Department of Energy
Washington, DC 20585

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Greater Atlantic Regional Fisheries Office
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Subject: Re-initiation of Section 7 Consultation for the Champlain Hudson Power Express Project
Docket No. DOE/EIS-0447-SA-01
Docket No. PP-481-1

Dear Ms. Crocker and Ms. Greene:

On October 6, 2014, the U.S. Department of Energy (DOE) issued Presidential Permit No. PP–362 authorizing Champlain Hudson Power Express, Inc. (CHPEI) to construct, operate, maintain, and connect the Champlain Hudson Power Express Project (Project). As an administrative matter, please note that on April 6, 2020, CHPEI filed an application for transfer of the permit from CHPEI to its affiliate Champlain Hudson Power Express, LLC (CHPE, LLC or the Applicant), and the Presidential Permit docket number was changed to PP-481.[1]

The Project as permitted by DOE, the U.S. Army Corps of Engineers (USACE) and the New York State Public Service Commission (NYSPSC) comprises a 1,000-megawatt high-voltage direct current (HVDC) transmission system extending approximately 333 miles from the United States' (U.S.) border with Canada to a converter station to be constructed in Astoria, Queens, New York; a 3-mile long high-voltage alternating current transmission system extending from the proposed converter station to an existing substation in Astoria; and ancillary facilities such as temporary work areas, contractor yards, laydown areas, and access roads.

On September 25, 2020, CHPE submitted an application to DOE to amend their existing Presidential Permit PP-481. A copy of DOE's "Notice of Application to Amend Presidential Permit; CHPE, LLC" (85 FR 62721; October 5, 2020) is provided as Attachment 1.

The Applicant's Presidential Permit amendment application,[2] provided as Attachment 2, describes eight proposed route modifications (Putnam Station, Fort Ann, Schenectady, Selkirk Rail Yard, Catskill Creek, Rockland County, Harlem River Yard, and Astoria Rainey Cable) and

[1] PP-481 is available here: https://www.energy.gov/oe/services/electricity-policy-coordination-and-implementation/international-electricity-regulatio-3
[2] The Presidential Permit Amendment Application is available here: https://www.energy.gov/oe/services/electricity-policy-coordination-and-implementation/international-electricity-regulation/pending-applications

a proposed relocation of the site of the converter station. These proposed modifications are succinctly described, along with associated maps, on pages 5 through 24 of Attachment 2.

The applicant has also identified a modified construction method along overland sections of the route that involves installing the cables within a conduit within the established trench. The proposed width and depths of the trenches would remain unchanged from those associated with the previous direct burial technique. Construction of the Project would entail installation of buried transmission cables along waterways and within the rights-of-way of existing transportation infrastructure, including railroads and roadways located within the State of New York. This approach would minimize the visual and landscape impacts associated with traditional overhead transmission lines, while simultaneously providing the additional capacity required to meet the increasing clean energy demands of the greater New York City metropolitan area.

DOE is conducting a Supplement Analysis, which is a document that DOE prepares in accordance with DOE National Environmental Policy Act (NEPA) regulations (10 CFR 1021.314(c)) to determine whether an existing environmental impact statement (EIS) should be supplemented; a new EIS should be prepared; or no new NEPA documentation is required. The purpose of this letter is to request re-initiation of the Endangered Species Act (ESA) Section 7 consultation process to address these modifications.

Documentation of the previous ESA Section 7 Consultation is available on DOE's CHPE EIS Document Library at: http://chpexpresseis.org/library.php.

The proposed modifications to the existing Presidential Permit do not affect the routing within waters where species jurisdictional to NOAA are located other than a minor (less than 1,000 feet) decrease in the length of the transmission system installed in the Hudson River south of Haverstraw Bay and the utilization of horizontal directional drill (HDD) technology to install the transmission cables under these waters. However, while there was not federally-designated critical habitat for marine species within the Project area at the time of the development of the BA, in 2017 NOAA designated critical habitat for five distinct population segments (DPS) of Atlantic sturgeon, including the Hudson River as far upriver as the Federal Dam at Troy, New York.[3] Therefore, as required by the ESA, the DOE is reinitiating consultation with NOAA Fisheries regarding the Project's potential impact to this habitat.

Federally Designated Critical Habitat

On February of 2012, NOAA listed DPSs of Atlantic sturgeon under the ESA: four were listed as endangered (New York Bight DPS and Chesapeake Bay DPS; 77 FR 5880; February 6, 2012; Carolina DPS and South Atlantic DPS; 77 FR 5914; February 6, 2012) and one as threatened (Gulf of Maine DPS; 77 FR 5880; February 6, 2012). Consistent with the requirements of section 4(b)(2) of the ESA, in 2017, NOAA designated critical habitat for this species based on the best available scientific data and after taking into consideration the economic impact, impact on national security and any other relevant impacts, of specifying any particular area as critical

[3] NOAA Fisheries. 2017a. Endangered and Threatened Species; Designation of Critical Habitat for the Endangered New York Bight, Chesapeake Bay, Carolina and South Atlantic Distinct Population Segments of Atlantic Sturgeon and the Threatened Gulf of Maine Distinct Population Segment of Atlantic Sturgeon. Finalized August 17, 2017. See: https://www.federalregister.gov/documents/2017/08/17/2017-17207/endangered-and-threatened-species-designation-of-critical-habitat-for-the-endangered-new-york-bight.

habitat.[4] Once critical habitat is designated, section 7(a)(2) of the ESA requires Federal agencies to ensure that any action they fund, authorize or carry out is not likely to destroy or adversely modify that habitat. This requirement is in addition to the section 7(a)(2) requirement that Federal agencies ensure that their actions are not likely to jeopardize the continued existence of ESA-listed species.

The lifecycle of the Atlantic sturgeon within the Project area is described in Section 3.1.3 of the BA (see Attachment 3) and so is only briefly summarized here. An anadromous species, Atlantic sturgeon spawns in freshwater of rivers that flow into a coastal estuary. Spawning generally occurs between May and July in the Hudson River, with eggs being deposited on hard-bottom substrate (e.g., cobble, coarse sand, and bedrock). After hatching, larval fish move their way downstream over time and, as they grow, become more tolerant of brackish and saline waters until they reach sub-adulthood and move into the open ocean. Atlantic sturgeon are bottom-feeders that suck food into their mouths. Adults feed primarily on benthic worms (e.g., polychaetes), crustaceans, and mollusks. Juvenile Atlantic sturgeon feed on aquatic insects, insect larvae, and small invertebrates.

Potential Effects on Federally Listed Species and Critical Habitat

While critical habitat had not been identified at the time of the initial consultation, the habitat needs of the Atlantic sturgeon were known and considered in the BA. For the Gulf of Maine, New York Bight, and Chesapeake Bay DPSs, NOAA identified four physical features that support the life history needs of the species.[5] Each of these are described below, with a discussion of the Project's expected impacts to each based on the BA's findings.

Hard bottom substrate (e.g., rock, cobble, gravel, limestone, boulder, etc.) in low salinity waters (i.e., 0.0-0.5 parts per thousand range) for settlement of fertilized eggs, refuge, growth, and development of early life stages:

The applicant would bury the cable where possible, as burial provides the greatest protection against interactions with vessels (e.g., anchor drops or snags).[6] The transmission cables would be buried to depths of at least 4 to 8 feet (1.2 to 2.4 meters) to prevent disturbance to the cables from unrelated marine operations in the waterways.[7] The Project has been sited so that, according to the broadscale sediment type data from the New York State Department of Environmental Conservation Hudson River Estuary Program, the sediments along the transmission line route primarily consist of sand, sandy mud, muddy sand, and mud.[8] The marine survey conducted by the applicant resulted in only two sediment cores in the Hudson River containing cobble or gravel in surficial sediments, located at approximate MP 234.[9]

Where the transmission cables cross bedrock (approximately 11 locations in the Hudson River) or an existing utility such as a pipeline or another cable (approximately 66 locations in the Hudson River), they would be laid over the rock or existing utility and a protective covering, such as an

[4] NOAA Fisheries. 2017b. Designation of Critical Habitat for the Gulf of Maine, New York Bight, and Chesapeake Bay Distinct Population Segments of Atlantic Sturgeon ESA Section 4(b)(2) Impact Analysis and Biological Source Document with the Economic Analysis and Final Regulatory Flexibility Analysis Finalized June 3, 2017. See: https://repository.library.noaa.gov/view/noaa/18671.
[5] Ibid., page 21.
[6] DOE, 2014, page 5-13, lines 20-22.
[7] Ibid., page 2-4, lines 41-43.
[8] Ibid., page 4-2, lines 5-6.
[9] Ibid., page 5-7, lines 44-46.

articulated concrete mat, would be installed over the cable crossing.[10] Concrete mat coverage would be small relative to the total available habitat, with approximately 1.8 miles (2.9 km) and 1.7 acres (0.7 hectares) of concrete mats installed in the 88-mile (142-km) aquatic portion of the project route in the Hudson River.[11] Installation of these materials could cause a permanent change in benthic habitat from soft sediments to the hard substrate of the concrete mats within the footprint of the concrete mats.[12] Physical surveys, including diver surveys of each utility, would be performed prior to cable installation in an attempt to reduce the requirement for concrete mats and avoid rock outcroppings wherever possible.[13]

Because cobble and gravel are not common within the transmission line route, and rock outcroppings would be avoided wherever possible, the BA concluded that the effects on sturgeon spawning habitat are expected to be negligible.[14]

Aquatic habitat with a gradual downstream salinity gradient of 0.5 up to as high as 30 parts per thousand and soft substrate (e.g., sand, mud) between the river mouth and spawning sites for juvenile foraging and physiological development:

The Project would not affect the salinity of the Hudson River; therefore, this feature is not affected by the Project.

Water of appropriate depth and absent physical barriers to passage (e.g., locks, dams, thermal plumes, turbidity, sound, reservoirs, gear, etc.) between the river mouth and spawning sites necessary to support: (1) unimpeded movements of adults to and from spawning sites; (2) seasonal and physiologically dependent movement of juvenile Atlantic sturgeon to appropriate salinity zones within the river estuary, and; (3) staging, resting, or holding of subadults or spawning condition adults. Water depths in main river channels must also be deep enough (e.g., at least 1.2 m) to ensure continuous flow in the main channel at all times when any sturgeon life stage would be in the river:

The Project would not affect water depths or present a physical barrier to passage. The transmission cables would be buried to a depth of 4-8 feet where feasible. After completion of in-water activities in a given area, "estuarine depositional processes would, over time, return the benthic habitat to its pre-construction condition."[15] Where burial to full depth is not possible due to an obstruction (*e.g.*, bedrock, utility), a protective covering would be placed over the cable. The concrete mats would extend up to 9 inches (23 cm) above the river bottom.[16] In either circumstance, the transmission system would not present a physical barrier to movement and water depths within the Hudson River would remain consistent with current conditions.

In terms of turbidity, sediment disturbance would primarily occur during the pre-installation grapnel run (to remove debris) and installation via jet plow.[17] The sediment plume is expected to be relatively localized given the depth and width of the Hudson River (i.e., it is not expected to

[10] Ibid., page 2-7, lines 3-6.
[11] Ibid., page 5-12, lines 41 – 44.
[12] Ibid., page 5-13, lines 34-35.
[13] Ibid., page 5-13, lines 22-24.
[14] Ibid., page 5-8, lines 1-3.
[15] Ibid., page 5-8, lines 5 – 6.
[16] Ibid., page 5-13, lines 35 - 36.
[17] Ibid., page 2-4, lines 37-43.

consume the entire river).[18] While the plume is 500 feet (152 meters) wide (defined at the edges by TSS concentrations of 15 mg/L above background), maximum concentrations would range from 80 to 200 mg/L above background only in the water column immediately above the sediment bed where the jet plow would be operating. The expected disturbance associated with the debris removal is expected to be similar to the jet plow with a similar or smaller impact corridor.[19] The Hudson River already typically experiences periods of naturally occurring increases in suspended sediments from storm events and Atlantic sturgeon are tolerant of suspended sediment at the levels that are temporarily generated by marine construction activities.[20, 21] Based on the localized and temporary nature of any sediment suspension (i.e., the plume would persist for 9 hours, given 24-hour per day installation operations), no hindrance of sturgeon movements is expected during underwater cable installation. Turbidity associated with anchors, the installation of sheet pile for cofferdams and dredging is expected to be similar, with expected turbidity levels of less than 50 mg/L above background diminishing to 5 to 10 mg/L above background within a few hundred feet.[22] Given that water jetting and other activities associated with installation of the transmission line would result in suspended sediment levels of less than 200 mg/L, the BA concludes that the impacts on sturgeon are expected to be negligible.[23]

In addition, in consultation with NOAA the Project has established construction work schedule windows identifying times of the year when work associated with the underwater portion of the transmission line may take place.[24] These established work windows and time of year restrictions were developed in part to avoid impacts on overwintering, spawning migrations, spawning activity, and larval stages of ESA-listed fish species. This approach is consistent with NOAA's recommendation that the USACE employ time of year ''windows'' for dredging.[25] As such, the BA concludes that temporary increases in turbidity are expected to have no effect on sturgeon spawning habitat.[26]

While restricting construction activities to specific construction windows protects spawning adults, eggs, and larvae from April through August, installation activities could occur where juveniles are expected to occur.[27] However, juvenile sturgeon are expected to be able to outswim the installation rate of the jet plow during the September through November installation period.[28] As juvenile and adult sturgeon are highly mobile and would be able to move into adjacent areas away from construction-related activities, the BA concludes the impacts are expected to negligible.[29]

Riverbed disturbance would also include the redeposition of suspended sediment. The estimated thickness of the sediment as it settles back to the riverbed would not be expected to exceed 0.4 inches (10 millimeters). Over the 94 miles (151 km) of the Hudson and Harlem rivers that would be plowed during installation of the transmission line, approximately 32 acres (13 hectares)

[18] Ibid., page 5-10, lines 32-39.
[19] Ibid., page 5-5, lines 31-39.
[20] Ibid., page 5-8, lines 45-46.
[21] Ibid., page 5-11, lines 7-9.
[22] Ibid., page 5-10, lines 6-7.
[23] Ibid., page 5-11, lines 15-17.
[24] Ibid., page 2-18, lines 15 – 26.
[25] NOAA Fisheries. 2017a.
[26] Ibid., page 5-11, lines 19-20.
[27] DOE, 2014, page 5-4, lines 20 - 23.
[28] Ibid., page 5-4, lines 34 to 46 and page 5-5, lines 8-10.
[29] Ibid., page 5-11, lines 4 – 6.

would accumulate 0.2 inches (5 millimeters) or greater increase in sediment depth. The majority of the sediment redeposition would occur in the 569-acre (230-hectare) area that would be disturbed by the jet plow.[30] The effects of increased sedimentation on fish could include reduced water quality, reduced ability to locate food, decreased gas exchange, toxicity to aerobic species, reduced light intensity in the water column, physical abrasion, smothering of benthic and demersal species present at the time of the activity and, for some species, the potential to cover demersal eggs that remain on the bottom until larval hatching. However, in areas where deposition of suspended sediments could impact demersal fish eggs and larvae, the BA concludes that the proposed construction windows are during the early spring which would avoid or minimize the potential impacts associated with sediments covering these eggs.[31]

Contaminants that occur in the sediments could be mobilized and become bioavailable as a result of sediment disturbance during installation of the transmission line. Water quality modeling for the proposed transmission cable installation indicates that concentrations of PCBs would not exceed the water quality standards established by the State of New York account for long-term, chronic exposures of aquatic life to PCBs.[32] Additionally, as the Project would not exceed other water standards, the BA concludes that the impacts from the resuspension of contaminated sediments on sturgeon and sturgeon prey are expected to be insignificant.[33]

In terms of sound, continuous noise associated with vessels and machinery would result from the installation of the transmission line under all proposed installation methods and the vibratory installation of the sheet piles that compose the cofferdams. Noise could also result from cavitations (i.e., the sudden formation and collapse of low-pressure bubbles in the water from rotation of the vessel propeller) during vessel starts and stops.[34] The primary source of underwater noise during cable installation activities is expected to be the cable-laying vessel, which is expected to be similar to that of other ships and vessels already operating in the area.[35] As the Hudson River is subject to substantial commercial and recreational vessel noise and the anticipated noise levels associated with cable laying are relatively minimal, the BA concludes that any incremental sound associated with vessel traffic related to the cable installation is not expected to affect sturgeon. Additionally, the previously discussed construction windows have been developed to avoid impacts on sensitive life stages of sturgeon.[36]

Blasting would be required within a portion of the Harlem River to achieve the burial depth required by the USACE.[37] The blasting program in the Harlem River is estimated to take up to 10 weeks, requiring approximately 300 drill holes with each drill taking 30 to 60 minutes to complete.[38] Nominal noise, vibration, and turbidity are expected from the drilling process, which would employ small diameter drill holes (~1.5 inches) that generate a small amount of suspended sediment. Behavioral effects by fish species are expected to be localized.[39] Measures to startle fish or keep fish away immediately prior to blasting activities, such as use of sparkler guns or bubble curtains, would be used as conditions dictate. Additionally, rock drilling would only occur

[30] Ibid., page 5-6, lines 31-37.
[31] Ibid., page 5-6, lines 46-49.
[32] Ibid., page 5-12, lines 20-26.
[33] Ibid., page 5-12, lines 33-35.
[34] Ibid., page 5-14, lines 40-44.
[35] Ibid., page 5-15, line 46 – page 5-16, line 2.
[36] Ibid., page 5-16, lines 35-46.
[37] Ibid., page 2-16, lines 26-27.
[38] Ibid., page 2-17, lines 4-7.
[39] Ibid., 5-17, lines 17-20.

in the Harlem River, where the presence of adult sturgeon is expected to be rare, and outside of the designated critical habitat. As such, the BA concludes that the potential for blasting in the Harlem River to adversely affect sturgeon is so low, it is discountable.[40]

Operation of the proposed Project transmission line would produce magnetic fields, but electric fields are not anticipated due to cable shielding and burial.[41] The estimated magnetic field levels at the riverbed surface directly over the transmission line centerline were calculated to be less than 162 mG at a burial depth of 3.25 feet (1.0 meter) and a cable spacing of 1 meter, although the expected burial depth in the Hudson River is approximately 7 feet (2.1 meters).[42] Laboratory experiments that indicate that magnetic fields can affect the behavior of adult fish and the development of eggs and larvae used exposures orders of magnitude higher than the magnetic field strengths of those expected from the proposed CHPE Project transmission line.[43] Lake sturgeon exhibited temporarily altered swimming behaviors in response to AC-generated EMF that ranged from 35,100 mG to 1,657,800 mG, and EMF responses disappeared below 10,000 to 20,000 mG.[44] Therefore, the BA concludes that the negligible increase in magnetic field associated with the CHPE transmission line is expected to have no effects (short-term or long-term) on eggs, larvae, or adults.[45]

In addition, a weak induced electric field would be generated from that magnetic field and this induced electric field can be detected by certain aquatic organisms. However, the change in the induced electric field calculated from the proposed Project is a small increase (17 percent) over that produced by the ambient geomagnetic field and quickly diminishes with distance from the transmission cables.[46] The induced electric field from the Earth or the transmission cables is also considerably weaker than the electric field measured over certain marine sediments.[47] Therefore, the BA concludes that the increment in the ambient marine electric field even over the buried cable would not be a unique or novel stimulus nor would it be strong enough to produce physiological responses.[48] Available data also is consistent with the idea that a behavioral response of sturgeon to the induced DC electric field from the proposed Project in the Hudson River, if any, is more likely be an investigative response (temporary and time-limited because of habituation) than a feeding response associated with the low-frequency AC field such as those produced by the bioelectric electric field produced by fish prey that would be more persistent.[49]

Water, between the river mouth and spawning sites, especially in the bottom meter of the water column, with the temperature, salinity, and oxygen values that, combined, support: (1) spawning; (2) annual and interannual adult, subadult, larval, and juvenile survival; and (3) larval, juvenile, and subadult growth, development, and recruitment (e.g., 13° C to 26° C for spawning habitat and no more than 30° C for juvenile rearing habitat, and 6 mg/L or greater dissolved oxygen for juvenile rearing habitat):

[40] Ibid., 5-18, lines 7-8.
[41] Ibid., page 2-12, lines 14-18.
[42] Ibid., page 5-21, lines 42-44.
[43] Ibid., page 5-22, lines 40-42.
[44] Ibid., page 2-13, lines 33-35.
[45] Ibid., page 5-22, lines 43-44.
[46] Ibid., page 5-23, lines 31-43.
[47] Ibid., page 5-24, lines 10-16.
[48] Ibid., page 5-24, lines 14-16.
[49] Ibid., page 5-24, lines 26-30.

The potential thermal impacts associated with the Project are comprehensively addressed in the BA on pages 5-25 to 5-26. It is estimated that for cable burial at 4 and 8 feet, the maximum expected temperature change would be less than 0.001 °F (0.0001 °C and 0.0002 °C, respectively) in the water above the riverbed, approximately 1.8 °F (1.20 °C and 1.24 °C, respectively) at the riverbed surface, and 9 °F and 4 °F (5.0 °C and 2.5 °C), respectively, at 8 inches (0.2 meters) below the riverbed surface.[50] However, these estimated rises in riverbed surface temperature and the increase in the water column are an overestimation of the natural condition because they do not taken into account the cooling effect from the natural flow of the Hudson River. The predicted amount of local heat generation would not pose a physical barrier to fish passage and would allow benthic organisms to colonize and demersal fish species (including demersal eggs and larvae) to use surface sediments without being affected.[51] Impacts on reproduction or feeding are not anticipated, and therefore, the BA concludes impacts on fish would also be negligible.[52]

Where the transmission cables cannot be buried to their full depth due to utilities or bedrock and must be covered with concrete mats, the estimated increase in ambient water temperature surrounding the cables covered by the concrete mats is expected to be negligible (less than 0.25 °F [0.14 °C]).[53] This is expected to be within the range of the seasonal variation of water temperatures experienced in the Hudson and Harlem rivers. The highest increase in ambient temperature in the top 2 inches (5 cm) of sediment along the sides of the concrete mat is expected to be 1.3 °F (0.7 °C) or less (Exponent 2014).[54] Because the area of concrete mats is so small, the BA concludes any effects would be localized and not expected to have significant impacts on sturgeon.[55]

Any negligible amount of local heat generated by operation of the proposed Project transmission line would not pose a physical barrier to ESA-listed fish passage, would only occur directly adjacent to the transmission line, and would allow benthic organisms to recolonize and demersal fish species (including demersal eggs and larvae) to utilize surface sediments without being affected.[56] Impacts on reproduction or feeding are not anticipated, and, therefore, the BA concludes that the effects on ESA-listed fish would be insignificant.[57] The Project would have no impact on salinity or oxygen values.

Next Steps

I'll follow-up with you directly to discuss this matter at your earliest convenience. You may also contact me at any time at 202-586-2942 or Melissa.Pauley@hq.doe.gov.

Sincerely,

Melissa Pauley

Melissa Pauley

[50] Ibid., 2014, page 5-25, lines 9-13.
[51] Ibid., page 5-25, lines 15-18.
[52] Ibid., page 5-26, lines 31-33.
[53] Ibid., page 5-25, lines 25-32.
[54] Ibid., page 2-12, lines 5-6.
[55] Ibid., page 5-25, lines 30-32.
[56] Ibid., page 5-26, lines 28-33.
[57] Ibid., page 5-25, lines 18-19.

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Enclosures:
Attachment 1: Federal Register Notice for Application to Amend Presidential Permit
Attachment 2: Application for Amendment to Presidential Permit
Attachment 3: Revised Biological Assessment

cc: Stephan A. Ryba, Chief-Regulatory Branch, NY District, USACE
Amanda Regan, Project Manager-Eastern Section, NY District, USACE
Josh Bagnato, Vice President, Project Development, Transmission Developers, Inc.