsireusa.org/incentives/index.cfm?state=us&re=1&EE=1 (last visited Apr. 16, 2012). Note that, while the incentives are viable through 2026, they are subject to annual appropriation, and as a result, funds may not actually be available for any given fiscal year. *See* U.S. EPA, *Renewable Energy Production Incentive*, http://www.epa.gov/lmop/publications-tools/funding-guide/federal-resources/energy.html (last visited Apr. 16, 2012).

[15] Renewableenergyworld.com, *U.S. Marine and Hydrokinetic (MHK) Renewable Energy Roadmap Announced*, November 1, 2011, http://www.renewableenergyworld.com/rea/partner/ocean-renewable-energy-coalition-4809/news/article/2011/11/u-s-marine-and-hydrokinetic-mhk-renewable-energy-roadmap-announced (last visited Apr. 16, 2012).

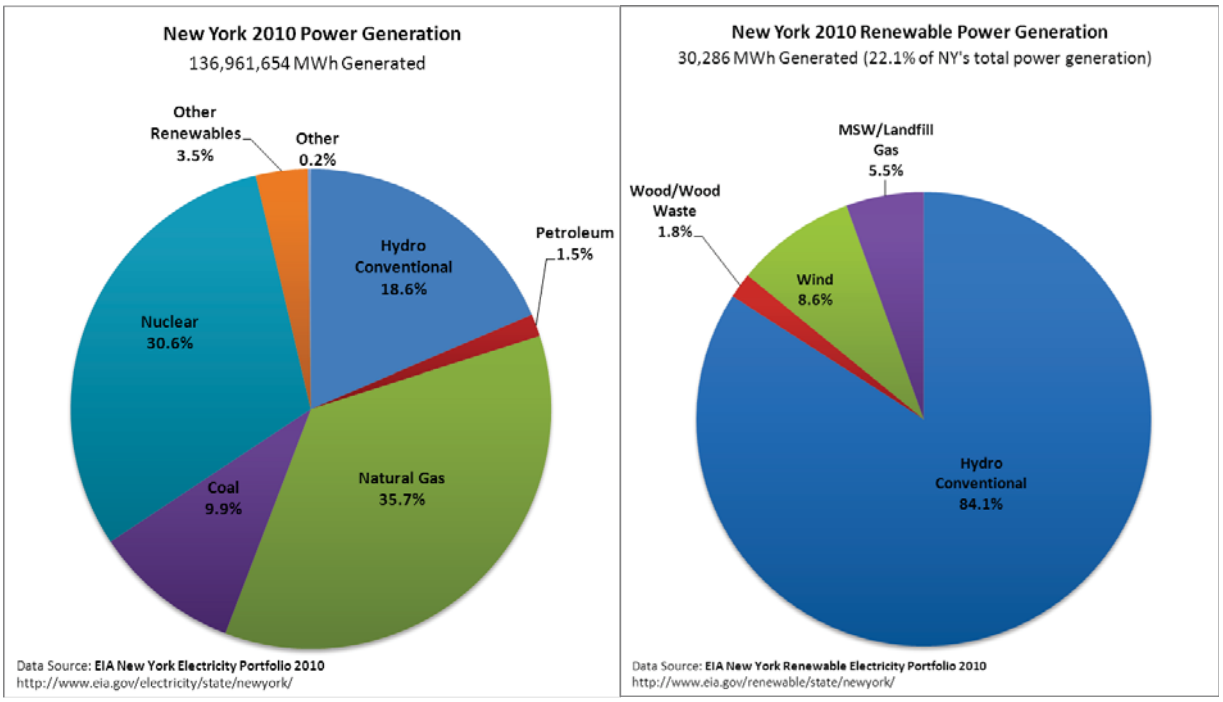
[16] U.S. Department of Energy, *Department of Energy Awards $37 Million for Marine and Hydrokinetic Energy Technology Development*, September 9, 2010, http://energy.gov/articles/department-energy-awards-37-million-marine-and-hydrokinetic-energy-technology-development (last visited Apr. 16, 2012).

[17] U.S. Department of Energy, *DOE Reports Show Major Potential for Wave and Tidal Energy Production Near U.S. Coasts*, January 18, 2012, http://www1.eere.energy.gov/water/news_detail.html?news_id=18017 (last visited Apr. 16, 2012).

> wide range of water power technologies in order to more accurately predict the opportunities and costs of developing and deploying these innovative technologies…. These resource assessments, techno-economic assessments, and technology demonstration projects are critical elements of DOE's strategy to capture the very real opportunities associated with water power development, and to further define the path to supplying 15 percent of the nation's electricity through water power technologies.[18]

3.2. State Renewable Energy Policies

3.2.1. Renewable Portfolio Standard: 30 percent by 2015. An important part of New York State's efforts to promote renewable energy is its Renewable Portfolio Standard, or RPS. The State's RPS is 30 percent by 2015, meaning 30 percent of the electricity supplied to New York State consumers must come from renewable sources by the year 2015 (known as "30-by-15"). Qualifying renewable sources include hydrokinetic, listed as tidal and wave energy: "Solar Water Heat, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Fuel Cells, CHP/Cogeneration, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal, Ethanol, Methanol, Biodiesel, Fuel Cells using Renewable Fuels."[19] Currently, renewable sources comprise roughly 22 percent of the total power generated for New York State with the vast amount coming from conventional hydropower.



[18] *Id*.

[19] DSIRE, Renewable Portfolio Standard (New York), http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NY03R (last visited Apr. 16, 2012).

To implement its RPS, the State uses a central procurement model whereby the New York State Energy Research and Development Authority (NYSERDA) issues competitive solicitations for renewable power and purchases the "renewable attributes" associated with the energy to ensure that the energy and the associated attributes are not re-sold. NYSERDA issues solicitations corresponding to the two tiers of the New York State RPS: the Main Tier, which represents about 94 percent of renewable generation and includes hydrokinetic sources, and the Customer-sited Tier, which represents smaller distributed systems.[20]

New York uses a competitive model to secure qualified renewable energy least expensive to consumers and the lowest cost forms of renewable energy are most often procured by NYSERDA. This has meant mostly wind generation. Hydrokinetic electricity currently cannot compete with wind power on a cost basis. New York State could consider specific policies to encourage new hydrokinetic power installations, such as a special RPS tier or targeted research and development investments.

3.2.2. State Energy Plan. New York State completed its current State Energy Plan (SEP) in 2009. The goal of the SEP is to ensure a clean and dependable energy supply for the state and promote economic growth and security. The 2009 SEP included the objective of pursuing energy options that reduce greenhouse gas emissions and environmental risks, promote sustainability, and develop in-state energy sources to promote energy independence.[21] The SEP encourages the development of renewable energy in the State, specifically "Support[ing] development of in-state energy supplies, including clean renewables such as wind, solar, geothermal, bioenergy, hydropower, and hydrokinetic capacity (tides, currents, and waves), as well as natural gas" as a clean energy strategy.[22] The SEP states that renewables have the "technical/practical" potential to provide about 40 percent of New York State's energy needs by 2018.[23] This estimate does not include the potential of hydrokinetic power,[24] which the SEP states has the technical/practical potential to produce 1,000 megawatts (MW) by 2025.[25] The 2013 State Energy Plan is currently in the development process.

3.2.3. "80-by-50" and the Climate Action Plan. In 2009, Governor Patterson issued Executive Order 24, which set New York State's greenhouse gas reduction goal of reducing greenhouse gas levels by 80 percent by the year 2050, known as the "80-by-50" goal. He also established the Climate Action Council to develop a comprehensive strategy to address climate change concerns.[26] The Climate Action Plan Interim Report (CAP Report) was issued in November 2010. Promoting renewable energy sources as a means to reduce greenhouse gas

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[20] *Id*.
[21] New York State Energy Planning Board, *2009 New York State Energy Plan, Volume I*, p. xiii, *available at* http://www.nysenergyplan.com/final/New_York_State_Energy_Plan_VolumeI.pdf.
[22] *Id.* at Vol. I, p. 6.
[23] *Id.* at Vol. I, p. 40.
[24] *Id*.
[25] New York State Energy Planning Board, *2009 New York State Energy Plan, Renewable Energy Assessment*, p. 33, *available at* http://www.nysenergyplan.com/final/Renewable_Energy_Assessment.pdf.
[26] New York State Climate Action Council, *Climate Action Plan Interim Report*, p. ES-1 (2010), *available at* http://www.nyclimatechange.us/ewebeditpro/items/O109F24147.pdf.

emissions is a major focus of the CAP Report across all of the sectors examined, including Power Supply and Delivery. The Power Supply and Delivery portion of the Report recommends, among other things, promoting renewable energy in order to reduce the State's greenhouse gas (GHG) emissions and achieve its 80-by-50 goal.[27] While the CAP Report does not address the specific role of Marine Hydrokinetic (MHK) energy in meeting the state goal, it states that hydrokinetic energy systems would need federal and state support for further research and development in order to more fully exploit the State's marine energy resources.[28] While Executive Order 24 remains in effect, Governor Cuomo has not continued the Climate Action Council process, nor has he endorsed the findings of the CAP Report.

4. LEGAL, REGULATORY AND POLICY REVIEW

4.1. Federal Laws and Regulations

4.1.1. Federal Power Act and Federal Energy Regulatory Commission Regulations.

The Federal Energy Regulatory Commission (FERC) has authority to license hydroelectric projects under the Federal Power Act (FPA). The U.S. Supreme Court has long interpreted the Federal Power Act to preempt state law requirements for hydropower installations, making state approvals that are not based on federal law unnecessary.[29] As will be discussed more fully below, federal law vests states with a significant role in the FERC process, as part of the Federal Clean Water Act permitting and in coastal zone matters.[30] Notwithstanding these important State roles, FERC licensing is the primary approval needed by hydrokinetic project developers and the primary venue for raising any environmental concerns.

4.1.1.1. Scope of FERC Jurisdiction Generally.[31] The FPA gives FERC the authority to issue licenses for energy projects[32] located in or around certain bodies of water.[33] Specifically, FPA §23(b)(1) requires FERC licenses "…for the purpose of developing electric

[27] *Id.* at pp. 8-9.
[28] *Id.* at pp. 10-19.
[29] *First Iowa Hydro-Elec. Coop. v. Federal Power Comm'n*, 328 U.S. 152, 180 (1946).
[30] States retain the right to approve water quality certifications under the federal Clean Water Act (CWA) and ensure consistency with a state's coastal management program under the federal Coastal Zone Management Act. States and their stakeholders will also have access to the FERC environmental review of a project under the National Environmental Policy Act. In addition, FERC encourages compliance with relevant state laws. *See* 16 U.S.C. §802(a)(2), which requires applicants to submit evidence that they have complied with the requirements of state laws "with respect to bed and banks and to the appropriation, diversion, and use of water for power purposes and with respect to the right to engage in the business of developing, transmitting and distributing power, and in any other business necessary to effect the purposes of a license under this chapter."
[31] Analysis based in part on Hon. Jon Wellinghoff, James Pederson, and David Morenoff, *Facilitating Hydrokinetic Energy Development Through Regulatory Innovation,* 29 Energy L. J. 397, 401-404 (2008).
[32] Although Congress has not specifically authorized FERC to oversee the permitting of hydrokinetic projects, FERC has read 16 U.S.C. §797(a) to confer authority onto the Commission to regulate those projects. To date, no one has objected to the Commission's jurisdiction.
[33] FERC may issue licenses for the "development, transmission, and utilization of power across, along, from, or in any of the streams or other bodies of water over which Congress has jurisdiction under its authority to regulate commerce with foreign nations and among the several states, or upon any part of the public lands and reservations of the United States." 16 U.S.C. §797(e).

power, to construct, operate, or maintain any dam, water conduit, reservoir, powerhouse, or other work incidental thereto across, along, or in any of the navigable waters of the United States…."[34] Navigable waters, in turn, are defined under the FPA as

> "those parts of streams or other bodies of water over which Congress has jurisdiction under its authority to regulate commerce with foreign nations and among the several States, and which either in their natural or improved condition…are used or suitable for use for the transportation of persons or property in interstate or foreign commerce."[35]

In the case of AquaEnergy Group, Ltd., FERC concluded that hydrokinetic projects were covered by FPA §23(b)(1), and the project, located 3.17 nautical miles offshore, was within FERC jurisdiction and considered to be within navigable waters.[36] Additionally, FERC has specifically asserted its jurisdiction over the development of hydrokinetic projects on the outer continental shelf (OCS).[37]

4.1.1.2. Actions Requiring FERC License**.** Federal Power Act section 23(b)(1) requires a license for

> "developing electric power, to construct, operate, or maintain any dam, water conduit, reservoir, power house, or other works incidental thereto across, along, or in any of the navigable waters of the United States, or upon any part of the public lands or reservations of the United States."[38]

FERC has interpreted this language to include in-stream and wave power hydrokinetic projects. There are two circumstances under which a hydroelectric project (including hydrokinetic projects) may be exempt from licensing: (1) a small conduit hydroelectric facility,[39] and (2) a small hydroelectric projects of 5MW or less.[40] Each of these exemptions, however, contains certain requirements that must be met, including, for example, the requirement that the project developer possess all of the real property interests necessary to develop and operate the project.[41] In addition, as a practical matter, exemptions may be time consuming to obtain and are not frequently used.

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[34] 16 U.S.C. §817(1).
[35] 16 U.S.C. §796(8).
[36] *AquaEnergy Group, LTD.*, 102 F.E.R.C. ¶ 61,242 at P 16-18 (2003).
[37] *Pacific Gas & Electric Company*, 125 FERC ¶ 61,045 (2008).
[38] 16 U.S.C. §817(a).
[39] 18 C.F.R. §4.31(b)(2).
[40] 18 C.F.R. §4.31(c).
[41] 18 C.F.R. §4.31(b)(1).

4.1.1.3. FERC Licensing Process.[42] Hydrokinetic project developers may first apply for a preliminary permit, but they must apply under one of three licensing processes.[43] Alternatively, an applicant may apply for a pilot project license under a separate process.

(a) *Preliminary Permit.* Applicants interested in developing hydrokinetic projects may apply for a preliminary permit, though it is not mandatory.[44] This permit does not give the applicant the right to construct a project on a particular area. Rather, it allows for the applicant to perform studies in preparation for a license and places him/her first in line once a license application is filed.[45] It also provides the applicant with sufficient financial security to proceed with preparing a license application, which can be quite costly. There are few reasons why FERC would deny a preliminary permit,[46] though FERC has adopted a strict scrutiny approach to issuing preliminary permits in order to guard against site banking.[47]

(b) *Three Licensing Processes.* Applicants may apply under one of three application processes: (1) Integrated Licensing Process (ILP), (2) Traditional Licensing Process (TLP), or (3) Alternative Licensing Process (ALP). Most FERC licenses proceed through FERC's ILP. The ILP, established in 2003, was developed to provide "an efficient and timely licensing process that continues to ensure appropriate resource protections through better coordination of the Commission's processes with those of federal and state agencies and Indian tribes that have authority to condition Commission licenses."[48] FERC began a review of the effectiveness of the ILP in 2011 and is continuing to schedule further outreach and interagency coordination milestones.[49] Table 1 provides a comparison of the various licensing processes.

[42] *See generally* Federal Energy Regulatory Commission, *Handbook for Hydroelectric Project Licensing and 5MW Exemptions from Licensing*, April 2004, *available at* http://www.ferc.gov/industries/hydropower/gen-info/handbooks/licensing_handbook.pdf.
[43] 16 U.S.C. §817.
[44] 18 C.F.R. §4.30-4.39.
[45] Federal Energy Regulatory Commission, *Licensing Hydrokinetic Pilot Projects (White Paper),* p. 10, April 2008, *available at* http://www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics/pdf/white_paper.pdf.
[46] "Because the issuance of a permit can have no environmental impacts, there are few reasons for the Commission to deny a permit application." *Pacific Gas & Electric Company*, 125 FERC ¶ 61,045, para. 26 (2008).
[47] 118 FERC ¶ 61, 118, *Order Issuing Preliminary Permit to Reedsport OTP Wave Park, LLC*, Docket No. P-12713-000 (February 16, 2007), par. 10, *available at* http://www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics.asp.
[48] 18 C.F.R. §5.1(e).
[49] Federal Energy Regulatory Commission, *ILP Effectiveness Study*, http://www.ferc.gov/industries/hydropower/gen-info/licensing/ilp/eff-eva.asp (last visited Apr. 16, 2012).

Table 1. Matrix Comparing Three Licensing Processes[50]

	Integrated Licensing Process (ILP)	Traditional Licensing Process (TLP)	Alternative Licensing Process (ALP)
Consultation w/ Resource Agencies and Indian Tribes	Integrated	Paper-driven	Collaborative
FERC Staff Involvement	• Pre-filing [beginning at filing of Notice of Intent (NOI)] • Early and throughout process	• Post filing (after the application has been filed) • Available for education and guidance	• Pre-filing (beginning at filing the NOI) • Early involvement for National Environmental Policy Act (NEPA) scoping as requested
Deadlines	Defined deadlines for all participants (including FERC) throughout the process	• Pre-filing: some deadlines for participants • Post-filing: defined deadlines for participants	• Pre-filing: deadlines defined by collaborative group • Post-filing: defined deadlines for participants
Study Plan Development	• Developed through study plan meetings with all stakeholders • Plan approved by FERC	• Developed by applicant based on early stakeholder recommendations • No FERC involvement	• Developed by collaborative group • FERC staff assist as resources allow
Study Dispute Resolution	• Informal dispute resolution available to all participants • Formal dispute resolution available to agencies with mandatory conditioning authority • Three-member panel provides technical recommendation on study	• FERC study dispute resolution available upon request to agencies and affected tribes • Office of Energy Projects (OEP) Director issues advisory opinion	• FERC study dispute resolution available upon request to agencies and affected tribes • OEP Director issues advisory opinion

[50] Federal Energy Regulatory Commission, *Matrix Comparing Three Licensing Processes*, August 2010, http://www.ferc.gov/industries/hydropower/gen-info/licensing/matrix.asp (last visited Apr. 16, 2012).

	dispute • OEP Director opinion binding on applicant		
Application	Preliminary licensing proposal or draft application and final application include Exhibit E (environmental report) with form and contents of an EA	Draft and final application include Exhibit E	Draft and final application with applicant-prepared environmental assessment or third-party environmental impact statement
Additional Information Requests	• Available to participants before application filing • No additional information requests after application filing	Available to participants after filing of application	• Available to participants primarily before application filing • Post-filing requests available but should be limited due to collaborative approach
Timing of Resource Agency Terms and Conditions	• Preliminary terms and conditions filed 60 days after Ready for Environmental Analysis (REA) notice • Modified terms and conditions filed 60 days after comments on draft NEPA document	• Preliminary terms and conditions filed 60 days after REA notice • Schedule for final terms and conditions	• Preliminary terms and conditions filed 60 days after REA notice • Schedule for final terms and conditions

(c) *FERC Appeal Process.* FERC's internal administrative appeal process is contained in 16 U.S.C. §825(l) and states that any person who is "aggrieved" by a Commissioner's order in a proceeding *and* is a party to that proceeding may request a rehearing on a specific issue.[51] Parties may also appeal to the Court of Appeals, but only after they have requested a rehearing under subpart (a).[52]

(d) Hydrokinetic Pilot Project Licensing.[53] In 2008, FERC issued a white paper explaining an expedited and streamlined process that was intended to remove barriers preventing the development and experimentation of new hydrokinetic technology.[54] For example, it is intended to address uncertainty by minimizing upfront review in exchange for rigorous post-licensing monitoring to gather information for a longer term license process. It is not a new procedure, but instead relies primarily on the ILP and its waivers to create a more efficient process. More specifically, FERC uses the ILP "with specific waivers granted under [18 CFR Section] 5.29(f)(2) on a case-by-case basis" for projects

> that are proposed to be: (1) small; (2) short term; (3) not located in sensitive areas based on the Commission's review of the record; (4) removable and able to be shut down on short notice; (5) removed, with the site restored, before the end of the license term (unless a new license is granted); and (6) initiated by a draft application in a form sufficient to support environmental analysis.[55]

Whereas the ILP application process can take nearly five years, the streamlined pilot project application process may take around two years.[56]

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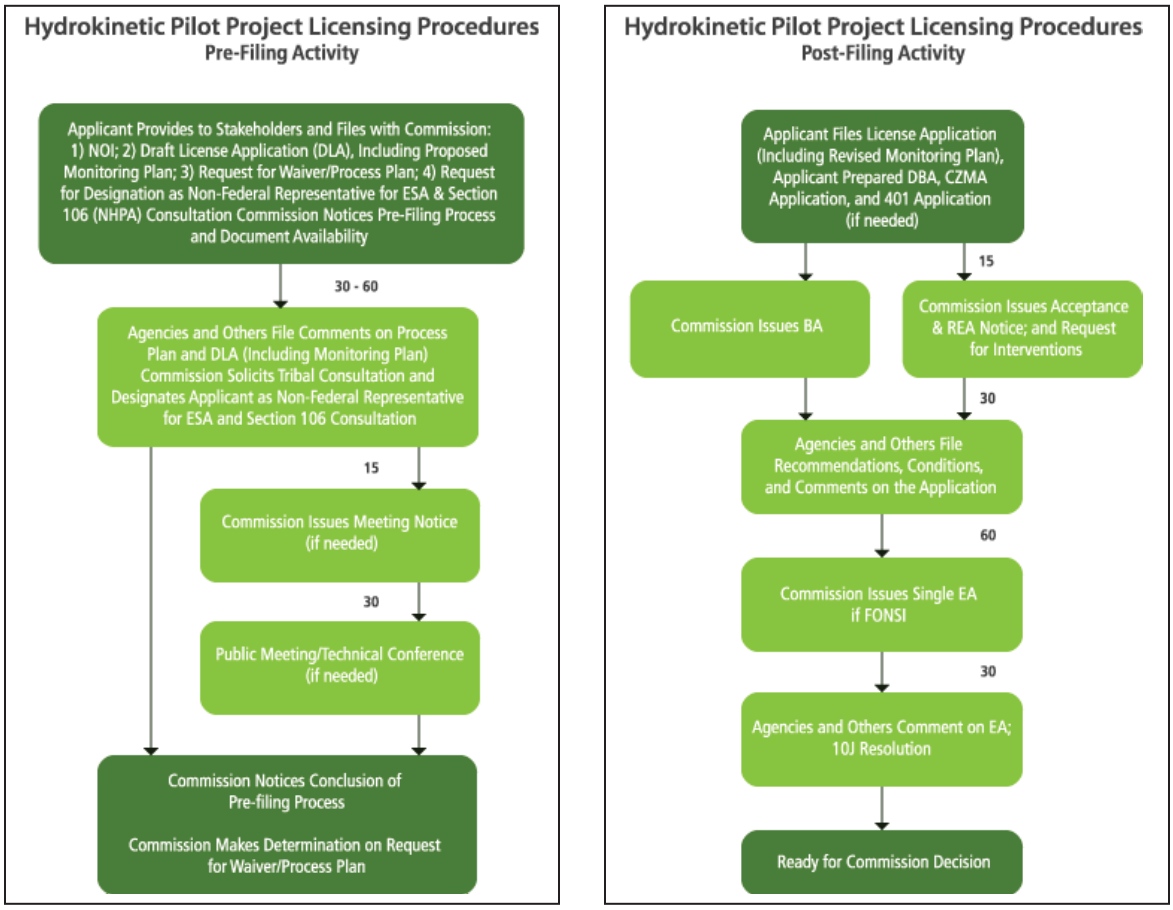
[51] 16 U.S.C. §825(l)(a).
[52] 16 U.S.C. §825(l)(b).
[53] For detail on the regulatory process Verdant underwent for the RITE Pilot Project, *see* Appendix A.
[54] Federal Energy Regulatory Commission, *Licensing Hydrokinetic Pilot Projects (White Paper)*, April 2008, *available at* http://www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics/pdf/white_paper.pdf.
[55] *Id.* at 4. In contrast to the procedures under the *Verdant* decisions (see below), hydrokinetic pilot project licensing procedures "(1) could lead to a license under the Federal Power Act; (2) will be reviewed and overseen by the Commission; (3) will allow the transmission of electricity into the national power grid if licensed; and (4) will be available to those who wish to test technology, whether or not they intend to pursue a standard license application to follow the pilot project license." *Id.* at 5.
[56] Federal Energy Regulatory Commission, *Hydrokinetic Pilot Project Licensing Process (Pre-Filing Activity and Post-Filing Activity)*, http://www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics/energy-pilot.asp (last visited April 16, 2012).

Figure 2. Pre-Filing and Post-Filing Procedures for Pilot Project Licensing[57]



For pilot projects moving towards a commercial build-out, the white paper states that, "We anticipate that this transition will be handled as a relicensing of the pilot project and will entail a standard licensing process including a National Environmental Policy Act review and full opportunity for participation by all stakeholders," though FERC does not preclude the possibilities of other alternatives, such as "(1) requesting a license for a period longer than five years to accommodate a specific relicensing timeline, (2) requesting a boundary around the pilot project big enough to accommodate a future build-out plan, and (3) requesting a phased license."[58]

4.1.1.4. The Verdant Order.[59] The FPA requires developers of hydroelectric projects to obtain a license from FERC before beginning any construction, operation or maintenance of hydrokinetic projects.[60] In addition, project developers may apply for a

[57] *Id*.
[58] Federal Energy Regulatory Commission, *Licensing Hydrokinetic Pilot Projects (White Paper)*, p. 11-12, April 2008, *available at* http://www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics/pdf/white_paper.pdf.
[59] For detail on the regulatory process Verdant underwent related to demonstration phase of the RITE project, *see* Appendix A.
[60] 16 U.S.C. § 817(1).

preliminary permit to study the feasibility of a project under Section 4(f) of the FPA.[61] Preliminary permits are not required, nor do they automatically result in the granting of a license at the end of the permit period, but they do grant developers priority applications for a subsequent license for the proposed project.[62] Pursuant to the requirements of section 4(f) of the FPA, Verdant Power filed an application to study the proposed Roosevelt Island Tidal Energy (RITE) project on May 30, 2002.[63] FERC approved the application and issued the permit on September 2, 2002.[64] On February 2, 2005 Verdant filed a petition to FERC requesting relief from the traditional licensing process of the Federal Power Act. FERC ultimately granted this petition with the so-called "Verdant Order," a document that, coupled with the subsequent clarifying order, offered experimental hydrokinetic projects an alternative and simpler means of implementing an operational technology study.

The Verdant Order is notable in that it created a three-part test for determining whether a particular project may be authorized without a license. To grant an exception, FERC must make three findings: "(1) the technology in question is experimental, (2) the proposed facilities are to be utilized for a short period for the purpose of conducting studies necessary to prepare a license application, and (3) power generated from the test project will not be transmitted into, or displace power from, the national electric energy grid."[65] FERC quickly found that the Verdant proposal met the first two specified criteria, as the Verdant turbines were experimental and the proposed test duration was 18 months. However, the Verdant petition stipulated that the electricity generated by the experimental turbines would be distributed to two customers, thus displacing electricity from the grid and failing the third part of the test by impacting interstate commerce. On April 14, 2005, FERC issued Verdant a conditional exception to traditional licensing requirements, contingent upon the project not displacing any electricity from the National Grid.

On May 16, 2005, Verdant filed a request for clarification of the order or a rehearing of the issue, asserting that the proposed experimental turbines must be connected to the grid in order to function properly. In this request, Verdant also stated that any electricity generated during the test would be provided to end users at no charge, and that Verdant would compensate Consolidated Edison (ConEd) for any lost revenue due to displaced electricity sales. After considering the Verdant request, FERC issued a clarifying order on July 27, 2005, concluding that as Verdant would compensate ConEd for lost sales, there would be no net effect to the grid or interstate commerce, and therefore the project could be exempted from the traditional licensing requirements. In a separate statement that accompanied the clarifying order, Commissioner Kelly concurred with the exemption, but maintained that it should be granted because the Verdant project would not be "developing electric power" within the meaning of section 23(b), not because the factors of the three-part test had been met.

Notably, the Verdant Order has been cited as precedent in at least one instance since 2005. On October 28, 2009, Maine Maritime Academy (MMA) petitioned FERC, as Verdant did, to

[61] 16 U.S.C. § 797(f).
[62] 18 C.F.R. § 4.33.
[63] 16 U.S.C. § 797(f).
[64] 100 FERC ¶ 62,162.
[65] 111 FERC ¶61,024.

request relief from licensing requirements for a proposed project that would install and test two coastal hydrokinetic rotors/turbines for up to five weeks. Applying the three-part test from the Verdant Order, the Commission determined that the proposed MMA project satisfied all three criteria, and subsequently issued an order relieving the project from the applicable licensing requirements.[66]

4.1.1.5. Federal Power Act Section 10(j) Resolution. Under the Federal Power Act, FERC is required to "include conditions to adequately and equitably protect, mitigate damage to, and enhance fish and wildlife (and their habitats), based on recommendations of state and federal fish and wildlife agencies."[67] The National Marine Fisheries Service, the U.S. Fish and Wildlife Service, as well as state fish and wildlife agencies will provide recommendations to FERC, which is then able to review them and ask for clarification if necessary.[68] Section 10(j) information must also be included in the Environmental Assessment (EA) FERC completes as part of its licensing process.[69]

4.1.1.6. Section 10 Authority. Section 10(a) of the FPA gives FERC the authority to balance various factors when deciding upon whether certain modifications or conditions should be imposed upon a license.[70] According to the FPA, FERC has the authority to ensure that

> "the project adopted, including the maps, plans, and specifications, shall be such as in the judgment of the Commission will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce, for the improvement and utilization of water-power development, for the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat), and for other beneficial public uses, including irrigation, flood control, water supply, and recreational and other purposes…."[71]

Under FERC Order No. 481-A, revising Order No. 481 (October 26, 1987), the Commission affords comprehensive plan status under § 10(a)(2)(A) to "any Federal or state plan that: (1) is a

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[66] 130 FERC ¶ 62,234.

[67] Federal Energy Regulatory Commission, *Handbook for Hydroelectric Project Licensing and 5 MW Exemptions from Licensing*, p. 1-4, April 2004, *available at* http://www.ferc.gov/industries/hydropower/gen-info/handbooks/licensing_handbook.pdf.

[68] FERC must include the recommendations of the fish and wildlife agencies unless the Commission believes that they are inconsistent with the FPA or other applicable laws. After making the determination that the laws are inconsistent the Commission staff must work with other agencies to come up with a "mutually acceptable resolution of any inconsistency." If the Commission uses its own standards it must demonstrate that the recommendations of the fish and wildlife agencies are inconsistent and the license conditions selected by the Commission adequately protect fish and wildlife. *Id*. at 2-20, 21.

[69] *Id*. at 3-13

[70] 16 U.S.C. § 803(a).

[71] 16 U.S.C. § 803(a)(1).

comprehensive study of one or more of the beneficial uses of a waterway or waterways; (2) specifies the standards, the data, and the methodology used; and (3) is filed with the Secretary of the Commission."[72] New York has a large number of recognized comprehensive plans.[73]

When considering whether a license is "best adapted to a comprehensive plan," FERC must consider (1) "The extent to which the project is consistent with a comprehensive plan (where one exists) for improving, developing, or conserving a waterway or waterways affected by the project that is prepared by" a federally approved agency or the state where the project is to be sited; (2) The recommendations of Federal and State agencies exercising administration over flood control, navigation, irrigation, recreation, cultural and other relevant resources of the State in which the project is located, and the recommendations (including fish and wildlife recommendations) of Native American tribes affected by the project;" and (3) "the electricity consumption efficiency improvement program of the applicant, including its plans, performance and capabilities for encouraging or assisting its customers to conserve electricity cost-effectively" where the applicant is a state, municipality, a generator or a utility.[74] In practice, this Section 10(a) authority can allow FERC to withhold a license where a project may not be financially feasible (though it has rarely done so).

4.1.1.7. MOUs with States. FERC has engaged in developing Memoranda of Understanding (MOUs) with states to facilitate the permitting process. To date, FERC has MOUs with California, Maine, Washington, and Oregon.[75] Common elements of the State MOUs include: (1) FERC and the state agree to notify each other when they become aware of a potential applicant for a preliminary permit, a pilot project license, or a license. (2) FERC and the state agree on a schedule for processing applications as early as possible, and the schedule must include specific milestones for both the state and the Commission. (3) They agree to coordinate the environmental reviews and consult with relevant stakeholders. (4) FERC agrees to consider what impacts the project may have in light of the state's recognized § 10(a)(2)(A) comprehensive plan.

4.1.2. Department of Interior Bureau of Ocean Energy Management Leasing.

The submerged lands beyond three miles extending to 200 miles from the shore are known as the outer continental shelf (OCS). The Energy Policy Act of 2005 grants the Department of Interior (DOI) authority to lease these lands for the development of energy projects.[76] In 2009, DOI's Bureau of Ocean Energy Management (BOEM)[77] entered into an MOU with FERC. The MOU specifies that BOEM is responsible for issuing leases for hydrokinetic projects on the OCS, but

[72] Federal Energy Regulatory Commission, Office of Energy Projects, *List of Comprehensive Plans: December 2011*, p. i, *available at* http://www.ferc.gov/industries/hydropower/gen-info/licensing/complan.pdf.
[73] For the full list, see *id*. at 58.
[74] 16 U.S.C. § 803(a)(2)(A)-(C).
[75] Federal Energy Regulatory Commission, Hydrokinetic Projects, http://www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics.asp (last visited Apr. 16, 2012).
[76] 43 U.S.C. §1337(p).
[77] BOEM was formerly known as the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) and before that the Minerals Management Service (MMS).

FERC has authority to issue project licenses on the OCS. [78]

BOEM may issue leases either competitively or noncompetitively. [79] If BOEM is issuing a lease on a competitive basis, it may publish a Request for Interest in the Federal Register to determine how much interest there is in leasing land for a renewable energy project. [80] Where there is interest, an auction may be held or negotiations will take place with an individual party.

BOEM may also accept unsolicited requests for leases. [81] If BOEM receives an unsolicited request, it will ensure that there are no other competitive interests through notice and comment and then follow the prescribed regulations. [82] BOEM is required to consult with appropriate state and federal agencies as it proceeds through its leasing process.

4.1.3. The Clean Water Act (CWA) and Regulations

4.1.3.1. CWA §401 Water Quality Certification. An applicant for any federal permit for any activity that will involve any discharge to water must obtain state certification that the activity will not degrade water quality in contravention of the state's water quality standards. The activity must also meet national standards of performance, as well as toxic and pretreatment effluent standards. According to Section 401 of the CWA,

> "Any applicant for a Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification from the State in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the navigable waters at the point where the discharge originates or will originate, that any such discharge will comply with the applicable provisions of sections 1311, 1312, 1313, 1316, and 1317 of this title." [83]

FERC has indicated that not all hydrokinetic projects will require state certification, as certain projects will not result in discharge to water. [84]

(a) *New York resource areas covered.* Determining whether a specific body of water is part of the waters of the United States or traditional navigable waters is a fact-specific analysis through which EPA regions and Army Corps of Engineers (Corps)

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[78] Federal Energy Regulatory Commission, *Memorandum of Understanding Between the U.S. Department of the Interior and the Federal Energy Regulatory Commission* (April 9, 2009), *available at* http://www.ferc.gov/legal/maj-ord-reg/mou/mou-doi.pdf.
[79] 30 C.F.R. § 585.201.
[80] 30 C.F.R. § 585.210.
[81] 30 C.F.R. § 585.231.
[82] 30 C.F.R. § 585.231.
[83] 33 U.S.C. § 1341.
[84] *See* 138 FERC ¶ 62,049 at FN 12, *Order Issuing Hydrokinetic License*, Docket No. 12611-005 (January 23, 2012), *available at* http://www.ferc.gov/media/news-releases/2012/2012-1/01-23-12-order.pdf.

districts look at the circumstances of the water body in light of "Corps regulations, prior determinations by the Corps and by the federal courts and case law."[85] According to draft guidance issued by the U.S. Environmental Protection Agency (EPA) and the Corps, the following are considered "waters of the United States":

- Traditional navigable waters;
- Interstate waters;
- Wetlands adjacent to either traditional navigable waters or interstate waters;
- Non-navigable tributaries to traditional navigable waters that are relatively permanent, meaning they contain water at least seasonally; and
- Wetlands that directly abut relatively permanent waters.[86]

The following are considered "waters of the United States" if they meet the "significant nexus" test as presented in the *Rapanos* case:[87]

- Tributaries to traditional navigable waters or interstate waters;
- Wetlands adjacent to jurisdictional tributaries to traditional navigable waters or interstate waters; and
- Waters that fall under the 'other waters' category of the regulations. The guidance divides these waters into two categories, those that are physically proximate to other jurisdictional waters and those that are not, and discusses how each category should be evaluated.[88]

(b) *Actions requiring water quality certification*. The CWA regulates discharges into the waters of the United States. The EPA delegates the authority to implement the requirements of the CWA to states if those states have federally-approved water quality standards.

(c) *What conditions are valid conditions in a Section 401 water quality certification?* Section 401(d) requires a certifying state to set forth effluent limitations as

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[85] U.S. Environmental Protection Agency, *Waters that Qualify as Waters of the United States Under Section (a)(1) of the Agencies' Regulations*, *available at* http://water.epa.gov/lawsregs/guidance/wetlands/upload/wous_tnws.pdf. Under 33 C.F.R. §328.3, waters of the United States that are covered by the CWA are those waters "which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; all interstate waters including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce; all impoundments of waters otherwise defined as waters of the United States under the definition; the territorial seas, and tributaries of waters" identified in this section as well as wetlands adjacent to such identified waters.

[86] U.S. Environmental Protection Agency, *Draft Guidance on Identifying Waters Protected by the Clean Water Act*, p. 5, *available at* http://www.epa.gov/indian/pdf/wous_guidance_4-2011.pdf [hereinafter "Draft Guidance"].

[87] *Rapanos v. United States*, 126 S. Ct. 2208 (2006). According to the Draft Guidance document, "Waters have the requisite significant nexus if they, either alone or in combination with similarly situated waters in the region, significantly affect the chemical, physical, or biological integrity of traditional navigable waters or interstate waters." Draft Guidance, p. 7.

[88] Draft Guidance, p. 5.

well as other limitations to ensure an activity will comply with the relevant provisions of the CWA, as well as "any other appropriate requirement of State law." States may place conditions to ensure that the proposed activities meet water quality criteria to allow for designated water uses.[89]

(d) *Under what circumstances may New York State deny a Section 401 water quality certification?* To obtain water quality certification in New York State, the New York State Department of Environmental Conservation (DEC) must find that "there are reasonable assurances that the activity will be conducted in a manner which will not violate applicable water quality standards."[90] Specifically, the NYCRR states:

> Any applicant for a Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities that may result in any discharge into navigable waters as defined in Section 502 of the Federal Water Pollution Control Act (33 USC 1362), must apply for and obtain a water quality certification from the department. The applicant must demonstrate compliance with sections 301–303, 306 and 307 of the Federal Water Pollution Control Act, as implemented by the following provisions:
>
> 1. Effluent limitations and water quality-related effluent limitations set forth in Section 754.1 of this Title;
> 2. Water quality standards and thermal discharge criteria set forth in Parts 701, 702, 703 and 704 of this Title;
> 3. Standards of performance for new sources set forth in section 754.1 of this Title;
> 4. Effluent limitations, effluent prohibitions and pretreatment standards set forth in section 754.1 of this Title;
> 5. Prohibited discharges set forth in section 751.2 of this Title; and
> 6. State statutes, regulations and criteria otherwise applicable to such activities.[91]

According to the CWA, water quality standards must "consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses."[92] The U.S. Supreme Court emphasized the importance of meeting both the numerical criteria and designated uses in *PUD No. 1 of Jefferson County v. Washington Dep't of Ecology*.[93] In that

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[89] *PUD No. 1 of Jefferson County v. Washington Dep't of Ecology*, 511 U.S. 700 (1994) held that a state's requirements may extend beyond merely setting effluent standards and could include conditions that were necessary to protect a designated water use as well as the numerical water quality standards/criteria (i.e., can include minimum stream flows etc) (at 714-715). Normally, meeting water quality criteria will be enough to protect the designated water uses – but not always. (at 715). "Activities – not merely discharges – must comply with state water quality standards" (at 713). Activities with discharges are subject to §401 certification, but a state may place additional limitations/conditions on the activity once the discharge condition is met (at 712).

[90] *Matter of Erie Boulevard Hydropower L.P.*, Decision of the Deputy Commissioner at 10, 2006 N.Y. Env. LEXIS 2951127, * 7 (Oct. 6, 2006) *citing* 40 C.F.R. Section 121.2(a)(3).

[91] 6 NYCRR §608.9(a)(1)-(6).

[92] 33 U.S.C. §1313(c)(2)(A).

[93] *PUD No. 1 of Jefferson County v. Washington Dep't of Ecology*, 511 U.S. 700 (1994).

case, involving a hydroelectric power project, the Court held that the CWA "makes it plain that water quality standards contain two components. We think the language of § 303 is most naturally read to require that a project be consistent with *both* components, namely, the designated use *and* the water quality criteria. Accordingly, under the literal terms of the statute, a project that does not comply with a designated use of the water does not comply with the applicable water quality standards"[94] (emphasis in original). In addition, 401 certification is required for hydroelectric "activities," not just discharges: "EPA's conclusion that *activities* – not merely discharges – must comply with State water quality standards is a reasonable interpretation of § 401, and is entitled to deference."[95] New York State has adopted this approach of ensuring that numerical as well as use-based standards are met when determining 401 certification. According to the CWA, states may also implement standards that are more stringent that those required by the EPA.[96]

New York State case law has also framed the boundaries of what can be considered water quality criteria. In *Matter of Eastern Niagara Project Power Alliance v. New York DEC*,[97] a case involving a hydroelectric facility, the Appellate Division held that DEC was correct in not extending its 401 review to issues beyond water quality. The court stated that the DEC "was justified in declining to further consider those concerns raised by the Environmental Performance Partnership Agreement (ENPPA) which did not pertain to water quality, namely, the ice boom, shoreline erosion, bird mortality, transmission lines, recreational facilities and socioeconomic impact."[98] While acknowledging that in *PUD* the U.S. Supreme Court broadened state authority "to reviewing the 'activities' of hydroelectric power facilities," the court noted the importance of recognizing that "such activities must still relate to water quality."[99] FERC's preemption in the area of hydroelectric development licensing was also a basis for justifying DEC's decision to not review certain factors which would have been in FERC's domain.[100]

New York State courts have upheld DEC's decisions to require ballast water flushing to protect New York waters from invasive species and consider temperature and turbidity in water quality certifications in the case of a hydroelectric project.[101] DEC has also denied §401 permits where,

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[94] *PUD No. 1 of Jefferson County v. Washington Dep't of Ecology*, 511 U.S. 700, 714-715 (1994).
[95] *PUD No. 1 of Jefferson County v. Washington Dep't of Ecology*, 511 U.S. 700, 712 (1994).
[96] 33 U.S.C. §1370.
[97] In *Matter of Eastern Niagara Project Power Alliance v. New York DEC,* 840 N.Y.S.2d 225 (N.Y.A.D. 3 Dept., 2007).
[98] In *Matter of Eastern Niagara Project Power Alliance v. New York DEC,* 840 N.Y.S.2d 225, 227 (N.Y.A.D. 3 Dept., 2007). It is important to note, however, that this list of concerns is case-specific. In another situation, these concerns may relate to water quality and, in that case, DEC would have jurisdiction to review them in its 401 water quality certification review.
[99] In *Matter of Eastern Niagara Project Power Alliance v. New York DEC,* 840 N.Y.S.2d 225, 227 (N.Y.A.D. 3 Dept., 2007).
[100] "Indeed, the DEC's 'consideration of environmental interests beyond the limited bounds of water quality standards in the context of FERC licensing proceedings would constitute an intrusion into an area preempted by the federal statute.'" In *Matter of Eastern Niagara Project Power Alliance v. New York DEC,* 840 N.Y.S.2d 225, 228 (N.Y.A.D. 3 Dept. 2007) *citing Matter of Erie Blvd. Hydropower, L.P. v. Stuyvesant Falls Hydro Corp.*, 30 A.D.3d 641, 644–645 (2006).
[101] *Matter of Port of Oswego Auth. v. Grannis*, 70 A.D.3d 1101, 897 N.Y.S.2d 736, N.Y.A.D. 3 Dept. 2010; *Matter of Long Lake Energy Corp. v. NYDEC*, 563 N.Y.S.2d 871, 875 (N.Y.A.D. 3d Dept, 1990).

in the case of a hydroelectric facility, the applicant did not adequately demonstrate that water quality standards would be met. [102]

Finally, DEC has denied §401 certification to Entergy Corporation for its Indian Point Nuclear Power Plant Units 2 and 3, partially based on the detrimental effects of the plant's once-through cooling system, namely the withdrawal of 2.5 billion gallons of water and death of almost one billion organisms, making it incompatible with the designated use [103] of the Hudson River. [104]

Therefore, New York State could deny a 401 certification if any water quality standards, whether they be numerical or use-based standards, are violated. [105]

(e) *CWA Section 401 applied to possible hydrokinetic power projects.* [106] As previously stated, DEC has the authority to deny 401 certification where water quality standards would be violated by an activity associated with a hydroelectric project, whether those standards are numerical or use-based. Where a waterway's designated use is swimming and fishing, for example, a hydrokinetic installation that interferes with that designated use could face opposition. DEC would not be permitted, however, to address factors that would otherwise be left to FERC because of its "preemption" of hydropower development if they do not relate to water quality. [107]

4.1.3.2. CWA §404 Wetlands and Fill Permit. If the discharge of dredged or fill materials into waters of the United States is proposed as part of a project, then a permit under §404 is required. 404 permits are issued by the Corps. [108]

(a) *Covered resource areas in New York State.* [109] Waters of the United States are defined at 33 CFR 328.3 and include navigable waters, interstate waters,

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[102] *Matter of Power Auth. of State of N.Y. v. Williams*, 60 N.Y.2d 315 (1983). The court also held that DEC was not permitted to perform balancing of energy need and environmental factors as the lower court had stated. *Id*. at 327.
[103] In the NYCRR, the term "best usages" is used rather than "designated use." *See* 6 NY ADC 700.1(a)(5).
[104] The Indian Point decision is in connection with a relicensing by the Nuclear Regulatory Commission. See *DEC's Notice of Denial to Entergy for its Joint Application for CWA 401 Water Quality Certification NRC License Renewal*, April 2, 2010. DEC concluded Entergy had not installed technology compatible with 6 NYCRR 704.5, which requires installation of the best available technology to minimize adverse environmental impacts of cooling water intake structure.
[105] For instance, New York State could issue a water quality certification that includes a condition obligating the certificate holder to conduct its project in a way the certificate holder did not necessarily intend, in order to ensure that work is completed in a way that would not violate these standards.
[106] Note that not all hydrokinetic projects will require Section 401 certification. *See* 138 FERC ¶ 62,049 at FN 12, *Order Issuing Hydrokinetic License*, Docket No. 12611-005 (January 23, 2012), *available at* http://www.ferc.gov/media/news-releases/2012/2012-1/01-23-12-order.pdf.
[107] In *Matter of Eastern Niagara Project Power Alliance v. New York DEC,* 840 N.Y.S.2d 225 (N.Y.A.D. 3 Dept., 2007).
[108] The U.S. EPA has "veto" authority under CWA § 404(c) to deny approval of a disposal site, but this authority is rarely used. § 404 permits are subject to § 401 state water quality certification and the Corps will determine if NEPA review requirements are triggered as well.
[109] *See* EPA & Army Corps of Engineers, *Draft Guidance on Identifying Waters Protected by the Clean Water Act*, p. 6, *available at* http://water.epa.gov/lawsregs/guidance/wetlands/upload/wous_guidance_4-2011.pdf; *see also* EPA, *Waters that Qualify as Waters of the United States Under Section (a)(1) of the Agencies' Regulations*, *available at* http://water.epa.gov/lawsregs/guidance/wetlands/upload/wous_tnws.pdf. Although 33 C.F.R. § 329

tributaries and wetlands adjacent to other waters. In addition, other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate commerce are also considered waters of the United States.

(b) *Actions requiring a permit.* Any discharge of dredged or fill material into waters of the United States triggers the permit requirement. The CWA states that "Any discharge of dredged or fill material into the navigable waters incidental to any activity having as its purpose bringing an area of the navigable waters into a use to which it was not previously subject, where the flow or circulation of navigable waters may be impaired or the reach of such waters be reduced, shall be required to have a permit under this section." [110] The Corps and EPA have jointly defined discharge of dredge and fill material. [111] The discharge of dredge and fill material is defined as activities which alter the elevation of the bottom of the water body. [112] While such discharges require a §404 permit, *de minimis* discharges do not. [113] Dredge material is defined as "material that is excavated or dredged from waters of the United States," [114] and discharge of dredged materials may include redeposit of previously dredged materials. [115] Dredge material is generally accepted to be material removed and re-deposited in waters of the United States.

The Corps has defined fill to include "rock, sand, soil, clay, plastics, construction debris, wood chips, overburden from mining or other excavation activities, and materials used to create any structure or infrastructure in the waters of the United States.". [116] The EPA defines "discharge of fill material" to include, among other things, "[p]lacement of fill that is necessary for the construction of any structure or infrastructure in a water of the United States; the building of any structure, infrastructure, or impoundment requiring rock, sand, dirt, or other material for its construction…". [117]

(c) *Conditions for approval of permit.* General policies for evaluating permit applications are defined in 33 C.F.R. §320.4. In general, permits may only be granted under Section 404 for projects that comply with the 404(b)(1) Guidelines [40 C.F.R. §230.10(a)(1), (2), (3)] and are not contrary to the public interest.

(d) *Application of CWA §404 to Hydrokinetic projects*. Hydrokinetic installations that are affixed to the bottom of a jurisdictional waterway or require a foundation imbedded in such a waterway will most likely require a §404 permit, due to the discharge of fill material required for the foundation. The Corps has considered backfill for cables buried on the floor of a waterway, rip rap, and cofferdams to potentially be "fill

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specifically states that its definition of "navigable waters" "does not apply to authorities under the Clean Water Act which definitions are described under 33 C.F.R. Parts 323 and 328," the EPA has stated that navigable waters for the purpose of the CWA are those that meet the same definition as 33 C.F.R. 329.

[110] 33 U.S.C. § 1344(f)(2).

[111] *See Couer Alaska, Inc. v. Southeast Alaska Conservation Council*, 557 U.S. 261 (2009).

[112] *See id. citing* 40 C.F.R. § 232.2 (2009).

[113] *Avoyelles Sportsmen's League, Inc. v. Marsh*, 715 F.2d 897 (1983).

[114] 33 C.F.R. § 323.2(c) (2011).

[115] 33 C.F.R. § 323.2(d)(1)(iii).

[116] 33 C.F.R. § 323.2(e)(2).

[117] 33 C.F.R. § 323.2(f).

placement" requiring §404 permits. [118] The courts have decided that the discharge of fill material associated with the construction of hydroelectric projects is subject to §404. [119]

4.1.4. Rivers and Harbors Act §10. The Rivers and Harbors Act regulates work and structures in, over and under navigable waters. [120] In order to build a structure in or over navigable waters under the Act where Congress has not approved the building of a structure, authorization by the Secretary of the Army is required. [121]

4.1.4.1. Actions Requiring §10 Permits. Under §10 of the Act, if the structure or work will affect the course, location or condition of a navigable body of water in such a manner as to impact its navigable capacity, a permit, issued by the Secretary of the Army, is required to commence construction in the water body. [122] Section 10 permits are required for "any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structures in any port, roadstead, haven, harbor, canal, navigable river, or other water of the United States, outside established harbor lines." [123] Generally, permits are required for any permanent or temporary structure erected in, over or under navigable waters.

4.1.4.2. Navigable Waters and Harbor Lines. According the to the regulations established by the Corps, navigable waters are "those waters of the United States that are subject to the ebb and flow of the tide shoreward to the mean high water mark, and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce." [124] Harbor Lines are defined by the Secretary of the Army when and where he decides such lines are necessary for the preservation and protection of harbors. [125] The Secretary has discretion over whether structures may be extended beyond harbor lines. [126]

4.1.4.3. Application to Hydrokinetic Projects. Because the turbines installed for hydrokinetic projects require cabling and/or mooring, they are regulated under and require a permit under this Act. According to a 2011 MOU between the Corps and FERC, "[T]he Corps' Section 10 requirements for non-Federal hydropower development are met through the Commission's licensing process." [127]

4.1.4.4. Recent Changes to Permitting Process. Nationwide Permit programs are used by the Corps to authorize those activities that have minimal adverse environmental

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[118] Department of the Army, Comments for Roosevelt Island Tidal Energy Project – Environmental Assessment - FERC Project No. 12611-005, June 2, 2011.
[119] *Scenic Hudson Preservation Conference v. Callaway*, 370 F.Supp. 162 (1973).
[120] 33 U.S.C. § 403 (2006).
[121] *Id.*
[122] *Id.*
[123] *Id.*
[124] 33 C.F.R. § 322.2.
[125] 33 U.S.C. § 404 (2006).
[126] *Id.*
[127] *Memorandum of Understanding Between United States Army Corps of Engineers and the Federal Energy Regulatory Commission on Non-Federal Hydropower Projects*, p. 2, (March 30, 2011), *available at* http://www.ferc.gov/legal/maj-ord-reg/mou/mou-usace.pdf.

impacts. [128] The Corps proposed a draft Nationwide Permit Program (NWP) for hydrokinetic and other renewables on February 16, 2011. [129] The final rule issued on February 21, 2012, implements NWP 52, specifically for "Marine-Based Renewable Energy Generation Pilot Projects." [130] Generally, this NWP was intended "to authorize structures or work in navigable waters of the United States and discharges of dredged or fill material into waters of the United States, for the construction, expansion, or modification of water-based wind or hydrokinetic renewable energy generation pilot projects and their attendant features." [131] It states that "this NWP with the 1/2-acre and 300 linear foot limits, and restricting its use to pilot projects, to ensure that this NWP authorizes only those activities that have minimal adverse effects on the aquatic environment." [132] This NWP became effective on March 19, 2012. [133]

4.1.5. Coastal Zone Management Act (CZMA) and Regulations. [134] The Federal Coastal Zone Management Act imposes federal requirements that, in New York State, are largely administered by the New York Department of State (DOS) pursuant to a federally approved management plan. The Federal Power Act does not preempt coastal zone requirements because they are federal requirements.

4.1.5.1. State Coastal Zone Management Plan and Local Plans. Section 302(i) of the CZMA encourages coastal states to develop coastal zone management plans and submit them for approval by the U.S. Secretary of Commerce. [135] New York State has an approved Coastal Management Program (CMP) administered by the DOS. [136] Under New York's CMP, individual municipalities have the option of refining the state coastal policies for local application for the CZMA requirements by adopting local waterfront revitalization programs (LWRP) pursuant to Article 42 of the NY Executive Law. The LWRPs are submitted to the U.S. Department of Commerce for approval and incorporation into New York's federally approved CMP. There are nearly 64 LWRPs filed with the DOS and approved by the U.S. Department of Commerce from a variety of locations throughout the state, including communities along the St. Lawrence River, the Great Lakes, New York City, and Long Island. [137]

4.1.5.2. The Location of Coastal Zones in New York State. The CZMA defines "coastal zone" as

> "the coastal waters (including the lands therein and thereunder) and the adjacent shore lands (including the waters therein and thereunder), strongly influenced by each other and in proximity to

[128] 33 U.S.C. §1344(e)(1) (2006).
[129] 76 F.R. 9174 (Feb. 16, 2011).
[130] 77 F.R. 10184, 10238 (Feb. 21, 2012).
[131] *Id.*
[132] *Id.*
[133] 77 F.R. 10184 (Feb. 21, 2012).
[134] 16 U.S.C. § 1451 *et seq.*, 15 C.F.R. Part 930.
[135] 16 U.S.C. § 1451.
[136] N.Y. Exec. Law § 910 *et seq.* (Consol. 2011), Waterfront Revitalization of Coastal Areas and Inland Waterways; 19 NYCRR § 600 *et seq.*; 16 U.S.C. § 1455.
[137] For a list of LWRPs, *see* New York State Department of State, *New York State Coastal Management Program*, http://www.nyswaterfronts.com/LWRP_Status.asp (last visited Apr. 16, 2012).

the shorelines of the several coastal states, and includes islands, transitional and intertidal areas, salt marshes, wetlands, and beaches. The zone extends, in Great Lakes waters, to the international boundary between the United States and Canada and, in other areas, seaward to the outer limit of State title and ownership under the Submerged Lands Act…" [138]

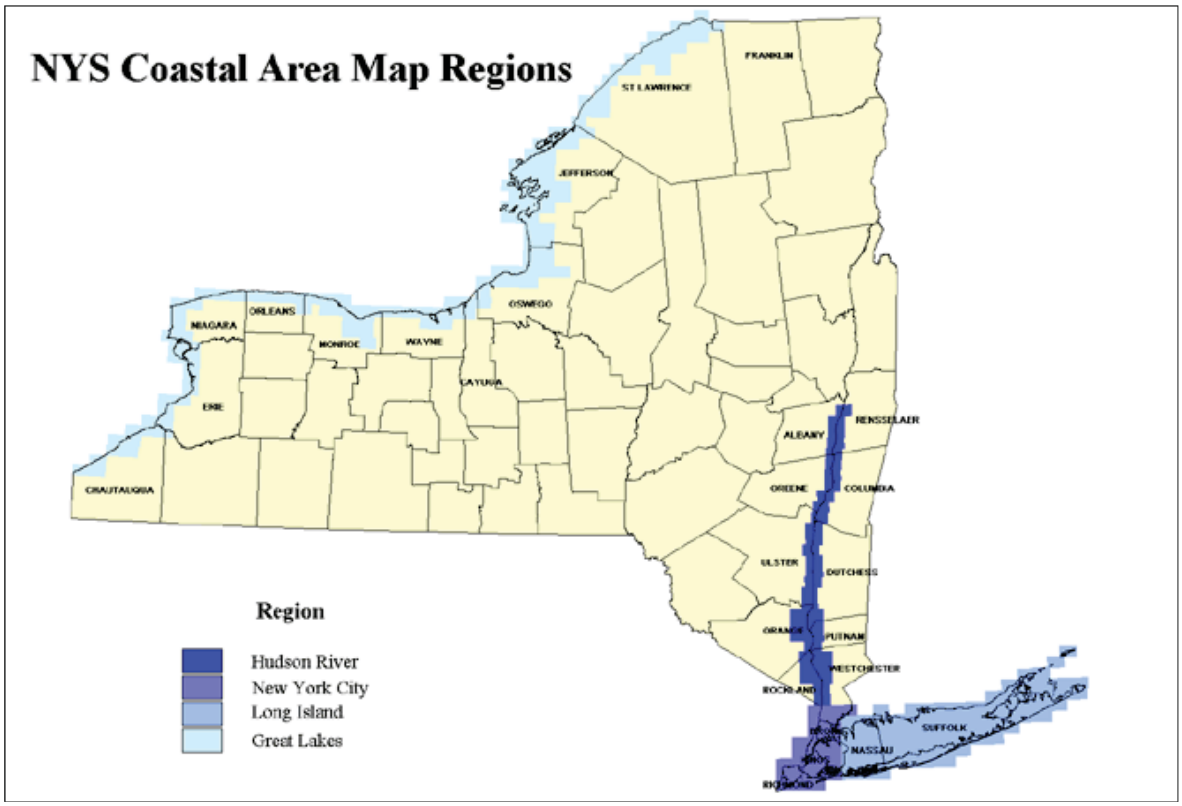

Figure 3. New York State Coastal Areas. [139]

New York State's coastal areas consist of four distinct sections: the Hudson River, New York City, Long Island, and the Great Lakes. There are criteria that determine both the landward boundaries and seaward boundaries. While the exact landward boundaries vary from region to region, the following criteria are generally used:

1. The inland boundary is approximately 1,000 feet from the shoreline of the mainland.
2. In urbanized and other developed locations along the coast, the landward boundary is about 500 feet from the mainland's shoreline or less than 500 feet at locations where a major roadway or railroad line runs parallel to the shoreline.

[138] 16 U.S.C. § 1453(1).

[139] New York State Department of State, Office of Communities and Waterfronts, *Coastal Area Boundary*, http://www.dos.ny.gov/communitieswaterfronts/atlas/index.html (last visited Apr. 16, 2012). These are the CZMA designated areas.

3. At locations where major State-owned lands and facilities and electric power generation facilities abut the shoreline, the boundary extends inland to include such lands and facilities. [140]

Regarding the seaward boundary, the federal government requires the coastal area to contain the state's waters within its jurisdiction. [141]

4.1.5.3. Consistency Review. Under CZMA §307(c)(3)(A), those applying for federal licenses must obtain certification from the proper state agency verifying compliance with that state's management program through what is called a "consistency review." [142] "Consistency" refers to the decision-making procedures that are to insure that "public agency decisions, whether they involve direct activities, funding, or permits, are to result in activities that are 'consistent' with the state's coastal policies." [143] For New York State, the relevant enforceable coastal policies for federal activity are those incorporated in the CMP, as well as any approved LWRP or regional coastal management programs. [144] The CZMA states that each federally approved coastal management plan must contain a list of federal license/permitting activities that trigger CZMA consistency review. [145] In New York State, there are approximately 25 types of permitting or licensing activities that require CZMA consistency review, including hydroelectric projects. [146] In the New York CMP, there are several general policy categories that

[140] *New York State Coastal Management Program and Final Environmental Impact Statement*, Section 2, p. 14, (August 13, 1982), *available at* http://www.dos.ny.gov/communitieswaterfronts/pdfs/NY%20CMP%20.pdf. This document specifies the following on the same page: "In the Long Island region, the State's Coastal Area includes all barrier and other islands which are situated in coastal waters. On the mainland, the landward boundary is generally 1,000 feet from the shoreline, however, at major tributaries and headlands it extends several thousand feet inland. Along the Long Island Sound Coast of Westchester County, the boundary extends 1,000 to 8,000 feet inland. In New York City, this boundary extends 500 to 1,000 feet inland at most locations. However, on Staten Island and along major tributaries, such as the Bronx River, Newtown Creek and Flushing Creek, the landward boundary is several thousand feet from the mainland's shoreline. Throughout most of the Hudson River Valley region, the landward boundary is generally 1,000 feet, but at some locations over 10,000 feet, from the River's shoreline. The latter occurs at places which are exceptionally scenic (for example, Hudson Highlands) or have significant agricultural and recreational lands. Finally, the Coastal Area in the Great Lakes region of the State is about 1,000 feet inland from the shoreline. However, in many of the urbanized and developed areas of the coast (for example, Buffalo, Rochester, Oswego, Alexandria Bay and Ogdensburg) and at several locations where State highways and rail lines parallel the shoreline, the boundary extends 500 feet or less inland."

[141] *Id.* This document specifies the following on p. 14-15: "Great Lakes - St. Lawrence Area - Beginning at the Lake Erie Pennsylvania/New York line, the boundary follows the international boundary through Lake Erie, the Niagara River, Lake Ontario and the St. Lawrence River to that point where the St. Lawrence River leaves the United States. Atlantic Ocean Area - Beginning at the New York/New Jersey line, the boundary follows the State boundary in the Hudson River, Upper Bay, Arthur Kill and Raritan Bay to the three-mile 1-imit of the territorial sea in the Atlantic; follows the New York/Rhode Island boundary in Block Island Sound and the New York/ Connecticut boundary within Long Island Sound."

[142] 16 U.S.C. § 1456.

[143] New York State Department of State, Office of Communities and Waterfronts, *Consistency Review*, http://www.dos.ny.gov/communitieswaterfronts/consistency/ (last visited Apr. 16, 2012).

[144] *Id.*

[145] 15 C.F.R. § 930.53(a).

[146] "Licenses for non-Federal hydroelectric projects and primary transmission lines under Sections 3 (11), 4 (e) and 15 of the Federal Power Act (16 U.S.C. 796 (11), 797 (11) and 808)," *New York State Coastal Management Program and Final Environmental Impact Statement*, Section 9, p. 19, (August 13, 1982), *available at* http://www.dos.ny.gov/communitieswaterfronts/pdfs/NY%20CMP%20.pdf.

are considered during the consistency review, including development, fish and wildlife, flooding and erosion hazards, public access, recreation, historic and scenic resources, agricultural lands, energy and ice management, water and air resources, and wetlands. [147] Specifically, the CMP's Policy 27 deals with the "siting and construction of major energy facilities in the coastal area" and states that such decisions will be made based on "public energy needs, compatibility of such facilities with the environment, and the facility's need for a shorefront location." [148]

This consistency certification is presented to the state which then reviews it and "can concur with, conditionally concur with, or object to the consistency certification." [149] If the state conditionally concurs, the applicant must amend the applications to include the conditions or the conditional concurrence would be treated as an objection. [150] The state must give a consistency determination before the project/activity can be federally authorized [151], though state concurrence may be presumed if the state does not submit a response within six months from receipt of the an applicant's complete consistency certification and all necessary data and information. [152] Under the CZMA, any direct federal agency activity that will affect a state's coastal areas must be consistent to the maximum extent practicable with the "enforceable policies" of a state's federally approved program, [153] while any activities requiring a federal license or permit must be fully consistent with the state's program. [154] If a state objects or there is conflict, the applicant can appeal to the federal Dept. of Commerce. Other avenues may include National Oceanic and Atmospheric Administration- (NOAA) assisted talks, "mediation by the Secretary of Commerce with public hearings, and judicial review." [155]

4.1.5.4. Application of CZMA to Hydrokinetic Projects. Hydroelectric projects in New York State are subject to CZMA consistency review if they are located in or would affect any of the designated New York coastal areas. In the past, New York State has used its authority under consistency review to object to certain projects in the coastal zone. Three examples of recent projects to which the DOS objected for lack of consistency with CZMA policies provide insights into the way the consistency review is applied:

(a) DOS objected to the U.S. Coast Guard's consistency determination for the proposed rule regarding ballast water discharge standards for living organisms (2010) because it was not consistent to maximum practicable extent with the CMP,

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[147] *Id*. at Section 5.
[148] New York State Department of State, Coastal Management Program, *State Coastal Policies*, Policy 27, (September, 2010), *available at* http://www.dos.ny.gov/communitieswaterfronts/pdfs/CoastalPolicies.pdf.
[149] DOS's Conditional Concurrence with Consistency Certification regarding Champlain Hudson Power Express, p. 2, (June 8, 2011), *available at* http://chpexpresseis.org/docs/Dept-of-State-Conditional-CZMA-Consistency-Certification.pdf.
[150] *Id.*
[151] FEMA, *Coastal Zone Management Act (CZMA), 1972*, http://www.fema.gov/plan/ehp/ehplaws/czma.shtm (last visited Apr. 16, 2012).
[152] 15 C.F.R. § 930.41(a).
[153] New York State Department of State, Office of Communities and Waterfronts, *Consistency Review*, http://www.dos.ny.gov/communitieswaterfronts/consistency/ (last visited Apr. 16, 2012).
[154] 15 C.F.R. § 930.50.
[155] FEMA, *Coastal Zone Management Act (CZMA), 1972*, http://www.fema.gov/plan/ehp/ehplaws/czma.shtm (last visited Apr. 16, 2012).

implicating Policies 18 and 30 dealing with economic, social and environmental interests and discharges, respectively. [156] The proposed standards and timeframes for the implementation of the ballast water discharge standards were less stringent than New York's current discharge standards in its EPA-approved 401 certification of Vessel General Permits.

(b) DOS objected to the consistency certification provided by the St. Lawrence Cement (SLC) Company for multiple reasons as stated in the Department's decision letter. [157] The proposed project would have involved the construction and operation of certain elements of a new cement plant in an already existing mine, as well as expansion of current docks, construction of a new dock, and construction of a 2.5 mile conveyor tube. The project would have included a number of silos/towers and would have involved a very large amount of dredging and would result in much ship traffic as well as noise and fumes. The DOS looked at the fact that the impacts of the expanded plant would reach beyond the project site, discussing waterfront revitalization, tourism, recreation taking place along the Hudson. After a detailed examination of numerous CMP policies, DOS found the proposed facility to be inconsistent with the CMP, as well as the Village of Athens' LWRP and the state's policies and purposes in large part because "the overall scale and intensity of use would not be compatible with the character of the area." [158]

(c) DOS used its consistency review authority to object to the Millennium Pipeline which initially involved a 442-mile long natural gas pipeline that went from Lake Erie through the Haverstraw Bay Significant Coastal Fish and Wildlife Habitat. [159] The DOS objected because the "construction impacts" in Haverstraw Bay would be inconsistent with the CMP, specifically due to adverse impacts to habitat, and the DOS provided several alternative routes. [160] Millennium appealed to the U.S. Secretary of Commerce who upheld the determination of the DOS, and the U.S. District Court in Washington, D.C. upheld the Secretary's decision upon Millennium's second appeal. [161]

4.1.6 National Environmental Policy Act. The National Environmental Policy Act (NEPA) is intended to ensure that environmental impacts are considered relative to certain federal activities. Specifically, it requires that "major Federal actions significantly affecting the quality of the human environment" must undergo rigorous, coordinated inter-agency analysis that provides ample opportunity for public comment. [162]

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[156] *See* DOS's Objection to Consistency Determination regarding Proposed Rule, (July 16, 2010), *available at* http://www.dos.ny.gov/communitieswaterfronts/pdfs/consistencyDecisions/F-2010-0254%20(DA)%20OBJ.pdf.
[157] DOS's Objection to Consistency Certification, (April 19, 2005), *available at* http://www.dos.ny.gov/communitieswaterfronts/pdfs/consistencyDecisions/F-2004-0863.pdf.
[158] *Id*. at 8.
[159] DOS, Natural Resource Program at 4, (2010), http://www.dos.ny.gov/communitieswaterfronts/publicationsTools/accomplishment.html (last visited Apr. 16, 2012). Notably, the DOS stated that "Because Federal permits were needed for the pipeline, the Department had the authority to review the project. Federal laws pre-empted State and local authorities from reviewing the project meaning that the **Department's federally delegated consistency review and decision-making authority was the only means through which New York State had authority to review the pipeline.**" [Emphasis in original]
[160] Coastal Zone Management Act Consistency Appeal, http://www.co.rockland.ny.us/Pipeline/appeal.htm.
[161] *Millennium Pipeline Co., L.P. v. Gutierrez*, 424 F.Supp.2d 168 (D.D.C. 2006).
[162] 42 U.S.C. § 4332(c).

4.1.6.1 Actions Triggering NEPA Review. A full environmental impact review is required for all "major Federal actions significantly affecting the quality of the human environment." [163] "Major federal actions" has been interpreted extremely broadly and includes not only physical construction, but also legislation, licenses and leases. [164]

4.1.6.2 NEPA Requirements.

(a) Lead Agency and Cooperating Agencies. If there is only one federal agency involved in an action, that agency will be lead agency. If there is more than one agency involved, they must work together to decide which shall be lead. [165] If the agencies disagree about which will serve as lead, they must consider factors such as scope of involvement, approval authority, and expertise. [166]

(b) Categorical Exclusions. It is possible for a federal action to be categorically excluded from review under NEPA. Categorical Exclusions (CEs) are meant for those activities that individually or cumulatively do not have a significant impact on human activity, and therefore, do not require the preparation of an Environmental Assessment of an Environmental Impact Statement. [167] For example, the Department of Energy has enacted a categorical exclusion for small-scale renewable energy research and development and pilot projects in aquatic environments, with specific requirements that a project must meet in order to qualify for the exclusion. [168] In addition, FERC may exclude projects from NEPA review on a case-by-case determination by the Commissioner.

(c) Environmental Assessment (EA). Under NEPA, an agency may prepare an EA to determine whether the environmental impact of the proposed action is significant enough to warrant an Environmental Impact Statement (EIS). [169] If an EA establishes that an agency's action may have a significant effect on the environment, then an EIS must be prepared. Otherwise, the agency issues a Finding of No Significant Impact (FONSI) and no further NEPA review is required. [170] An action has a significant effect if the facts show that the

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[163] *Id.*

[164] "The statutory phrase "actions significantly affecting the quality of the environment" is intentionally broad, reflecting the Act's attempt to promote an across-the-board adjustment in federal agency decision making so as to make the quality of the environment a concern of every federal agency. [footnote omitted]. The legislative history of the Act indicates that the term "actions" refers not only to construction of particular facilities, but includes "project proposals, proposals for new legislation, regulations, policy statements, or expansion or revision of ongoing programs * * *." [footnote omitted]…NEPA's impact statement procedure has been held to apply where a federal agency approves a lease of land to private parties, [footnote omitted] grants licenses and permits to private parties…" *Scientists' Institute for Public Information, Inc. v. Atomic Energy Commission*, 481 F.2d 1079, 1088 (D.C. Cir. 1973).

[165] 40 C.F.R. § 1501.5(c). Another agency, whether federal, state or local, may jointly serve with another federal agency as joint lead agencies. 40 C.F.R. § 1501.5(b).

[166] 40 C.F.R. § 1501.5(c).

[167] 40 C.F.R. § 1508.4.

[168] 10 C.F.R. § 1021.410. Specific requirements can be found in Appendix B5.25.

[169] *Western Watersheds Project v. Bureau of Land Management*, 552 F.Supp.2d 1113 (D. Nev. 2008).

[170] *Id*.

proposed project would materially degrade any aspect of environmental quality. [171]

In general, federal agencies are free to decide what degree of public involvement they will allow in preparing EAs under NEPA. [172] Following a "Finding of No Significant Impact" (FONSI), an interested party may appeal the finding pursuant to that federal agency's internal appeals process, if such a process exists, or may challenge the alleged NEPA violation in Federal court under the Administration Procedures Act (APA). [173] If the agency in question does have an internal appeals process, the APA may require that this process be exhausted before a complaint is filed in Federal court.

(d) Draft and Final Environmental Impact Statement. An EIS is a thorough analysis of potential environmental impacts that provides full and fair discussion of significant environmental impacts and informs decision makers and public of reasonable alternatives which would avoid or minimize adverse impacts or enhance quality of human environment. [174] The EIS must analyze: the environmental impact of the proposed action; adverse environmental impacts; alternatives to the proposed action; the relationship between short-term use and long-term productivity; and irreversible commitments if the project goes through. [175] Scoping, a process that involves the public in determining the scope of the issues that will be assessed in the environmental impact statement, is required for an EIS but may also be conducted when preparing an EA. [176] Prior to making the statement the agency should consult with the applicable federal agency having special expertise or jurisdiction over the potentially impacted areas. [177] Once the draft EIS (DEIS) is completed and submitted for public comment, the comments addressed and the final EIS (FEIS) is completed. [178]

(e) Agency Approval. Once the FEIS is completed, there is a 30-day waiting period that arises before the lead agency can make a final decision. [179] Once the comment period is over, a record of decision (ROD) is issued summarizing the major aspects of the FEIS; [180] this is the last step in the NEPA process in addition to implementation of the action identified in the FEIS.

4.1.6.3 NEPA for Hydrokinetic Projects. Because of the many environmental issues involved with hydrokinetic projects, many different agencies will be involved in the

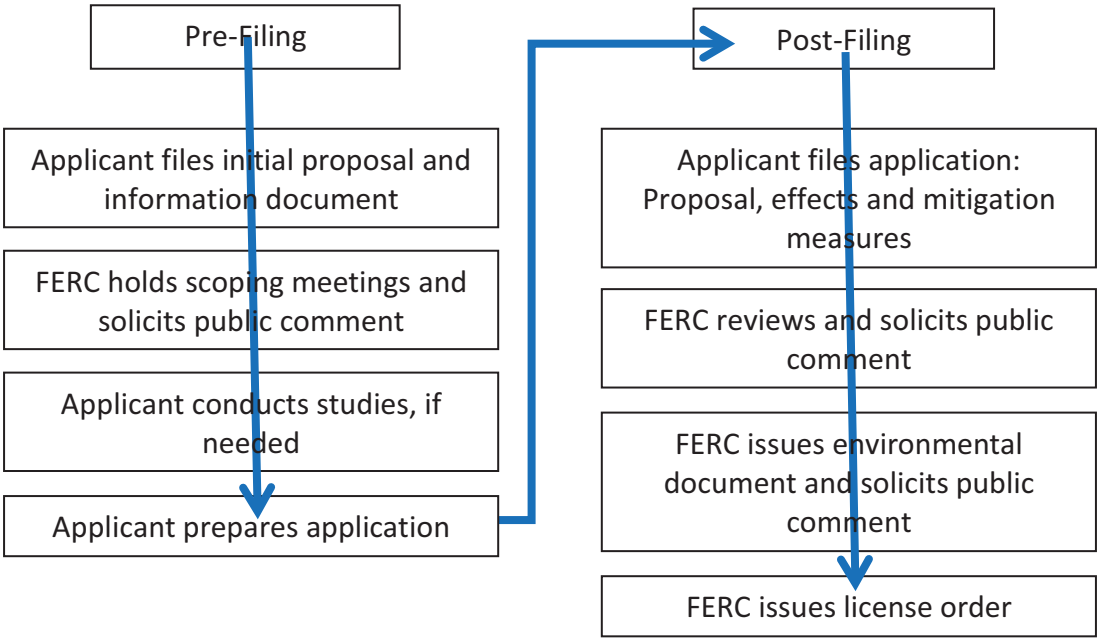
[171] National Environmental Policy Act of 1969, § 102, 42 U.S.C. § 4332. "If an agency decides not to prepare an Environmental Impact Statement (EIS) under National Environmental Policy Act (NEPA), it must supply a convincing statement of reasons to explain why a project's impacts are insignificant." *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1212 (C.A.9 1998).
[172] Council on Environmental Quality, *A Citizen's Guide to the NEPA,* p. 12, (December 2007), *available at* http://ceq.hss.doe.gov/nepa/Citizens_Guide_Dec07.pdf.
[173] *Id*. at 30.
[174] *Sierra Nevada Forest Protection Campaign v. Weingardt*, 376 F.Supp.2d 984 (E.D.Cal.2005).
[175] 42 U.S.C. § 4332(C)(i)-(v).
[176] 43 C.F.R. § 46.235.
[177] *See* 42 U.S.C. § 4332(C).
[178] 40 C.F.R. § 1503.4.
[179] 40 C.F.R. § 1506.10(b)(2).
[180] 40 C.F.R. § 1505.2.

NEPA process. FERC and BOEM are the primary agencies involved and will typically serve as lead agency under most circumstances.

(a) *FERC and BOEM.* According to the 2009 MOU between FERC and BOEM, FERC will likely serve as lead agency for the action of licensing hydrokinetic projects on the OCS, and BOEM can serve as a cooperating agency. [181] BOEM will likely serve as lead agency for leasing of the land on which OCS hydrokinetic projects will be located, and FERC can serve as a cooperating agency. [182] Regarding the licensing of hydrokinetic projects located on state-owned submerged lands from the shore to three miles out, FERC would serve as lead agency.

(b) *FERC and Pre-/Post-Filing Consultations.* Under FPA regulations, FERC must require applicants to engage in a consultation process to ensure that fully informed multi-agency and public participation is solicited. [183] It is within this general process that NEPA requirements are incorporated. There are two general phases: pre-filing and post-filing.

Figure 4. Integrated Licensing Process [184]



[181] Federal Energy Regulatory Commission, *Memorandum of Understanding Between the U.S. Department of the Interior and the Federal Energy Regulatory Commission* (April 9, 2009), *available at* http://www.ferc.gov/legal/maj-ord-reg/mou/mou-doi.pdf.
[182] *Id*.
[183] *See generally* 18 C.F.R. § 4.38; 18 C.F.R. Part 5.
[184] Recreated from Federal Energy Regulatory Commission, *Hydropower Licensing - Get Involved: A Guide for the Public*, p. 7, *available at* http://www.ferc.gov/for-citizens/citizen-guides/hydro-guide.pdf.

During the pre-filing stage, the applicant must submit pre-application materials based on its existing knowledge "to enable [FERC and other specified agencies] to identify issues and related information needs, develop study requests and study plans, and prepare documents analyzing any license application that may be filed." [185] This information also helps inform FERC's environmental review. [186] FERC then holds scoping meeting to, among other things, "Initiate issues ursuant to the National Environmental Policy Act." [187] After conducting any studies deemed necessary through the scoping process, the applicant may file its application which is then open for public comment. [188] Once the application is accepted by FERC, FERC will prepare a draft EIS or EA and also analyze recommendations brought forth by agencies responsible for protection of fish and wildlife as required under the FPA §10(j) process. [189] FERC again solicits public comment on the draft environmental document, and will issue a final EIS or EA. [190]

(c) *FERC and the Army Corps of Engineers*. Because hydrokinetic projects (and hydropower generally) will almost always require involvement of the Corps due to associated dredging activities, FERC and the Corps entered into an MOU in March 2011 to help coordinate activities under NEPA. [191] The MOU seeks "to establish a framework for early coordination and participation among the Signatories to this agreement to ensure the timely review of and action on proposed non-Federal hydropower development applications. Cooperation among the MOU Signatories will ensure each agency's review and responsibilities under NEPA and other related statutes are met in connection with the authorizations required to construct and operate hydropower facilities licensed by the Commission."

(d) *SEQRA Review.* If an applicant has filed for a preliminary permit (as opposed to a license) with FERC, and if the project is located within New York jurisdictional waters (less than three miles from shore), New York would conduct appropriate SEQRA review if the applicant requires state approvals to conduct its initial testing before applying for a formal FERC license. [192] Once the applicant applies for a license, FERC preemption will apply and FERC would conduct its NEPA review. [193]

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[185] 18 C.F.R. § 5.6(b)(1).
[186] 18 C.F.R. § 5.6(b)(1).
[187] 18 C.F.R. § 5.8(d)(1).
[188] 18 C.F.R. § 5.19.
[189] 18 C.F.R. § 5.26(a).
[190] 18 C.F.R. § 5.25(e).
[191] Federal Energy Regulatory Commission, *Memorandum of Understanding Between United States Army Corps of Engineers and the Federal Energy Regulatory Commission on Non-Federal Hydropower Projects*, p. 1, (March 30, 2011), *available at* http://www.ferc.gov/legal/maj-ord-reg/mou/mou-usace.pdf.
[192] Phone conversation with William Little (New York State Department of Environmental Conservation Office of General Counsel) on Wednesday, January 18, 2012.
[193] *Id.*; According to the DEC, "Certain federal statutes explicitly pre-empt or supercede [sic] state authorities, including SEQR. Examples are the Natural Gas Policy Act, *federal regulation of hydropower facilities*, many railroad-related activities, and national interest electric transmission corridors." [emphasis added]. New York State Department of Environmental Conservation, *SEQR and the National Environmental Policy Act (NEPA)*, http://www.dec.ny.gov/permits/50607.html (last visited Apr. 16, 2012).

(e) *Small-scale Exemption.* "Small-scale [194] renewable energy research and development and pilot projects in aquatic environments" are categorically excluded from NEPA review as long as they are not located in ecologically sensitive areas and would not require permanent installations. [195]

4.1.7 Endangered Species Act. The Endangered Species Act is designed to protect species that have been designated as threatened or endangered by the U.S. Secretary of Interior. The Act places responsibilities on the federal agency taking an action that might jeopardize a listed species.

4.1.7.1 Protected Species Found in and near New York Waterways. The U.S. Secretary of Interior decides whether a species is endangered after considering numerous statutory criteria, including (a) destruction of habitat or range; (b) overutilization of the habitat; (c) disease/predation; (d) "inadequacy of existing regulatory mechanisms;" or (e) other factors. [196] The Act also requires the designation of critical habitat for listed species when such designation is "prudent and determinable." [197] "Critical habitat" is defined as the geographic area where the species is located and which is "essential for the conservation of the species." [198] According to U.S. Fish & Wildlife Service (FWS) maps, there is no critical habitat in New York State. [199]

[194] A small scale project is one that has a total installed capacity of 5 MW of less and uses water power potential of an existing dam not owned or operated by the government; or one that uses natural water features for power generation and would not retain water for the purpose of storage and release. 18 C.F.R. § 4.30(b)(29).
[195] 10 C.F.R. § 1021, Subpt. D, App. B, B5.25.
[196] 16 U.S.C. § 1533(a)(1)(A)-(E).
[197] 16 U.S.C. § 1533(a)(3)(A).
[198] 16 U.S.C. § 1532(5)(A)(i).
[199] U.S. Fish & Wildlife Service, *FWS Critical Habitat for Threatened & Endangered Species*, http://criticalhabitat.fws.gov/crithab/ (last visited Apr. 16, 2012).

Table 2. New York State: Endangered and Threatened Species
Great Lakes, Hudson, and New York/Long Island[200]

Region	County	Species	Status
Hudson			
	Albany	Bog turtle *(Historic) Clemmys [=Glyptemys]muhlenbergii*	Threatened
		Indiana bat *Myotis sodalis*	Endangered
		Karner blue butterfly *Lycaeides melissa samuelis*	Endangered
		Shortnose sturgeon *Acipenser brevirostrum*	Endangered
	Columbia	Indiana bat *Myotis sodalis*	Endangered
		Shortnose sturgeon *Acipenser brevirostrum*	Endangered
	Dutchess	Dwarf wedgemussel *Alasmidonta heterodon*	Endangered
		Indiana bat *Myotis sodalis*	Endangered
		Shortnose sturgeon *Acipenser brevirostrum*	Endangered
	Greene	Indiana bat *Myotis sodalis*	Endangered
		Shortnose sturgeon[1] *Acipenser brevirostrum*	Endangered
	Orange	Bog turtle Clemmys [=Glyptemys] muhlenbergii	Threatened
		Dwarf wedgemussel *Alasmidonta heterodon*	Endangered
		Indiana bat *Myotis sodalis*	Endangered
		Shortnose sturgeon *Acipenser brevirostrum*	Endangered
		Small whorled pogonia *Isotria medeoloides*	Threatened
	Putnam	Bog turtle *Clemmys [=Glyptemys] muhlenbergii*	Threatened
		Indiana bat *Myotis sodalis*	Endangered
		Shortnose sturgeon[1] *Acipenser brevirostrum*	Endangered
	Rensselaer	Indiana bat *Myotis sodalis*	Endangered
		Shortnose sturgeon *Acipenser brevirostrum*	Endangered
	Rockland	Bog turtle *Clemmys[=Glyptemys] muhlenbergii*	Threatened
		Indiana bat *Myotis sodalis*	Endangered
		Shortnose sturgeon *Acipenser brevirostrum*	Endangered
		Small whorled pogonia *Isotria medeoloides (Historic)*	Threatened
	Ulster	Bog turtle *Clemmys [=Glyptemys] muhlenbergii*	Threatened
		Indiana bat *Myotis sodalis*	Endangered
		Northern wild monkshood *Aconitum noveboracense*	Threatened
		Shortnose sturgeon *Acipenser brevirostrum*	Endangered
		Small whorled pogonia *(Historic) Isotria medeoloides*	Threatened
	Westchester	Bog turtle *Clemmys [=Glyptemys] muhlenbergii*	Threatened
		Indiana bat *Myotis sodalis*	Endangered
		Shortnose sturgeon *Acipenser brevirostrum*	Endangered

[200] Based on information from the Fish and Wildlife Service, *Federally Listed Endangered and Threatened Species and Candidate Species in New York*, (February 23, 2012), *available at* http://www.fws.gov/northeast/nyfo/es/CoListCurrent.pdf. This list includes species under the jurisdiction of the FWS and the National Marine Fisheries Services.

Region	County	Species	Status
Great Lakes	Cayuga	Bog turtle *Clemmys [=Glyptemys] muhlenbergii*	Threatened
		Indiana bat *Myotis sodalis*	Endangered
	Chautauqua	Clubshell *Pleurobema clava*	Endangered
	Erie	N/A	
	Jefferson	Indiana bat *Myotis sodalis*	Endangered
		Piping plover {Designated Critical Habitat} *Charadrius melodus*	Endangered
	Monroe	Bog turtle *Clemmys [=Glyptemys] muhlenbergii*	Threatened
	Niagara	Eastern prairie fringed orchid *(Historic) Platanthera leucophaea*	Threatened
	Orleans	Bog turtle *Clemmys muhlenbergii*	Threatened
		Eastern prairie fringed orchid *(Historic) Platanthera leucophaea*	Threatened
	Oswego	Bog turtle *Clemmys [=Glyptemys] muhlenbergii*	Threatened
		Indiana bat *Myotis sodalis*	Endangered
		Piping plover *Charadrius melodus*	Endangered
	St. Lawrence	Indiana bat *Myotis sodalis*	Endangered
	Wayne	Bog turtle *Clemmys [=Glyptemys] muhlenbergii*	Threatened
		Eastern prairie fringed orchid *(Historic) Platanthera leucophaea*	Threatened
		Indiana bat *Myotis sodalis*	Endangered
New York/Long Island	Bronx	Shortnose sturgeon *Acipenser brevirostrum*	Endangered
	Kings	Shortnose sturgeon *Acipenser brevirostrum*	Endangered
	Nassau	Piping plover *Charadrius melodus*	Threatened
		Roseate tern *Sterna dougallii dougallii*	Endangered
		Sandplain gerardia *Agalinis acuta*	Endangered
		Seabeach amaranth *Amaranthus pumilus*	Endangered
		Shortnose sturgeon *Acipenser brevirostrum*	Endangered
		Small whorled pogonia *(Historic) Isotria medeoloides*	Threatened
	New York	Shortnose sturgeon *Acipenser brevirostrum*	Endangered
	Queens	Piping plover Charadrius melodus	Threatened
		Roseate tern *Sterna dougallii dougallii*	Endangered
		Seabeach amaranth *Amaranthus pumilus*	Threatened
		Shortnose sturgeon *Acipenser brevirostrum*	Endangered
	Richmond	Shortnose sturgeon *Acipenser brevirostrum*	Endangered
	Suffolk	Kemp's [=Atlantic] ridley turtle *Lepidochelys kempi*	Endangered
		Green turtle *Chelonia mydas*	Threatened
		Hawksbill turtle *Eretmochelys imbricate*	Endangered
		Leatherback turtle *Dermochelys coriacea*	Endangered
		Loggerhead turtle *Caretta caretta*	Threatened
		Piping plover *Charadrius melodus*	Threatened
		Roseate tern *Sterna dougallii dougallii*	Endangered
		Sandplain gerardia *Agalinis acuta*	Endangered
		Seabeach amaranth *Amaranthus pumilus*	Threatened
		Shortnose sturgeon *Acipenser brevirostrum*	Endangered
		Small whorled pogonia *(Historic) Isotria medeoloides*	Threatened

4.1.7.2 Actions Required by the ESA. The Endangered Species Act (ESA) requires federal agencies, in consultation with the FWS and the NOAA Fisheries Service (National Marine Fisheries Service, or NMFS), "to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the

destruction or adverse modification of designated critical habitat of listed species."[201] The ESA prohibits the "taking" of an endangered animal or plant species. To "take" means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct."[202] "Harm", in turn, is defined broadly to include any "act which actually injures or kills wildlife. Such an act may include significant habitat modification or degradation by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering."[203]

4.1.7.3 The ESA in the Hydrokinetic Context. In determining whether a proposed project will implicate ESA requirements, the first step is to determine if any listed species, or species proposed to be listed, may be located at or in the vicinity of the proposed project site. Section 7 of the ESA requires agencies to consult with one another to ensure that the project will not "jeopardize" the "critical habitat" of endangered or threatened species.[204] This process, however, may be consolidated with the NEPA process.[205]

The federal agency involved and the project developer must obtain a list of endangered or threatened species and consult with the FWS and/or NMFS to determine whether any such impacts would occur. After consultation, the FWS and/or the NMFS will issue an opinion stating whether such impacts would occur or whether a biological assessment is required if endangered or threatened species are present.[206] The assessment must address the proposed action and determine whether it is likely to jeopardize the continued existence of a threatened or endangered species or adversely modify designated habitat.[207] An opinion that finds that an action may jeopardize a listed species does not necessarily kill a proposed action. Typically, the consulting federal agency will suggest reasonable and prudent alternatives that will safeguard the species. Additionally, observational studies and behavioral modeling may be required to determine the potential for harm to specific species based on physical contact with the hydrokinetic equipment (e.g., – fish strikes by turbine blades).

In the Verdant project, the Department of the Interior (DOI) suggested that Verdant review the Endangered Species List every 90 days because several species may be present in the project area at different times.[208] In comments, the DOI suggested that Verdant should conduct surveys of fish and wildlife species; evaluate the structural and operational impacts of the project on species that could be impacted; evaluate potential impacts on recreation and commercial fishing; and evaluate the impact of transmission lines and turbines on surrounding wetlands and riparian

[201] Fish and Wildlife Service, *Endangered Species Act of 1973*, http://www.fws.gov/laws/lawsdigest/ESACT.HTML (last visited Apr. 16, 2012); *see also* Environmental Protection Agency, *Summary of Endangered Species Act*, (February 24, 2012), http://www.epa.gov/lawsregs/laws/esa.html (last visited Apr. 16, 2012).
[202] Fish and Wildlife Service, *ESA Basics*, (June 2011), *available at* http://www.fws.gov/endangered/esa-library/pdf/ESA_basics.pdf.
[203] 50 C.F.R. § 17.3.
[204] 16 U.S.C. § 1536(a)(2).
[205] 50 C.F.R. § 402.06.
[206] 16 U.S.C. § 1536(b).
[207] Fish and Wildlife Service, *ESA Basics*, (June 2011), *available at* http://www.fws.gov/endangered/esa-library/pdf/ESA_basics.pdf.
[208] Federal Energy Regulatory Commission, *Comments on Verdant RITE Project*, 20090204-5030 / U.S. Department of the Interior, February 2, 2009.

wildlife.[209] The Verdant project addressed protected species concerns by completing two biological assessments for potentially impacted species, as well as conducting observational studies during turbine deployment to evaluate species interaction with the turbines. The first assessment addressed potential impacts to the two species of sturgeon by evaluating factors such as fish size, swimming speed, and turbine blade rotational speed and concluded there would be no significant impact to either species. The second assessment evaluated potential impacts to the four species of turtles based on observed foraging and migration patterns, and also concluded that there would be no significant impact to any of the turtles. In addition, Verdant provided a detailed review of other species that could be impacted by the project, and in its environmental assessment concluded "[n]o unavoidable adverse effects to any rare, threatened, or endangered species have been identified; however, not all project effects related to this new technology are known. In order to ensure the protection of rare, threatened, and endangered species over the course of the proposed RITE project, Verdant would continue ongoing consultations with resource agencies regarding these species."[210]

4.1.8 Magnuson-Stevens Fishery Conservation and Management Act

4.1.8.1 Locations of Essential Fish Habitat. The Magnuson-Stevens Fishery Conservation and Management Act requires the U.S. Secretary of Commerce to identify Essential Fish Habitat (EFH) to be regulated and protected under the Act.[211] Administered by the National Marine Fisheries Service (NMFS) and six regional fishery management councils, the Act defines EFH as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity",[212] and requires that such habitat be protected for federally designated species in marine and estuarine waters. Under federal regulations, inter-agency cooperation is required to identify action that may impact, and promulgate policies designed to protect Essential Fish Habitat.[213]

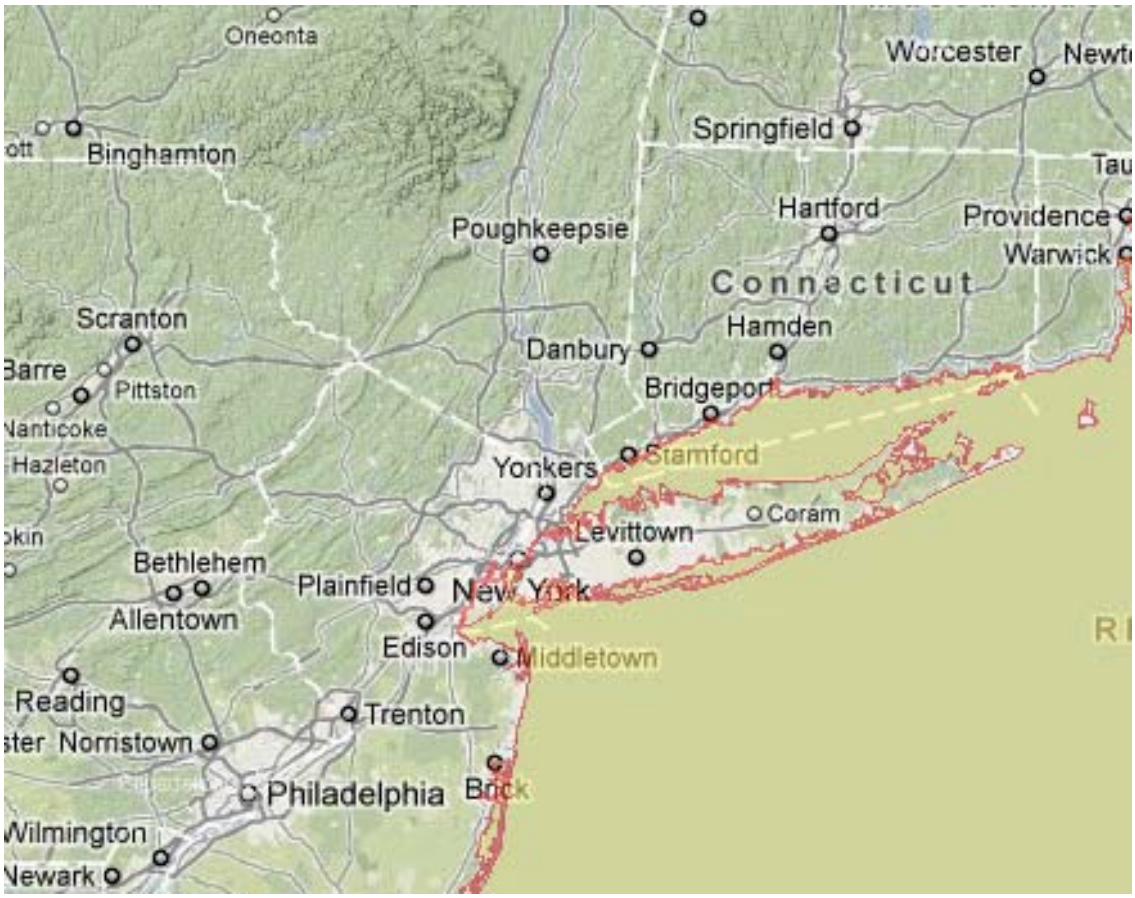
[209] *Id*.
[210] Federal Energy Regulatory Commission, *Environmental Assessment for Hydropower Pilot Project License - Roosevelt Island Tidal Energy Project*—FERC Project No. 12611-005, p. 71 (May 2011).
[211] 16 U.S.C. § 1855(b).
[212] 16 U.S.C. § 1802(10).
[213] 50 C.F.R. § 600.905.

Table 3. Essential Fish Habitat in East River [214]

Species	Eggs	Larvae	Juveniles	Adults
Red Hake		X	X	X
Winter Flounder	X	X	X	X
Windowpane Flounder	X	X	X	X
Atlantic Herring		X	X	X
Bluefish			X	X
Atlantic Butterfish		X	X	X
Atlantic Mackerel			X	X
Summer Flounder		X	X	X
Scup	X	X	X	X
Black Sea Bass			X	X
King Mackerel	X	X	X	X
Spanish Mackerel		X	X	X
Cobia	X	X	X	X
Sand Tiger	X	X		
Sandbar Shark		X		X
Clearnose Skate			X	X
Little Skate			X	X
Winter Skate			X	X

[214] Based on table in RITE Final Report March 2011, p. 23.

Figure 5. Map of Essential Fish Habitat in New York State[215]*



*Yellow areas indicate EFH

4.1.8.2 Actions that Trigger Magnuson-Stevens. If EFH is impacted, the project must comply with the relevant provisions of the Magnuson-Stevens Act. If the Secretary receives information from a council or federal or state agency or determines from other sources that an action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by any state or federal agency would adversely affect any essential fish habitat identified under this Act, the Secretary shall recommend to such agency measures that can be taken by such agency to conserve such habitat. Within 30 days after receiving such a recommendation, a federal agency shall provide a detailed response in writing to any council commenting under paragraph (3) and the Secretary of Commerce regarding the matter. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on *such habitat*. In the case of a response that is inconsistent with the recommendations of the Secretary, the Federal agency shall explain its

[215] National Oceanic and Atmospheric Administration, NOAA Fisheries, *Essential Fish Habitat Mapper*, http://sharpfin.nmfs.noaa.gov/website/EFH_Mapper/map.aspx (last visited Apr. 16, 2012).

reasons for not following the recommendations.

4.1.8.3 Magnuson-Stevens and Hydrokinetic Projects. To comply with Magnuson-Stevens, a hydrokinetic project proponent should conduct an essential fish habitat evaluation for the project site. If any federally listed habitats are found in the project area or close vicinity, the project proponent will need to evaluate the potential impacts the project may have on these habitats. Methods used may include surveys of existing populations of listed species, examination of existing habitats, and review of the impacts similar projects have demonstrated in comparable scenarios.

4.1.9 Marine Mammal Protection Act

4.1.9.1 Scope of Marine Mammal Protection Act**.** The Marine Mammals Protection Act places a moratorium on the taking, hunting, killing, capture, and/or harassment of marine mammals so as not to exacerbate the dangers posed to population stocks by human activity. Enforcement authority is split between the FWS and the NOAA. The Marine Mammal Commission (MMC) serves as an advising authority to the FWS and NOAA regarding actions and policies relating to the Marine Mammal Protection Act (MMPA). Under the MMPA, the FWS provides for the conservation and management of sea and marine otters, walrus, polar bears, three species of manatees, and dugong, while NOAA is responsible for seals, sea lions, whales, and dolphins. [216]

4.1.9.2 Actions that Trigger Requirements of Act**.** If a development project will result in a taking of any marine mammal, an exemption must be granted by the appropriate agency. An entity that is responsible for an otherwise legal project that will result in a taking may apply for an exemption, which may be granted or rejected based upon a number of factors. The applicable provisions regarding exemptions under the MMPA are found in 50 CFR Part 18, Subpart C, Section 18.27, under which the Director of the appropriate agency must consider certain criteria such as the species impacted by the project, the nature of the impact, and the extent to which the project will interfere with the normal life cycle of the species. After an initial agency determination and public comment period, the exemption may be granted or rejected based upon the final determination.

4.1.9.3 MMPA and Hydrokinetic Projects in New York**.** Hydrokinetic project proponents will need to consider the impact the project may have on marine mammals. The Verdant RITE project provides a good example of such an evaluation. Verdant's impacts evaluation focused on harbor seals because it is the only marine mammal species known to be present in Long Island Sound or New York Harbor. A similar approach is likely for any other project in Long Island Sound or New York Harbor. For the coastal area along Long Island and the Atlantic Ocean, additional species might require study.

[216] 50 C.F.R. Part 18.

4.1.10 National Historic Preservation Act

4.1.10.1 Scope of the National Historic Preservation Act. The National Historic Preservation Act (NHPA), passed in 1966, established the Advisory Council on Historic Preservation (ACHP). The ACHP is an independent federal agency with the mission of "promot[ing] the preservation, enhancement, and productive use of our nation's historic resources, and advises the President and Congress on national historic preservation policy."[217] Section 106 of the NHPA requires federal agencies to take the effect of their actions on historic properties into account and to allow the ACHP a chance to comment.[218] Public comment should also be solicited.[219] Section 101(b) of NHPA allows for the creation of State Historic Preservation Programs, under regulations promulgated by the ACHP. State plans that create a State Historic Preservation Officer (SHPO) to administer the state program create a review board, and allow for an acceptable level of public participation in the program will be accepted by the Secretary of the Interior.[220] Under such a State program, the SHPO is, among other duties, to conduct surveys of historic places and maintain a registry of such, and nominate historic properties to the National Register. The SHPO is also to consult with federal agencies fulfilling their duties under the NHPA.[221] Native American tribes may take over the SHPO's duties as described in the NHPA, and if this is the case, the program is overseen by a Tribal Historic Preservation Officer (THPO).[222]

4.1.10.2 Actions that Trigger Requirements of the NHPA. In order for Section 106 to apply, two conditions must take place: (1) there must be a "federal or federally licensed action, including grants, licenses, and permits," and (2) the action in question must potentially affect property currently on the National Register of Historic Places, or that would meet the criteria to be so listed.[223] The National Register covers "districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, engineering, and culture."[224] The state agency taking action must determine if these elements are met, and if they are, the agency must notify the SHPO/THPO.[225]

(a) *Determination.* In order to meet its responsibilities under NHPA, an agency must first determine if any historic properties meeting the National Register's criteria exist. Such determinations are made in consultation with the SHPO/THPO, other appropriate parties, through research etc. Both properties actually listed on the Register and those that meet the criteria for listing should be examined for adverse impact.[226]

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[217] The Act itself (NHPA) had the goal of having other federal agencies act as "responsible stewards" if their projects or other activities will affect "historic properties." The ACHP is to "encourage" other federal agencies to live up to this task and "advocate" for consideration of historic resource needs. ACHP, *About the ACHP: General Information*, http://www.achp.gov/aboutachp.html (last visited Apr. 16, 2012).
[218] ACHP, *Section 106 Regulations Summary*, http://www.achp.gov/106summary.html (last visited Apr. 16, 2012).
[219] *Id.* Regulations controlling the review process are found in 36 C.F.R. Part 800.
[220] 16 U.S.C. § 470a(b)(1).
[221] 16 U.S.C. § 470a(b)(3).
[222] 16 U.S.C. § 470a(d)(2).
[223] ACHP, *About the ACHP: General Information*, http://www.achp.gov/aboutachp.html (last visited Apr. 16, 2012).
[224] 16 U.S.C. § 470a(a)(1)(A).
[225] ACHP, *Section 106 Regulations Summary*, http://www.achp.gov/106summary.html (last visited Apr. 16, 2012).
[226] *Id.*

(b) *Consultation and Mitigation.* If there are historic properties that might be affected, then the agency, in consultation with the SHPO/THPO, must assess any potentially adverse effects its action may have on the property. If the parties cannot agree as to whether there will be an adverse effect, then ACHP decides the question. If an adverse effect is found, the agency must then determine methods of mitigating the effects. [227] Such mitigation analysis should be carried out in consultation with the SHPO/THPO and generally results in a Memorandum of Agreement that lays out the steps the agency must take. At times the ACHP may become involved if there is a possibility of significant impact, if important policy questions are implicated, or if the action affects Native American tribes. [228] If consultation between the agency and a historic preservation officer are not conclusive, any party may terminate the consultations. In such a case, the ACHP and the agency normally conclude the Memorandum of Agreement themselves, but if an Indian tribe is involved and the THPO terminates discussions, then the ACHP must provide written comments that must be considered by the agency head. [229]

4.1.10.3 NHPA and Hydrokinetic Projects in New York. Whether the NHPA would apply in hydrokinetic projects would depend upon whether any property would be affected that is either listed in the National Register of Historic Places, or that meets the criteria for listing. There are numerous guides to the National Register's criteria, but ultimately the decision of whether an object can be listed would be dependent upon analysis conducted by the federal agency in consultation with the SHPO/THPO and other knowledgeable parties. However, the National Park Service's guide does give canal systems and irrigation systems as examples of districts that might be protected. [230] Therefore, depending upon the hydroelectric site in question, it is possible that an argument might be made that the waterway itself might meet the criteria for inclusion in the Registry. If not, it is possible that if project's construction would impact structures or buildings on the banks that meet the criteria for inclusion, then the agency would need to analyze its activity under the NHPA. Such structures can include those that are traditionally near waterways such as dams, canals, boats and ships bridges, earthworks, and lighthouses. [231]

The Commissioner of the New York State Office of Parks, Recreation and Historic Preservation serves as the State's Historic Preservation Officer (SHPO). [232] The State's Historic Preservation Office (also shortened to SHPO) administers programs falling under the NHPA as well as the New York State Historic Preservation Act of 1980. [233] The New York State Historic

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[227] *Id.*
[228] *Id.*
[229] *Id.*
[230] U.S. Dept. of the Interior, National Park Service, *How to Define Categories of Historic Properties*, http://www.nps.gov/nr/publications/bulletins/nrb15/nrb15_4.htm (last visited Apr. 16, 2012).
[231] *Id.* Further, the fact that NHPA specifically requires review if Native American tribes are affected may come into play depending on the siting of a project. There are cases where federal agencies were required to consult with SHPO/THPOs over water projects. For example, in Snoqualmie Indian Tribe v. F.E.R.C., 545 F.3d 1207 (9th Cir. 2008), FERC was required to consult with the Tribe regarding a hydroelectric plant near a sacred waterfall.
[232] *See* New York State Office of Parks, Recreation, and Historic Preservation, *National Register*, http://nysparks.state.ny.us/shpo/national-register/ (last visited Apr. 16, 2012).
[233] *See* New York State Office of Parks, Recreation, and Historic Preservation, *State Historic Preservation Office*, http://www.nysparks.com/shpo/ (last visited Apr. 16, 2012).

Preservation Act requires State agencies to consult with the SHPO in the same manner that federal agencies are required to do under the NHPA. [234] New York's historic property environmental review process is described as follows by the New York State Office of Parks, Recreation, and Historic Preservation: [235]

- National Register Unit determines if property in question is either listed in the National or State Register of Historic Places, or if it meets the criteria for listing. Criteria are the same for both the National and State Registers. [236]
- If the property meets this requirement, then the Technical Services Unit looks to see ***if the proposed project will affect those aspects of the historical property that make it eligible for listing.***
- If the project will involve construction or significant expansion of existing structures, the Archeology Unit will analyze the project to see if it "falls within a known area of archeological sensitivity." [237]

4.2 State Regulations and Policies

4.2.1 Federal vs. State Authority: Preemption, CWA and CZMA. The web of issues related to jurisdiction and statutory authority to regulate can be quite complicated, especially since this is a relatively new area where these relationships are still evolving. The following represents a summary of some of the key jurisdictional and statutory relationships as they currently stand.

4.2.1.1 Federal vs. State Jurisdiction Regarding Licensing and Land. FERC preemption fixes once an applicant is issued a license. Therefore, if an applicant for a hydrokinetic project has a preliminary permit, the state retains its authority over the applicant's activities, as long as the project is to be located within the state's jurisdictional waters. If the applicant requires any state permits in order to conduct any preliminary testing or research to gather data in preparation for a permit, the applicant would be subject to the State Environmental Quality Review Act in New York State. Once the applicant obtains a FERC license, however, federal preemption applies. The State would retain its ability to issue or deny CWA §401 water quality certification and coastal zone consistency review approval under the CZMA, both of which are required before a project can move forward. There are also implications depending upon where the hydrokinetic project is to be located. For example, if a project is to be located on the outer continental shelf, then the Department of the Interior's Bureau of Ocean Energy Management would be responsible for leasing the land. If the project is to be located within the

[234] *See* New York State Office of Parks, Recreation, and Historic Preservation, *Federal and State Preservation Legislation*, http://www.nysparks.com/shpo/environmental-review/preservation-legislation.aspx (last visited Apr. 16, 2012).
[235] *See* New York State Office of Parks, Recreation, and Historic Preservation, *Environmental Review*, http://www.nysparks.com/shpo/environmental-review/ (last visited Apr. 16, 2012).
[236] *See* New York State Office of Parks, Recreation, and Historic Preservation, National Register, http://nysparks.state.ny.us/shpo/national-register/ (last visited Apr. 16, 2012).
[237] New York State Office of Parks, Recreation and Historic Preservation, *Historic Preservation Office: Environmental Review*, http://nysparks.com/shpo/environmental-review/default.aspx?print=1 (last visited Apr. 16, 2012).

State's jurisdictional waters, the New York State Office of General Services must issue an easement for use of lands under water, including laying cables. [238]

4.2.1.2 Federal vs. State Statutory Authority. Despite federal preemption, states retain the right to issue CWA §401 water certification permits and approval under its consistency review required under the CZMA. Because these permits and approvals are required by FERC in order for a hydrokinetic project to be licensed, states wield substantial authority over whether a project can move forward. [239] Part of the review under §401 requires the state to find that "there is a reasonable assurance that the activity will be conducted in a manner which will not violate applicable water quality standards." [240] In addition, under the CWA, any terms the state requires to be included in the §401 permit must be incorporated into the federal license. [241] Under §10(j) of the Federal Power Act, FERC is required to consult with both state and federal fisheries organizations and consider their recommendations as part of their EAs.

4.2.2 New York State Office of General Services. Most navigable waters (including the beds) are State-owned, with the titles held in public trust. As such, applicants seeking to develop projects on state-owned lands (shoreline to three miles out) must obtain an easement from the New York State Office of General Services. [242] Easements are necessary for "intake and discharge pipes, pipelines, cables and conduit lines…for the use and occupation of land underwater." [243] It is important to note, however, that Long Island's underwater land ownership presents a unique situation. While, as noted above, the state typically owns lands to three miles out from shore, colonial patents were issued in Nassau and Suffolk counties conveying ownership of lands underwater to the towns. The towns, in turn, hold the lands in trust for the public good. Therefore, those wishing to lease land within these waters must approach the appropriate town for approval in part to ensure that the public trust doctrine is upheld. According to a recent case involving the Town of Oyster Bay, "In keeping with this public trust, legislation authorizes the Town Board to lease the Town's common lands, including the foreshore, for oyster culture and other uses, and requires the Town Board to hold a hearing when it receives applications from prospective lessees." [244]

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[238] New York State Office of General Services, *Land Management: Easements, Grants, Licenses and Permits*, http://ogs.ny.gov/BU/RE/LM/EGLP.asp (last visited Apr. 16, 2012). Also see New York State Office of General Services, *Instructions for Application for Use of Land Underwater*, *available at* http://www.ogs.ny.gov/BU/RE/LM/Docs/EasementPipeline.pdf.

[239] In the case of CZMA, however, the Department of Commerce may independently or upon appeal approve a project even if a state objects if the Department finds that it meets the CZMA objectives or is in the national interest. Stoel Rives, LLP, *The Law of Marine and Hydrokinetic Energy: A Guide to Business and Legal Issues*, Chapter 3, p. 10, (2011), *available at* http://www.stoel.com/webfiles/Lawofmarine.pdf.

[240] 40 C.F.R. § 121.3(a)(3).

[241] 33 U.S.C. § 1341(d).

[242] "Structures, including fill, located in, on, or above State-owned lands underwater are regulated under the Public Lands Law and may require authorization from the state in the form of a license, grant or easement." New York State Office of General Services, *Land Management: Easements, Grants, Licenses, And Permits*, http://www.ogs.ny.gov/BU/RE/LM/EGLP.asp (last visited Apr. 16, 2012). Authority to make leases, easements etc., for public lands, including those under water, is given by New York Public Lands Law, Article 2, Section 3, Subdivision 2.

[243] Verdant Power, LLC, *Draft Kinetic Hydropower Pilot License Application*, Volume 1, p. 3 (November 2008).

[244] *Town of Oyster Bay v. Commander Oil Corp.*, 759 N.E.2d 1233, 1236 (NY 2001).

4.2.3 Interconnection for Hydrokinetic Projects in New York. New York has specific procedures for connecting new distributed generation facilities to the existing electric grid, outlined in the New York Standard Interconnection Requirements (SIR). First enacted in December 1999, the SIR are regularly updated to reflect developments in generation technology and amendments to the New York Public Service Law (NYPSL). On September 23, 2011, NYPSL §66-j was amended to extend net metering to micro-hydroelectric [245] facilities of up to 2MW generating capacity, [246] and a subsequent Order by the New York Public Service Commission (PSC) directed that the SIR be modified to reflect the inclusion of micro-hydroelectric facilities. [247] This order directed the six major New York electric utilities to revise their tariffs to provide for net metering of micro-hydroelectric facilities, and stipulated that the SIR would be revised upon the approval of the utility tariff submissions. The tariff amendments were approved in a March 16, 2012 PSC Order, [248] and the SIR were amended accordingly.

Under the current New York SIR, [249] revised April 1, 2012, a micro-hydroelectric facility with a generation capacity of up to 2MW may connect to existing utility distribution systems, pending the approval of the relevant utility and interconnection oversight by the New York Department of Public Service. Interconnection of residential installations, classified as facilities with a rated generation capacity of 25kW or less, is effected through a relatively simple and inexpensive application process, detailed in Part I of the SIR. The process is more complex for facilities classified as non-residential (i.e., those with a generation capacity between 25kW and 2MW), involving additional steps, more expensive interconnection equipment and system modifications, and a more thorough review process, also detailed in Part I of the SIR. Upon completion of the application process and connection to the grid, facilities must maintain certain operational and safety standards, such as maintaining voltage output within a specified range and installing automatic disconnect devices. These criteria vary according to the particular type of generation facility in question, and are listed in Part II the SIR. Maintaining interconnection is contingent

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[245] As defined in New York Public Service Law § 66-j, micro-hydroelectric is

> a hydroelectric system (i) (A) in the case of a residential customer, with a rated capacity of not more than twenty-five kilowatts; and (B) in the case of a non-residential customer, with a rated capacity of not more than two thousand kilowatts; and (ii) that is manufactured, installed, and operated in accordance with applicable government and industry standards, that is connected to the electric system and operated in conjunction with an electric corporation's transmission and distribution facilities, and that is operated in compliance with any standards and requirements established under this section.

4 NYPSL § 66-j(h).

[246] *Id*.

[247] NY PSC Order, Cases 11-E-0318 *et al*., Nov. 21, 2011, *available at* http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B987C6818-0D05-4F18-B7E0-30240893FE45%7D.

[248] NY PSC Order, Cases 11-E-0318 *et al.*, Mar. 16, 2012, *available at* http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B610C1437-7CA7-411D-8F4F-EBFA951B2CA6%7D.

[249] New York State Public Service Commission, *New York State Standardized Interconnection Requirements and Application Process for New Distributed Generators 2 MW or Less Connected in Parallel with Utility Distribution Systems*, Apr. 1, 2012, *available at* http://www3.dps.ny.gov/W/PSCWeb.nsf/96f0fec0b45a3c6485257688006a701a/dcf68efca391ad6085257687006f396b/$FILE/Modified%20SIR%20-%20April%202012%20-%20Draft%20CL.pdf.

upon continued compliance with the specific criteria of the SIR and the requirements set forth in New York Public Service Law § 66j.

4.3 Citizen Participation

Stakeholder involvement is critical to ensuring that the various impacts of a hydrokinetic installation are fully considered. One of the ways citizens can participate is through the FERC licensing process. During the pre-filing ("portion of the licensing process between an applicant's submission of a notice of intent to file a license application and the filing of the actual license application") [250] and post-filing phases, FERC seeks input from the public. [251]

During pre-filing, citizens may: (1) "[p]rovide written comments documenting your concerns with, or support for, the project"; (2) "[p]rovide oral comments and ask questions of Commission staff and the applicant at public scoping meetings and the site visit"; and (3) "[s]ubmit study requests and participate in work groups during study plan development." [252] During post-filing, citizens may "[p]rovide written comments on the license application, which may include your recommendations for measures to be included as license conditions"; and "[p]rovide written comments on the Commission's environmental documents." [253] The environmental documents referred to include any Environmental Assessments or Environmental Impact Statements required under NEPA.

FERC regulations also permit parties to intervene in a proceeding. [254] Intervening in a case allows people to participate "in a proceeding and have the right to request rehearing of Commission orders and seek relief of final agency actions in the U.S. Circuit Courts of Appeal," and this includes the right to comment on an application. [255] An intervenor must make a motion containing information described by the FERC regulations within the proper timeframe as designated in a notice issued by FERC (often 30 days from issuance of the notice that an application for a project has been received). [256]

In addition, citizens may participate in public comment opportunities provided at the state level, specifically for the CWA §401 water quality certification and CZMA consistency approval. In New York State, the Uniform Procedures Act (UPA) dictates the public comment requirements associated with CWA §401 water quality certification. [257] The purpose of the UPA is to allow for efficient procedures for processing permits while at the same time ensuring public participation.

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[250] Federal Energy Regulatory Commission, *Hydropower Licensing - Get Involved: A Guide for the Public*, p. 21, *available at* http://www.ferc.gov/for-citizens/citizen-guides/hydro-guide.pdf.
[251] *Id*. at 10.
[252] *Id*.
[253] *Id*.
[254] 18 C.F.R. § 385.214
[255] Federal Energy Regulatory Commission, *How to Intervene*, (February 7, 2012), http://www.ferc.gov/help/how-to/intervene.asp (last visited Apr. 16, 2012).
[256] 18 C.F.R. § 385.210.
[257] 6 NYCRR § 621.

Under the UPA, "major" projects require the full range of public participation opportunities described under 6 NYCRR §621.7, which includes providing notice to the head of the municipality where the project is located, issuance of a notice in the Environmental Notice Bulletin which includes a project description and contact information, and a deadline for submission of written comments from the public. [258] CWA §401 water quality are specifically listed as "major" projects under the UPA, so citizens will always have the opportunity to participate in approving this certification through public comment. [259]

The FERC Pilot license and DEC Water Quality certification process requires a significant amount of, and opportunity for, stakeholder, public outreach and scientific expert review during the course of the regulatory review process. The responsibility for the ongoing enforcement of adaptive management decisions rests with the resource agency technical experts, working with the licensee/permittee who may be asked to call on other experts from areas other than agency representatives to be involved in the decision-making process. Adaptive management implies that monitoring protocols and studies are changed – either modified, expanded or completed based on the technical evaluation of observations effects. While post license monitoring doesn't involve the same level of notice and comment as pre-issuances, most monitoring protocols require ongoing interaction with resource agencies, and public communication is widely used as a tool for information about the progress of the pilot effort and adaptive management. Moreover, stakeholders can subscribe to the docket and receive copies of every submission electronically, and licensees are mandated to communicate with stakeholder groups regarding safeguard plans and other issues. Public comment, through the FERC or New York State WQC program is available at any time pre or post license for disposition by the regulatory agencies and the licensee or permittee.

Under the CZMA, states must provide an opportunity for the public to comment on a consistency determination. [260] CZMA regulations provide, among other things, that states must issue a public notice providing sufficient information in order for the public to make well-informed comments. [261] The public participation procedures for New York State may be found in its coastal management program. They state that notice will be made in the State Register as well as the DOS website, and the public comment period will typically last 30 days, but will be at least 15 days. [262]

5 INTERNATIONAL ISSUES

FERC is empowered to issue licenses not only to citizens and corporations, but also to municipalities, including agencies of a U.S. state. As such, FERC would have jurisdiction to

[258] 6 NYCRR § 621.7(a)-(b).
[259] 6 NYCRR § 621.2(r).
[260] 40 CFR § 930.2.
[261] 40 CFR § 930.42.
[262] *New York State Coastal Management Program and Final Environmental Impact Statement*, Section 9, p. 10, (August 13, 1982), *available at* http://www.dos.ny.gov/communitieswaterfronts/pdfs/NY%20CMP%20.pdf.

issue licenses to a municipality or state agency wishing to jointly develop a project (including, presumably, hydrokinetic projects) with a foreign nation. However, the international compact with the foreign nation would be signed by the U.S. federal government and not by the state agency or municipality. [263]

Furthermore, if a project is located jointly between the U.S. and another nation, FERC would still have jurisdiction over the portion of the project located within the U.S. [264] However, there is a question of what portion of a project located in U.S. waters would trigger FERC jurisdiction. Specifically, the question is whether the portion of an international project located in U.S. waters must generate electricity in order to trigger FERC jurisdiction. In *Domtar Maine Corp. v. FERC*, the Court declined to overturn FERC's interpretation of its own ruling, finding that FERC's jurisdiction over a "non-generating installation" is not removed simply "because the generating facilities to which the installation was connected were themselves exempt from the licensing requirement" (as they would be if they were located in a foreign nation). [265] As such, FERC would appear to have licensing authority over the non-generating portions of international hydrokinetic projects, although it is somewhat unclear as to whether all non-generating project portions would be subject to FERC licensing.

If a hydrokinetic project was to be installed in a body of water shared by the U.S. and Canada, it is likely that the International Joint Commission (IJC) would be involved. The IJC was established by the 1909 Boundary Waters Treaty (the Treaty) to address issues relating to the use of waters shared by both the U.S. and Canada. [266] According to the Treaty:

> "It is agreed that, in addition to the uses, obstructions, and diversions heretofore permitted or hereafter provided for by special agreement between the Parties hereto, no further or other uses or obstructions or diversions, whether temporary or permanent, of boundary waters on either side of the line, affecting the natural level or flow of boundary waters on the other side of the line shall be made except by authority of the United States or the Dominion of Canada within their respective jurisdictions and with the approval, as hereinafter provided, of a joint commission, to be known as the International Joint Commission." [267]

Regarding its specific work, "the IJC licenses and regulates uses, obstructions, or diversions of boundary waters in one country that affect water levels and flows on the other side of the boundary. The IJC provides advice to and conducts studies at the request of the U.S. and Canadian governments on critical issues of joint concern, and apportions waters in transboundary

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[263] *Lake Ontario Land Development and Beach Protection Ass'n v. Federal Power Commission*, 93 U.S. App. D.C. 351 (C.A.D.C. 1954), cert. denied, 347 U.S. 1015.
[264] *Id.*
[265] *Domtar Maine Corp. v. FERC*, 347 F.3d 304, 311 (C.A.D.C. 2003).
[266] Full name: "Treaty Between the United States and Great Britain Relating to Boundary Waters, and Questions Arising Between the United States and Canada." International Joint Commission, http://www.ijc.org/rel/agree/water.html (last visited Apr. 16, 2012).
[267] *Id*. at Article III.

river systems."[268] Importantly, the Treaty "gives the IJC the responsibility to approve applications for and oversee the operation of hydropower dams and other infrastructure projects in waters along the U.S.-Canadian border…"[269] This authority has required IJC involvement in hydroelectric projects along the Niagara and St. Lawrence Rivers, such as the Niagara Power Project and the St. Lawrence Power Project.[270]

Currently, there are three hydrokinetic preliminary permits pending in New York State between the U.S. and Canada – one on the St. Lawrence River and two on the Niagara River[271] – and two issued in New York State along the Niagara River between the U.S. and Canada.[272] While the international implications of these or any other hydrokinetic projects has not yet been directly addressed, it is highly likely that the IJC would be involved in the same manner as it currently is for other hydroelectric projects because of the hydrokinetic turbines' impacts on flow.

6 CONCLUSIONS

New York State has set ambitious goals for increasing the amount of electricity delivered in the State from renewable sources. To date, most new renewable generation has come from onshore wind generation and a small amount of biomass-fired generation. If the State is to achieve its 30-by-15 goal, and continue to exceed that goal in the future, other types of cost-effective renewable energy will be needed. Hydrokinetic electricity generation has the potential to contribute to New York State's renewable energy mix.

A key question for future hydrokinetic development is whether current renewables policies will sufficiently drive investments in hydrokinetic projects. Experience to date suggests that a diverse renewable energy portfolio can be challenging without targeted policies and incentives to promote specific types of projects. Solar photovoltaic systems, for example, have seen the most robust growth in states with solar-specific policies, such as special targeted renewable portfolio standard tiers.

As the regulatory and policy review set out above reveals, the siting of a hydrokinetic electric generating facility involves a lengthy process governed largely by the FERC but also involving several New York State agencies – most notably the DEC – each of which has federal approvals to make in the case of most hydrokinetic projects. Despite the decidedly federal nature of most of the approvals necessary to site a project, New York State stakeholders and agencies will both play a big role in future hydrokinetic proposals.

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[268] U.S. Department of State, *American Sections, International Commissions*, p. 699, *available at* http://www.state.gov/documents/organization/137847.pdf.
[269] *Id*.
[270] Both operated by the New York Power Authority (NYPA).
[271] Federal Energy Regulatory Commission, *Hydrokinetic Projects*, *Pending Hydrokinetic Projects Preliminary Permits*, (April 10, 2012), *available at* http://www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics.asp.
[272] Federal Energy Regulatory Commission, *Hydrokinetic Projects*, *Issued Hydrokinetic Projects Preliminary Permits*, (April 10, 2012), *available at* http://www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics.asp.

Given the number of agencies and potential stakeholders involved in an individual project proposal, improvements in the approvals process may come from strong coordination among agencies. New York State could enter into a memorandum of understanding with FERC to clearly define roles for the review of hydrokinetic projects. Within the State, agencies could coordinate review of projects, including stakeholder engagement, to ensure that State roles are executed in an efficient and timely manner.

Many of the key regulatory and policy issues relate to a project's impacts on water quality, coastal zones, and fish and wildlife. Much of the time and effort invested in project approvals by developers is dedicated to measuring, monitoring and minimizing the environmental impacts of projects. As a result, analytical studies to better understand background conditions in the State's waterways could speed consideration of an individual project's impacts would help all projects.

During the May 17, 2012 workshop, participants were asked to consider ways to improve the process for hydrokinetic facility siting in New York State. Among the opportunities for changes are the following, which were put forward for purposes of discussion:

- Energy policy drivers. Should New York, other states, and the federal government implement policies to promote hydrokinetic projects as part of a diverse portfolio of renewable energy sources?

- Ensuring efficient coordination between FERC staff and State agencies. Should the State enter into a memorandum of understanding with FERC to clarify respective roles in the review and approval of hydrokinetic projects?

- Ensuring efficient coordination across State agencies and stakeholders. Should State agencies with regulatory purview over projects establish a coordinated effort to engage project proponents, FERC staff and New York stakeholders?

- Improving technical background knowledge to speed understanding of impacts. What background analyses would aid in consideration of the environmental impacts of future projects? Would background monitoring of the State's waterways make sense, including monitoring of protected species and habitat?

- Map or zone waterways for hydrokinetic facilities. Would resource mapping and spatial planning help identify areas most appropriate for hydrokinetic projects?

- Nationwide CWA 404 permit for small hydrokinetic projects. Should the Army Corps and EPA issue a nationwide general permit covering minor dredging activities associated with hydrokinetic projects?

- Clarify New York State's jurisdictional and policy perspective on Clean Water Act 401 authority. Given recent activity relative to the relicensing proceeding for the Indian Point nuclear power plant units, clarification of the State's current approach to 401 water quality certifications might help future project developers.

List of Acronyms

ACELA	American Clean Energy Leadership Act
ACES	American Clean Energy and Security Act
ACHP	Advisory Council on Historic Preservation
ALP	Alternative Licensing Process
APA	Administrative Procedures Act
BOEM	Bureau of Ocean Energy Management
CAC	New York Climate Action Council
CAP Report	New York Climate Action Plan Interim Report
CE	Categorical Exclusion
CMP	Coastal Management Program
CMSP	Coastal and Marine Spatial Planning
ConEd	Consolidated Edison
Corps	U.S. Army Corps of Engineers
CEQ	Council on Environmental Quality
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DEIS	Draft Environmental Impact Statement
DEC	New York State Department of Environmental Conservation
DOE	U.S. Department of Energy
DOI	U.S. Department of Interior
DOS	New York State Department of State
DSIRE	Database of State Incentives for Renewable Energy
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
FONSI	Finding of No Significant Impact
FPA	Federal Power Act
FWS	U.S. Fish and Wildlife Service
IJC	International Joint Commission
ILP	Integrated Licensing Process
KHPS	Kinetic Hydropower System
LWRP	Local Waterfront Revitalization Programs
MHK	Marine Hydrokinetic Energy
MMA	Main Maritime Academy
MMC	Marine Mammal Commission
MMPA	Marine Mammal Protection Act
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act

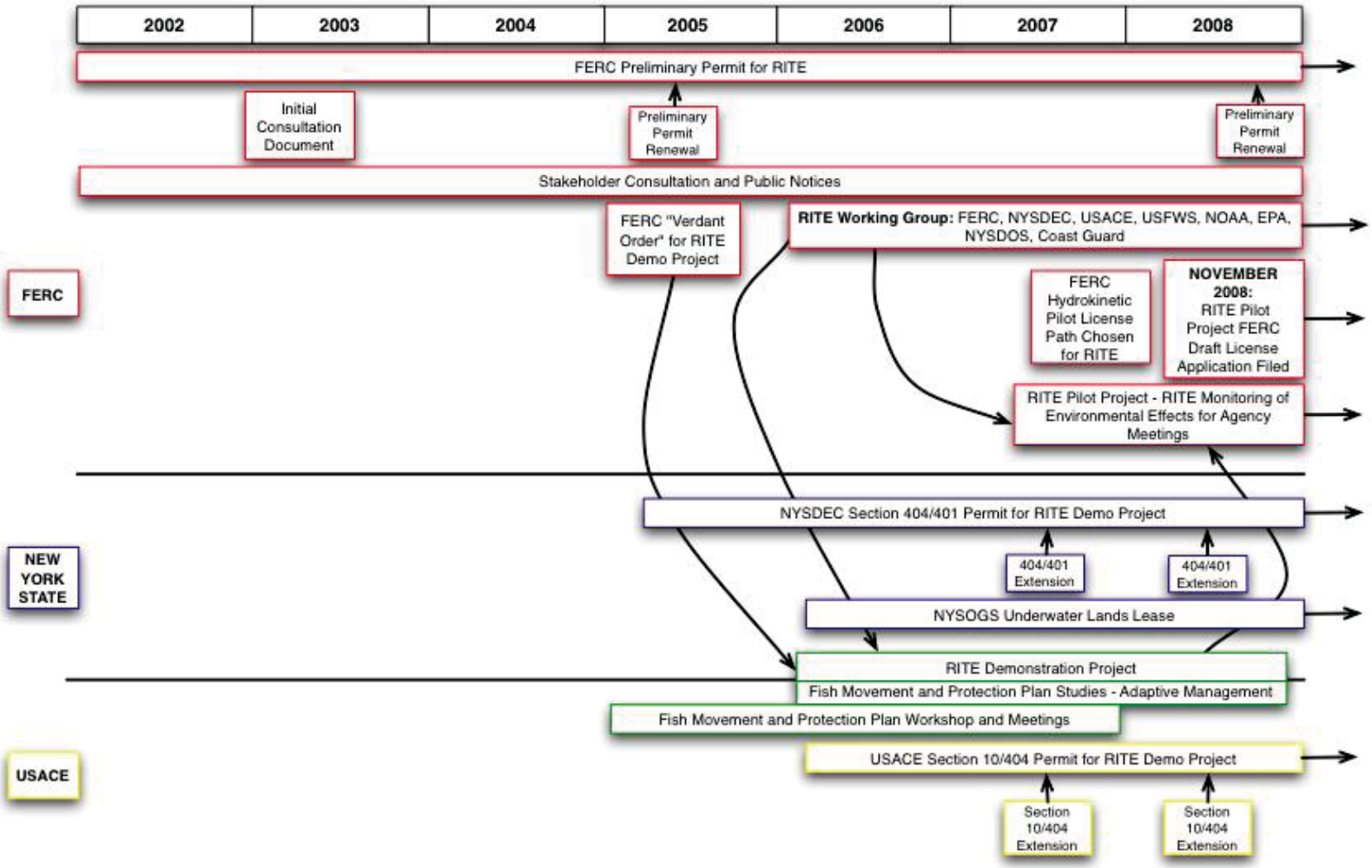
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOC	National Ocean Council
NOI	Notice of Intent
NOP	National Ocean Policy
NWP	Nationwide Permit Program
NYPSL	New York Public Service Law
NYSERDA	New York State Energy Research and Development Authority
OCS	Outer Continental Shelf
OEP	FERC Office of Energy Projects
PSC	New York Public Service Commission
REA	Ready for Environmental Analysis
RES	Renewable Energy Standard
RHA	Rivers and Harbors Act
RITE	Roosevelt Island Tidal Energy Project
ROD	Record of Decision
RPS	Renewable Portfolio Standard
SEP	New York State Energy Plan
SEQRA	New York State Environmental Quality Review Act
SHPO	State Historic Preservation Officer
SIR	New York Standard Interconnection Requirements
Task Force	Interagency Ocean Policy Task Force
TLP	Traditional Licensing Process
THPO	Tribal Historic Preservation Officer
UPA	New York State Uniform Procedures Act

Appendix A: Verdant Regulatory Process [273]

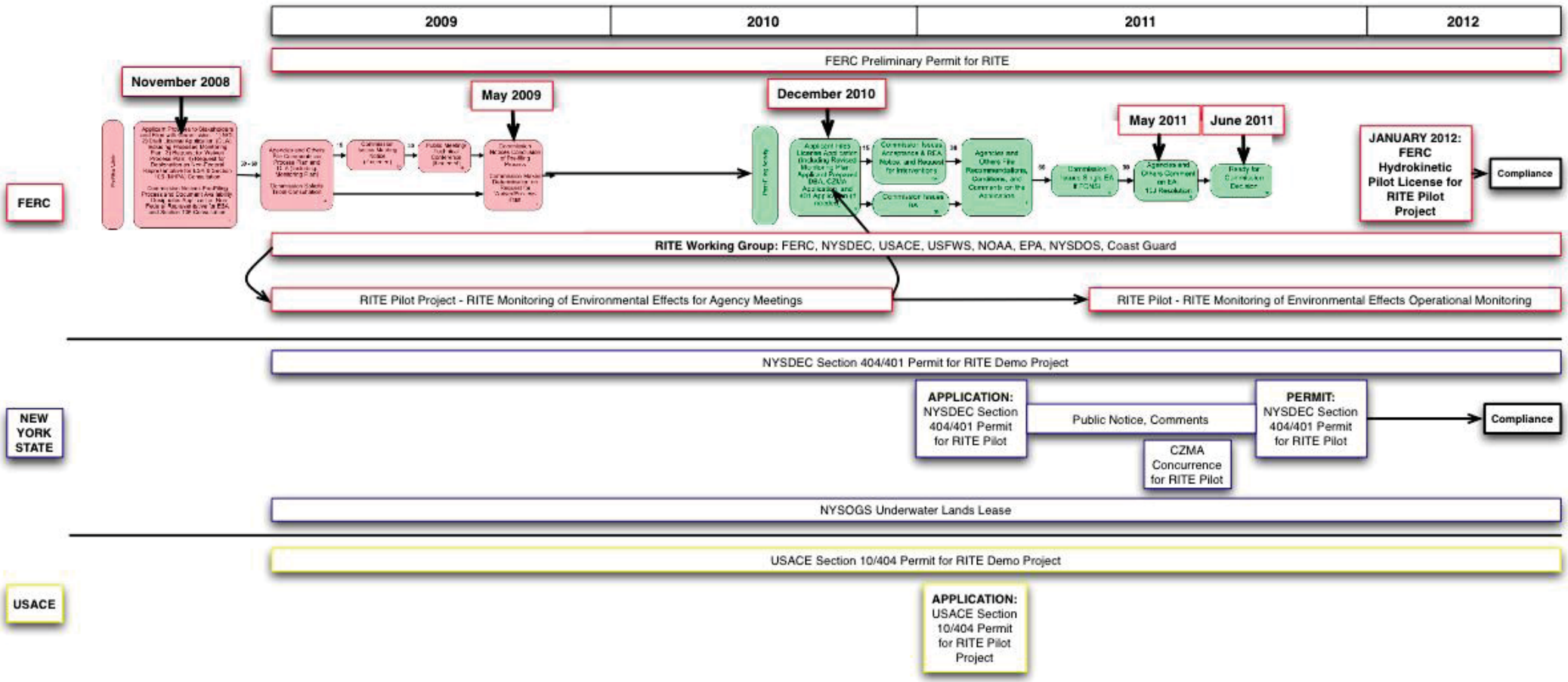
Below are flowcharts demonstrating the regulatory processes Verdant underwent related to its demonstration project and pilot project. It is important to note, however, that these processes were specific to this project and are not necessarily indicative of what another developer may encounter when developing a hydrokinetic power project in New York State.

[273] These flowcharts were developed by Ocean Renewable Energy Coalition (OREC) and Verdant Power, Inc. and may be in the companion technology primer, *Ocean Renewable Energy Coalition and Verdant Power, Marine Hydrokinetic Technology—Background and Perspective for New York State*, pp. C-9-C-10.

Regulatory Activity Related to RITE Demonstration



Regulatory Activity Related to RITE Pilot Project



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17 Columbia Circle
Albany, New York 12203-6399

toll free: 1 (866) NYSERDA
local: (518) 862-1090
fax: (518) 862-1091

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

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Andrew M. Cuomo, Governor

A Review of Regulatory and Policy Requirements for Hydrokinetic Power Projects in New York State

Final Report
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New York State Energy Research and Development Authority
Francis J. Murray, Jr., President and CEO