

MEMORANDUM FOR RECORD

SUBJECT: Department of the Army Environmental Assessment and Statement of Findings for the Above-Referenced Standard Individual Permit Application

This document constitutes the Environmental Assessment, 404(b)(1) Guidelines Evaluation, as applicable, Public Interest Review, and Statement of Findings for the subject application.

The construction, connection, operation, and maintenance of the proposed electric transmission facility at the proposed location for the U.S.-Canada international border crossing at Beattie Township will require authorization from the United States Department of Energy (DOE) in the form of a Presidential permit. The applicant applied to DOE on July 27, 2017 for a Presidential permit for the proposed Project in accordance with Executive Order (EO) 10485 (September 3, 1953), as amended by EO 12038 (February 3, 1978), and the regulations at 10 Code of Federal Regulations (CFR) 205.320 et seq. (2000), "Application for Presidential Permit Authorizing the Construction, Connection, Operation, and Maintenance of Facilities for Transmission of Electric Energy at International Boundaries." As required by 10 CFR 205.320(a), any entity "who operates an electric power transmission or distribution facility crossing the border of the United States, for the transmission of electric energy between the United States and a foreign country, shall have a Presidential permit." The DOE Office of Electricity, Transmission Permitting and Technical Assistance Division, is responsible for reviewing Presidential permit applications and determining whether to grant a permit for electric transmission facilities that cross the United States' international border. The Presidential permit Docket Number for this project is PP-438. DOE will author an independent assessment in support of their permit decision and pursuant to the National Environmental Policy Act (NEPA).

1.0. Introduction and Overview: Information about the proposal subject to one or more of the Corps Regulatory authorities is provided in Section 1, detailed evaluation of the activity is found in Sections 2 through 11 and findings are documented in Section 12 of this memorandum. Further, summary information about the activity including administrative history of actions taken during project evaluation is attached (ORM2 Summary) and incorporated in this memorandum.

1.1 Applicant: Central Maine Power Company (CMP or Applicant), 83 Edison Drive, Augusta, Maine 04336;

Application number: NAE-2017-01342

1.2 Activity location: Multiple locations of aquatic resources from Beattie Township to Lewiston, Maine

- Aquatic resources between Beattie Township, Maine (United States Geological Survey ("USGS") Boundary Pond quadrangle sheet; Lat/Long

45.5165 60°N; - 70.187398°W) and Lewiston, Maine (USGS Lake Auburn East quadrangle sheet; Lat/Long 44.140075°N; - 70.719526°W)

- Aquatic resources between Lewiston (USGS Lake Auburn East quadrangle sheet; Lat/Long 44.140075°N; -70.719526°W) and Pownal (USGS North Pownal quadrangle sheet; Lat/Long 43.931707°N; - 70.204229°W); and
- Aquatic resources between Windsor (USGS Weeks Mills quadrangle sheet; Lat/Long 44.286523°N; -69.562329°W) and Wiscasset (USGS Westport quadrangle sheet; Lat/Long 43.9532 14°N; -69.696120°W).

- 1.3 **Description of activity requiring permit:** Pursuant to our authority under Section 404 of the Clean Water Act (33 U.S. Code § 1344) and Section 10 of the Rivers & Harbors Act of 1899 (33 U.S. Code § 403), the New England District proposes to authorize the discharge of fill material into waters of the U.S. and work under a navigable water of the U.S. associated with the New England Clean Energy Connect (NECEC) power line project within the State of Maine. The applicant proposes to construct a 144.9-mile long, 320 kilovolt (kV) High Voltage Direct Current (HVDC) transmission line from Beattie Township to Lewiston; a converter station to convert the Direct Current (DC) electricity to Alternating Current (AC) electricity on Merrill Road in Lewiston; a new substation on Fickett Road in Pownal; and a new 26.5-mile, 345-kV AC transmission line from the existing Coopers Mills Substation in Windsor to the existing Maine Yankee Substation in Wiscasset. The applicant also proposes to rebuild several existing transmission lines and upgrade three substations.

The Project is being proposed in response to a Request for Proposals (RFP) for Long-Term Contracts for Clean Energy Projects from the State of Massachusetts. The clean energy delivered by the Project is intended to provide firm, guaranteed, and tracked year-round energy deliveries that will reduce winter electricity price spikes, improve system reliability and resiliency, and provide renewable energy certificates and other environmental attributes to help Massachusetts meet its greenhouse gas (GHG) emissions reduction goals. CMP will not seek any cost recovery from Maine customers for the Project. Rather the Project will be paid for entirely by an affiliate of Hydro-Québec and Massachusetts ratepayers.

The NECEC project will result in direct and indirect, permanent and temporary impacts to aquatic resources associated with construction and upgrade of transmission lines and the construction of substations or converter stations including impacts to freshwater wetlands. A total of 4.87 acres of jurisdictional wetlands will be permanently impacted and 47.64 acres will be temporarily impacted. Permanent fills are limited in size and are at separate and distinct locations along the corridor, and include minor fills for substation construction or limited pole placement in wetlands (ranging from approximately 30 to 195 square

feet of fill per structure). An additional 111.55 acres of forested wetlands will be affected by clearing and conversion to scrub-shrub and emergent cover types. This area for total wetlands converted includes 105.25 acres of forested wetland, 3.678 acres of forested wetland habitat proximate to vernal pools, and 2.622 forested wetland associated with state mapped Inland Waterfowl & Wading Bird Habitat (IWWH).

The USACE authority in this activity is limited to jurisdictional work beneath a navigable water and discharges of fill into waters of the U.S. Large portions of the project, approximately 98%, are outside waters of the U.S. and the USACE has no authority in these upland areas. The administrative record indicates:

- For the approximately 8,600 acres of total land associated with the project, only approximately 1,500 acres constitute waters of the U.S. (approximately 17%). Only approximately 1.9% of the project will result in impacts to waters of the U.S.
- Of the 1404 wetlands located within the transmission line portions of the project area (202.83 miles, inclusive of rebuild sections), only 82 (5.84%) will be impacted in part by permanent fill.
- Of the total amount of forest conversion for the project (approximately 1,038 acres), only 111.55 acres are waters of the U.S. (approximately 11%).
- Of the 1,450 transmission poles proposed by the applicant, only 98 (6.7%) will be located in wetlands. Permanent wetland fill for the transmission line portions of the project is limited to a 30 to 195 square foot area per transmission line structure, for a total of approximately 0.15 acres.
- Approximately 15.95 acres of land will be developed for the converter station, substation, and termination station components (i.e., station development sites) of the Project. Only two of the eight converter or substations will impact waters of the U.S. With the addition of access road related impacts for one of the two HDD termination stations, a total of 4.72 acres of wetland will be permanently filled for these elements of the project.
- A total of 757 vernal pools are located within the project area, only 83 of which (11%) will be impacted by permanent fill. Of the 83, only four will have permanent fill in the pool depression and the remaining 79 will be indirectly impacted by permanent fill in the 100 foot vernal pool envelope surrounding the depression. Permanent fill in each of these areas is approximately 50 square feet on average. USACE jurisdiction is limited to only those pools which are considered waters of the U.S.

- Of 742 waterbodies (rivers, streams, and open water areas) within the project area, only an estimated 224 will be temporarily spanned for access during construction. There will be no regulated discharge or activities in these 224 crossings. For all unavoidable crossings, the streams will be spanned with temporary bridges. At the Kennebec River, a HDD will be utilized to cross beneath the bed of the river. None of the four open water areas will require construction crossings, however they will be spanned by transmission lines.

The following discussion of project elements includes activities that do not impact navigable or other waters of the U.S. They are presented to provide context only, otherwise they are outside USACE jurisdiction and authority.

The HVDC portion of the transmission line will be placed on single steel poles that will average approximately 100 feet tall and will be spaced approximately 1,000 feet apart. The new 345-kV lines and the reconstructed 115-kV lines will be constructed on a variety of different structures, with variable heights including 125-foot tall steel structures, 80-foot tall single pole structures, 75-foot tall, wooden H-frames, and 45-foot tall, wooden, single pole structures. The applicant has divided the project into five transmission line segments and construction or upgrades of substations. CMP is the developer of the portion of the NECEC Project from the Québec-Maine border to the Lewiston, Maine area and all transmission upgrades on the U.S. side of the border. The facilities on the U.S. side of the border are entirely located in Maine. The NECEC Project will cross the Québec-Maine border in Beattie Township. The Québec portion of the NECEC Project will be constructed, owned, and operated by Hydro Québec TransEnergie, Inc., an affiliate of Hydro Québec and Hydro Renewable Energy, Inc.

- Segment 1. Segment 1 starts at the Maine/Québec border in Beattie Township and continues within a 300-foot wide right-of-way (ROW) to The Forks Plantation. Segment 1 is an approximately 53.1-mile long, 320-kV DC transmission line. The applicant proposes to use the southernmost 150 feet of the ROW for the Segment 1 corridor. This segment is located primarily in working forest. Segment 1 includes aerial crossings of 481 freshwater wetlands; 300 rivers, streams, or brooks, of which 223 contain coldwater fisheries habitat, including the Upper Kennebec River, which is a state listed Outstanding River Segment; and six Inland Waterfowl and Wading Bird Habitats (IWWH). These aerial crossings do not include impacts to waters of the US, thus these resources have been avoided. Segment 1 does include 8.24 acres of forested conversion to a scrub shrub or emergent habitat type; and 110 Vernal Pools with associated cover type conversion. Segment 1 includes a Horizontal Directional Drill (HDD) beneath the Kennebec River, a navigable water of the US. The

HDD includes a termination station on each side of the river, access to one of which requires 0.26 acres of permanent wetland fill.

- Segment 2. Segment 2 extends from The Forks Plantation to the Wyman Substation in Moscow and is a 21.9-mile long, 320-kV DC transmission line. The applicant proposes to co-locate Segment 2 with the existing line that runs from Harris Dam to the Wyman Substation. The corridor within the existing utility ROW is 150' wide presently and will be widened by an average of 75 feet to accommodate co-location of the proposed transmission line. Segment 2 includes aerial crossings of 146 freshwater wetlands; and 71 rivers, streams, or brooks, 46 of which contain coldwater fisheries habitat. These aerial crossings do not include impacts to waters of the US, thus these resources have been avoided. Segment 2 does include two IWWHs with 1.13 acres of conversion; and 18 Vernal Pools with associated cover type conversion.
- Segment 3. Segment 3 runs from the Wyman Substation in Moscow to the proposed Merrill Road Converter Station in Lewiston. This segment of the HVDC line is 69.9 miles long and is co-located with transmission lines in an existing ROW. It will be widened similarly to Segment 2. This segment also includes the rebuilding of 0.8 miles of 345-kV AC line outside the Larrabee Road Substation and constructing 1.2 miles of new 345-kV AC transmission line from the Merrill Road Converter Station to the Larrabee Road Substation. Segment 3 includes aerial crossings of: 489 freshwater wetlands; 234 rivers, streams, or brooks, of which 84 contain coldwater fisheries habitat, including the Kennebec River, the Carrabassett River, and the Sandy River, which are state listed Outstanding River Segments. These aerial crossings do not include impacts to waters of the U.S., thus these resources have been avoided. Segment 3 includes nine IWWHs with 5.65 acres of conversion; and 381 Vernal Pools. With the exception of areas within 100 feet of coldwater fisheries and 75 feet of other rivers, streams and brooks, the corridor will be widened an average of 75 feet and maintained as scrub/shrub vegetation following construction. Within 100 feet of coldwater fisheries and 75 feet of other rivers, streams, and brooks, the applicant proposes to remove all woody vegetation during initial clearing for construction and subsequently allow non-capable woody vegetation to grow up to 10 feet tall within the wire zone.
- Segment 4. Segment 4 consists of rebuilding 16.4 miles of 115-kV AC transmission line between the Larrabee Road Substation and the Surowiec Substation; rebuilding 9.3 miles of 115-kV AC transmission line between the Crowley's Substation and the Surowiec Substation; and constructing 0.3 miles of new 345-kV AC transmission line from the Surowiec Substation to a proposed substation on Fickett Road in Pownal. Segment 4 will require approximately 1.4 acres of new clearing, resulting

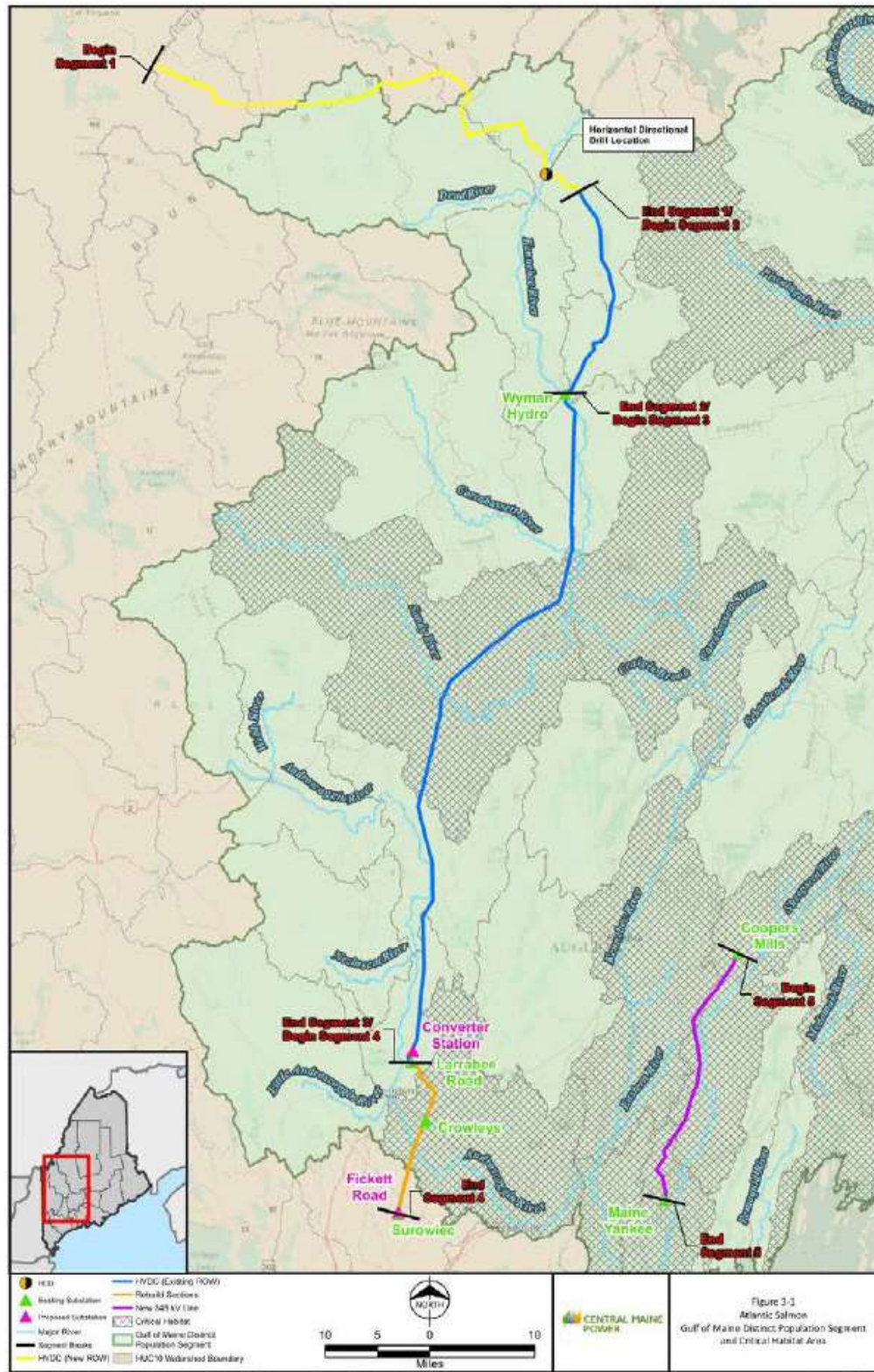
in 4.4 acres of impact to Vernal Pool habitat from cover type conversion and 0.03 acres of wetland fill. Segment 4 includes aerial crossings of: 129 freshwater wetlands; and 33 rivers, streams, or brooks, 3 of which contain coldwater fisheries habitat. These aerial crossings do not include impacts to waters of the US, thus these resources have been avoided. Segment 4 does not include any IWWHs, yet includes 6 Vernal Pools with associated cover type conversion.

- Segment 5. Segment 5 consists of a proposed 26.5-mile long 345-kV AC transmission line from the existing Coopers Mills Substation in Windsor to the Maine Yankee Substation in Wiscasset within an existing corridor; partial rebuilding of 0.3 miles of 345-kV AC line near the Coopers Mills Substation; rebuilding a 0.8-mile section of 345-kV AC line near the Coopers Mills Substation; and rebuilding a 0.8-mile section of 115-kV AC line outside the Coopers Mills Substation. Approximately 19.3 acres of tree clearing will be required, ranging from 75 to 100 feet wide in various locations, over a total of 16.2 miles of the Segment 5 corridor, resulting in 0.04 acres of wetland fill and 3.6 acres of DWA conversion. Segment 5 includes aerial crossings of: 159 freshwater wetlands; 104 rivers, streams, or brooks, including the West Branch of the Sheepscot River (a state listed Outstanding River Segment), 22 of which contain coldwater fisheries habitat, and two IWWHs. These aerial crossings do not include impacts to waters of the US, thus these resources have been avoided. Segment 5 does include 11 Vernal Pools with associated cover type conversion.
- Merrill Road Converter Station. The Merrill Road Converter Station will convert DC electricity from Canada to AC electricity to be fed into the power grid. The converter station will be located immediately adjacent to the transmission corridor and with the access road, will occupy 13.4 acres of the site. The proposed converter station will result in a total of 3.16 acres of permanent wetland fill inclusive of 0.273 acres of permanent fill in Vernal Pool habitat.
- Fickett Road Substation. The Fickett Road Substation will be constructed across Allen Road from the Surowiec Substation at Pownal, Maine and will occupy 4.87 acres of the site. The site currently contains existing 345-kV and 115-kV transmission lines, which were permitted as part of CMP's Maine Power Reliability Project (MPRP), a CMP transmission line upgrade project extending 350 miles from Orrington to Eliot, Maine that was authorized in 2010. The substation construction will result in 1.33 acres of permanent wetland fill.
- Coopers Mills Substation. The Coopers Mills Substation was originally authorized and constructed as part of CMP's MPRP. Proposed work on the Coopers Mills Substation includes 345-kV bus work, circuit breaker installations, and relocating 345-kV transmission lines from the Maine

Yankee Substation and the Larrabee Road Substation. These improvements will not require the existing yard to be expanded. No new impacts to regulated aquatic resources are proposed at this station.

- Crowley's Substation. Proposed modifications at Crowley's Substation include the replacement of a 115-kV switch and bus wire. No new impervious area is proposed. No new impacts to regulated aquatic resources are proposed at this station.
- Larrabee Road Substation. The Larrabee Road Substation originally was authorized and constructed as part of the MPRP. The Larrabee Road Substation upgrades include the addition of a 345-kV line termination structure, a 345-kV circuit breaker, disconnect switches, instrument transformers, surge arrestors, buswork modifications, support structures, foundation modifications to the existing protection and control system, and network upgrades. The upgrades also include the replacement of an existing transformer with three single-phase autotransformers. No new impacts to regulated aquatic resources are proposed at this station.
- Maine Yankee Substation. Proposed modifications at the Maine Yankee Substation involve the addition of a 345-kV three-circuit breaker bay, the relocation of the existing Coopers Mills 345-kV line, the addition of a terminal for the new 345-kV line from Coopers Mills Substation, and the repositioning of the existing 345-kV line from the Surowiec Substation. No new impacts to regulated aquatic resources are proposed at this station.
- Surowiec Substation. Proposed additions at the Surowiec Substation include a terminal for a new 345-kV transmission line from the proposed Fickett Road Substation, a new dead-end A-frame structure, and a new 345-kV circuit breaker. The existing substation occupies 9.41 acres and all of the additions will be located within the existing yard. No new impacts to regulated aquatic resources are proposed at this station.
- Raven Farm Substation. The Raven Farm Substation originally was authorized as part of the MPRP, and included the construction of a 15.5-acre substation yard. Currently, the entire yard has been brought up to subgrade, but only half of the substation has been built to date. This half contains electrical equipment that was part of the MPRP. The proposed additions will be placed on top of a layer of crushed stone and will be on the remaining half of the yard. The electrical equipment will include a new 345/115-kV autotransformer and three new 115-kV transmission line terminations with associated equipment and foundations. No new impacts to regulated aquatic resources are proposed at this station.

Figure 1-1. Project Overview



Source: EPR, NOAA, Greater Atlantic Regional Fisheries Office, HYDC, Avangrid, Boreas & McDermott Engineering, Inc.

Issue: 6/3/2020

1.3.1 Proposed avoidance and minimization measures:

General. This discussion references the appropriate minimization practices for the entire project to fully explain the context, yet the USACE is only evaluating those areas immediately surrounding regulated impacts to aquatic resources, where federal control and responsibility is warranted, as defined in the USACE NEPA scope of analysis.

CMP designed the Project to avoid or minimize adverse environmental effects to the maximum extent practicable. Approximately 74% of the Project's transmission line components as a whole will be developed on lands already developed as CMP transmission corridors. For the HVDC transmission line individually, approximately 63% of the line will be co-located within existing CMP transmission corridors and the remaining 37% will be developed in a region of the state where active timber harvesting occurs on heavily managed commercial timberlands. CMP considers many factors in designing, constructing, and operating electric transmission line projects in order to avoid or minimize impacts on the environment. During the conceptual engineering design, structures were sited away from wetland resources and important wildlife habitats to the extent practicable.

Wetlands. CMP first sought to avoid and then minimize impacts to wetlands wherever practicable through a thorough alternatives analysis (see Section 5.0) and engineering design. Transmission line structure locations are sited in uplands to the extent possible in a manner that the transmission line spans the majority of wetland and other protected natural resource areas. In addition, temporary access roads have been designed to cross wetlands at their narrowest points, wherever possible. As a result, most potential impacts to wetlands associated with the development of the Project will be temporary, with the exception of limited unavoidable structure placement within wetlands, tree removal, and permanent fill associated with substation, converter station, and termination station development and permanent access. Where impacts cannot be avoided, a number of measures will be employed prior to and during construction to minimize impacts. These include measures such as flagging and/or signage to identify sensitive resource areas and signal to construction workers that special restrictions and/or requirements apply in these areas, installation of erosion and sedimentation controls, the use of equipment mats instead of granular borrow where practicable, and prioritizing clearing during frozen conditions where practicable. Areas of temporary impact will be restored and revegetated as per the restoration measures described in CMP's Environmental Guidelines. These Guidelines are contained in the administrative record and are referenced by permit condition(s).

Necessary clearing of the transmission line corridor will be limited to the removal of mature trees and capable species (i.e., trees capable of attaining heights that would cause safety/reliability problems due to their proximity to the conductors), as necessary, to allow placement of pole structures and to ensure adequate clearance between any vegetation and the conductors. The removal of capable species in forested wetlands will result in a long-term conversion of wetland habitat type from forested to scrub-shrub and/or emergent. The removal of understory vegetation and ground cover will be required only as needed to install a structure, to create access to or within the corridor, and for puller/tensioner sites. No grubbing or mechanized land clearing is proposed with the exception of minor earthwork necessary to install poles and anchors

Of the 1404 wetlands located within the transmission line portions of the Project area (202.83 miles, inclusive of rebuild sections), 1322 wetlands were avoided, leaving only 82 (5.84%) that will be impacted in part by permanent fill. Of the 1,450 transmission poles proposed by the applicant, only 98 (6.7%) will be located in wetlands. Permanent wetland fill for the transmission line portions of the project is limited to a 30 to 195 square foot area per transmission line support structure, for a total of approximately 0.15 acres.

Vegetation Management. CMP's vegetation management practices utilize integrated vegetation management (IVM) methods promoted by the U.S. EPA to enhance wildlife habitat and connectivity and minimize edge effects associated with forest and habitat fragmentation. IVM promotes the development of early successional growth and resists the growth of vegetation into taller strata (trees) through the application of environmentally friendly manual, mechanical, and chemical treatments on a four-year maintenance cycle. IVM is recognized within the industry as a practice that reduces impacts on land, water, habitat and wildlife while meeting the goals of providing reliable and safe electrical service. The majority of the Project ROW will be managed in an early successional growth pattern with a few exceptions where taller vegetation will be allowed to persist to address rare, threatened or endangered species, forest and habitat fragmentation, and visual impact concerns. To further minimize impacts, particularly to high value brook trout resources, CMP has committed to not using herbicides in any location along the 53.1 miles of new corridor (Segment 1) or proximate to waterways or rare plants to include federally listed small whorled pogonia. During the construction, operation, and maintenance of the Project, CMP will implement measures to minimize adverse effects to the extent practicable and will otherwise mitigate for such effects. The impact minimization measures proposed for this Project are based on CMP's extensive experience in the construction, operation, and maintenance of the existing transmission line corridors, on the results of the field investigations and agency consultations conducted for the Project, and on recent, directly relevant expertise in siting and constructing large scale transmission facilities, most notably the MPRP.

The applicant has accepted state recommendations to expand the proposed stream buffers from 25 feet to 100 feet for all cold water fisheries, all state listed Outstanding River Segments, and all streams containing endangered and/or threatened species, and to 75 feet for all other waterbodies. CMP also proposed the additional measure of allowing non-capable species to exceed 10 feet in height and capable species to grow up to 10 feet tall in areas outside of the wire zone, i.e., within 15 feet, horizontally, of any conductor, within all stream buffers. These two actions increased the size and cover provided in all riparian travel corridors within the proposed ROW, further minimizing the effects of forest and habitat fragmentation. Additionally, CMP's vegetation management practices for initial clearing and vegetation management do not target non-capable vegetation for removal unless it is over ten feet in height and within the wire zone, thereby jumpstarting recovery of scrub-shrub vegetation. The HVDC transmission line will be primarily (approx. 63%) co-located within existing corridors and, for that portion in new corridor, will be sited in an area that has been dominated by industrial scale timber harvesting for over 100 years, resulting in an ever-changing mosaic of successional growth patterns across the landscape. Viewed in its entirety, with all transmission segment components considered, the Project will be approximately 74% co-located within existing corridors.

It should be noted that the Maine DEP required the applicant to substantially reduce tree clearing in Segment 1 through maintenance of taller vegetation in twelve Wildlife Areas (14.08 miles) and to implement vegetation tapering throughout the remainder of Segment 1 (39.02 miles). While the DEP's purpose for requiring these prescribed vegetation management practices are to further minimize the Project's impact on forest and habitat fragmentation and wildlife movement and to minimize visual impact to scenic resources, by maintaining taller vegetation in these prescribed areas and through the implementation of the tapering in all other areas of Segment 1, these vegetation management practices over time will also maintain forested conditions in forested wetlands, thereby reducing the permanent total forested wetland conversion within the HVDC transmission line from 111.55 acres to 63.62 acres or by about 43%. The DEP's permit still requires the applicant to fully compensate for conversion impacts as initially proposed, irrespective of these mitigative measures.

Watercourses. The applicant has avoided direct impacts to all waterbodies from the installation of poles or access roads and at all substation sites. Any waterbodies that must be crossed during construction will be fully spanned with temporary bridges. Direct impacts from vegetation clearing have been minimized and are discussed elsewhere in this section. Potential indirect impacts include sedimentation and turbidity, introduction of pollutants, and locally increased stream insolation (exposure to sunlight, increased temperature, and diminished woody debris contributions) associated with the clearing. Direct and indirect impacts are anticipated from future actions associated with implementation of their Culvert Replacement Plan, a mitigation requirement of the Maine DEP to enhance fisheries habitat. Based on USACE review of similar private, municipal,

and state installations throughout the state however, these impacts are generally minimal compared to the long-term benefit achieved.

Potential sedimentation associated with soil disturbance from equipment use and vehicle access proximate to streams can result in temporary short-term impacts to fishery resources. Sedimentation can result in reduced light penetration, smothering of aquatic feeding and spawning areas, and impairment of aquatic respiration. Sedimentation can also impact the quality of coldwater fish habitat in waterbodies by burying higher value substrates, reducing habitat complexity, and altering stream channels. To avoid these impacts, CMP will implement its Environmental Guidelines during construction to minimize the potential for sedimentation and to protect fishery resources. CMP's Environmental Guidelines include detailed erosion and sedimentation control measures, resource identification procedures, access road and equipment travel impact minimization measures, and restoration and stabilization measures that will minimize the potential for impacts to waterbody resources. Implementation of the provisions of these Guidelines will be included as a condition of any permit.

Increased sun exposure on smaller waterbodies due to transmission line tree clearing can result in a negative impact due to an increase in water temperature, which can pose problems for coldwater fisheries. Tree clearing has been minimized by co-locating new lines in existing transmission line corridors where practicable and on segments requiring widening, minimizing clearing to only the width necessary to construct and safely operate the facilities. The waterbody crossing table located in the administrative record identifies the amount of additional clearing width required within each respective corridor, if applicable.

To minimize any potential for negative impacts to stream habitat and fisheries from vegetative clearing, CMP proposes to allow vegetation to remain in place to the extent practicable and install appropriate sedimentation controls. Furthermore, all waterbody crossings will be spanned by the NECEC transmission line, and no work will take place within stream channels during construction. No new poles will be installed within 25 feet of these waterbodies, and only minimal tree removal is proposed in these stream buffer areas. All capable species will be removed from the stream buffer during initial clearing for construction. Vegetation maintenance, conducted on a 4-year cycle, in the stream buffer areas will consist of cutting back to ground level, all woody vegetation over 10 feet in height, whether capable or non-capable within that portion of the 25-foot stream buffer within the wire zone (i.e., that area within 15 feet, horizontally, of any conductor). Only capable species will be removed outside of the wire zone during vegetation maintenance activities. Otherwise, stream side vegetation will not be disturbed during construction or during future maintenance activities and the buffer will continue to function in a similar manner as before construction. Future maintenance activities in these areas will consist of hand removal of those capable species that are likely to encroach on the

conductor safety zone within the next 4 years¹. Herbicides will not be used within the stream buffers, within 25 feet of standing water or along any portion of Segment 1. Stream buffers are described in more detail in the NECEC Vegetation Clearing Plan (VCP) and Vegetation Maintenance Plan (VMP) contained in the administrative record.

Construction of the Project will require temporary equipment access across certain waterbodies to reach structure installation locations (estimated 224 out of 742). CMP has designed access routes to minimize the number of crossings that will be required and has avoided crossings of waterbodies where possible. Where practicable, access road approaches and temporary equipment spans have been designed to cross waterbodies in a perpendicular fashion to limit the disturbance of vegetation and soils immediately adjacent to waterbodies. CMP will also utilize existing access roads where feasible to minimize disturbance. CMP has included a detailed summary of measures to minimize potential sedimentation and turbidity associated with equipment crossings within its Environmental Guidelines. Bridges (also known as equipment spans), consisting of timber mats or timber mats placed on steel I-beams or similar clear span structures are the only authorized method for temporary access across perennial and intermittent waterbodies. The use of bridges avoids potential disturbance to the waterway bed and banks. Most bridges can be quickly removed and reused without significantly affecting the stream or its banks and without interfering with fish movement. All bridges will be routinely cleaned of accumulated sediment deposited by construction traffic; removed sediment will be placed in an upland area and stabilized to prevent its introduction into a waterbody.

Another potential negative impact to waterbodies is inadvertent spills from construction equipment. The multiple methods, plans, and procedures to prevent surface water degradation during construction, operation, and maintenance of the proposed NECEC transmission lines are incorporated into CMP's Environmental Control Requirements and in the Requirements for Inadvertent Fluid Release Prevention, Monitoring, and Contingency Plan for the HDD process. These procedures establish a set of minimum requirements for spill prevention and response as required by the state. In the experience of CMP and USACE/Maine DEP compliance inspectors, the procedures incorporated into the plan have generally proven successful for preventing spills and for addressing spills if they occur. CMP's environmental inspectors will ensure that all personnel working on the site follow these procedures. These measures will ensure that potential impacts to fishery resources are minimized. In summary, the implementation of BMPs, including erosion and sedimentation control measures, vegetative buffer strips, careful placement and maintenance of stream crossings, and spill prevention and control measures will ensure that waterbodies and

¹ The DEP permit required a different maintenance cycle on Segment 1 of the Project: "vegetation maintenance within Segment 1 will be on a two- to three year cycle and may not exceed a three-year cycle within any particular area within this segment without the prior approval from the Department."

associated fisheries will not be adversely affected by the construction and maintenance of the Project.

Vernal Pools. The access to and placement of structures has been designed to avoid and minimize impacts to vernal pools to the maximum extent practicable. Of the 757 vernal pools located within the Project area, 674 were avoided, leaving 83 (11%) that will be impacted by permanent fill. When considering vernal pool impacts, only four of the vernal pool depressions that are within Corps jurisdictional areas are proposed for permanent fill, totaling approximately 2.218 acres. However, recognizing that many vernal pools are part of a larger wetland system and that important habitat/water quality contributions are served by the surrounding vernal pool envelope, and in order to be consistent with the state permitting authority, the applicant calculated impacts to the vernal pool depressions and the 100' envelope. The applicant also based the mitigation plan using the same methodology. In instances where a pool's surrounding habitat spans the entire width of the corridor; impacts associated with equipment access will be minimized by utilizing temporary timber mats to reduce disturbance. For vernal pools that will be spanned by electric conductors, there is still the potential for limited indirect impacts through conversion of minor amounts of adjacent forested uplands and wetlands. The potential for these indirect impacts is minimal since the transmission line corridor will be maintained in a well vegetated state, and only a small proportion of the forested area around any of these pools will be removed for the proposed transmission line corridor. There should still be ample foraging and overwintering habitat available and the pools themselves are expected to remain productive for the most part. Temporary impacts to adjacent wetlands can occur from equipment travel along the transmission line corridor. These impacts will be minimized by working during frozen conditions (outside the breeding season) or by employing other techniques to minimize impacts. Disturbed areas within the surrounding habitat of vernal pools will be stabilized and restored as soon as practicable.

CMP's construction, maintenance, and operations practices in transmission line corridors are consistent with published, state and federal vernal pool habitat management guidelines that include the following:

- No disturbance within the vernal pool depression to the maximum extent practicable. CMP expends a great amount of land acquisition, design, engineering, and construction effort to ensure that vernal pool depressions are not disturbed during construction and maintenance activities. Pole placement in pools is avoided or minimized, erosion and sedimentation controls are deployed to help prevent siltation of pools, pool depressions are clearly identified with flagging tape prior to construction, and multiple environmental and compliance inspectors are employed to ensure that

- pool depressions are not traversed by vehicles and construction equipment.
- Maintain a minimum of 75% of the habitat surrounding the pool as unfragmented forest with at least a partly-closed canopy of overstory trees to provide shade, deep litter, and woody debris. Although transmission line corridors cannot be maintained as unfragmented forest for reliability and safety reasons, they are maintained as early-successional habitat composed of shrubs and herbaceous plants. This habitat type provides moderate shading, significant litter accumulation (carbon input) from leaf drop and the die-back of herbaceous vegetation, and woody debris. The NECEC has been sited within existing transmission corridors to the greatest extent practicable (74% of the Project as a whole, considering all of its segments, is located within existing corridors) to minimize the extent of forest clearing).
 - Maintain or restore forest corridors connecting wetlands and significant vernal pools. Within transmission line corridors, amphibian travel corridors composed of shrubs and thick growth of herbaceous vegetation are often present.
 - Minimize forest floor disturbance. With the exception of pole structure locations, transmission line corridors are not grubbed; rather, trees are cut at ground level and root systems are left in the ground. In addition, mitigation techniques including winter construction and the use of equipment mats are utilized during construction to minimize ground disturbance such as rutting. By virtue of transmission line corridor construction and maintenance practices, ground disturbance is minimized to only that necessary for safe construction.
 - Maintain native understory vegetation and downed woody debris. Transmission line corridors are constructed and maintained to encourage the growth of understory vegetation including shrubs and herbaceous plants. Also, downed woody debris from shrubs occurs naturally, and removed capable tree specimens, left in place to decompose, is very common in transmission line corridors.

For unavoidable direct and indirect impacts to vernal pools, CMP has developed a detailed Compensation Plan through consultation with state and federal resource and regulatory agencies.

Endangered Species. Surveys for small-whorled pogonia habitat areas along the corridor revealed a single non-flowering, but quite robust individual west of the south end of Allen Pond, in Greene, Maine (Figure 1-2). As originally proposed in the 2017 state and federal permit applications, tree clearing would have occurred within approximately 12 feet of this occurrence. The single plant located outside the clearing limits would therefore not have been directly impacted, however indirect impact from tree clearing was possible due to the potential additional sunlight intrusion. In response, CMP realigned the transmission line within the existing corridor to eliminate need for tree clearing

and associated indirect impacts to the species. Furthermore, CMP has committed to no herbicide application within 100' of the mapped habitat bordering that specific portion of the ROW during construction and for the life of the project.

Potential Atlantic salmon habitat occurs within various waterbodies crossed by the Project. The Project will have no direct impact on Atlantic salmon habitat. However, potential indirect impacts to this species include increased stream insolation due to tree removal, sedimentation and turbidity, and the introduction of pollutants from construction-related activities. To minimize these indirect impacts during clearing, riparian buffers will be flagged prior to clearing, a 100-foot buffer will be established for these waterbodies, and these buffers will be cleared in accordance with the NECEC Plan for Protection of Sensitive Natural Resources During, Initial Vegetation Clearing (VCP). All streams identified as Atlantic salmon habitat will have a 100-foot riparian buffer and any non-capable species exceeding 10 feet will remain within the stream buffer outside the wire zone. Inside the wire zone all woody vegetation over 10 feet whether capable or non-capable will be cut to ground level. Within this 100-foot buffer any capable species will be removed by hand cutting, herbicides will not be used, and if the construction schedule allows, clearing will occur during frozen ground conditions to minimize soil disturbance.

Erosion & Sediment Control (ESC) best management practices (BMPs) will be required when crossing waterbodies for any Project activities, as detailed in CMP's Environmental Guidelines. Temporary equipment bridges/equipment spans will be the preferred method for access when crossing waterbodies or streams. Equipment spans will cross streams at right angles to the channel, will be placed at an appropriate grade on firm ground, will be stabilized with construction mats or large angular stone, and will be routinely cleaned of accumulated sediment, which will be placed in an upland area downslope of the stream. Long-term maintenance operations will be restricted to avoid or minimize impacts to streams containing salmon or salmon critical habitat.

Segments 1, 2, and 3 intersect mapped critical habitat and the designated U.S. Fish & Wildlife Service Review Area for Canada lynx. Within the context of our limited scope of analysis, portions of both are encompassed within the USACE Action Area. See Figure 1-4. There are 14 Canada lynx occurrences within five miles of the Project ROW within the Section 7 review area. A potential impact to the Canada lynx due to the Project is disturbance to the connectivity of its habitat from tree clearing and from human activity and vehicles during construction.

The vegetation management practices required by the Maine DEP permit will minimize impacts to Canada lynx by reducing the tree clearing - requiring the applicant to manage twelve Wildlife Areas (approximately 14.08 miles of

Segment 1) as either full height canopy vegetation, minimum 35-foot tall vegetation, or vegetation at heights between 25 and 35 feet. Further, in accordance with the Maine DEP permit, CMP will manage the remainder of Segment 1, approximately 39.02 miles, in a tapered configuration, where only a width of 54 feet will be cleared of tall vegetation and maintained in a scrub-shrub condition. The remaining corridor width, outside of the 54 feet beneath the overhead conductors, will be tapered at 16-foot wide intervals, with vegetation heights stepping up from 15 to 25 to 35 feet as one moves towards the edge of the 150 foot width corridor. Throughout Segment 1, access roads and structure preparation areas will be cleared of all capable and non-capable species and maintained as scrub-shrub habitat to allow for post-construction maintenance, repair and/or emergency access during operation of the line. Implementation of these vegetation management practices will reduce the impact of tree clearing within the mapped critical habitat and broader Section 7 Review Area by 49%, from approximately 1,200 to approximately 630 acres. The applicant proposes best management practices to reduce the risk of lynx interactions during construction, e.g. reporting sightings, stop work orders, and speed restrictions.

To minimize impacts to the Northern Long-Eared Bat (NLEB), the applicant has substantially reduced the Project's forest conversion from its initial proposal by the implementation of wildlife travel corridors and vegetation tapering in Segment 1, per the Maine DEP permit. With the implementation of these more restrictive clearing practices, the Project has reduced the proposed forested conversion by approximately 34%, from 1,573 acres to 1,038 acres. Further, to minimize potential impacts to NLEB, the applicant has committed to performing the initial clearing during winter months to the extent practicable and will not conduct tree clearing during the maternity roost season of June 1 to July 31. The latter restriction applies to both the initial clearing and vegetation management activities throughout the life of the Project, Project-wide.

The permit will be conditioned to avoid or minimize potential effects to listed species and critical habitats in accordance with Endangered Species Act consultation with the U.S. Fish & Wildlife Service.

Other.

Eagles. In order to minimize potential impacts to bald and golden eagles, the applicant has committed to performing no construction activity within 660 feet of a known occupied nest during the breeding season. Bald and golden eagle and eagle nest aerial surveys were conducted in May 2020 along the entire Project ROW. No known occupied nests within 660 feet of the Project ROW were observed during surveys. The applicant will conduct annual eagle and eagle nest surveys each spring in areas scheduled for construction in any given year along the Project ROW. If any new nesting sites are identified within 660 feet of planned construction activity for any given year, CMP will avoid construction in

these areas during the March 1 through August 31 breeding period. The applicant must comply with the provisions of the Bald and Golden Eagle Protection Act (16 U.S.C. § 668-668c) including as necessary, obtaining a permit from the U.S. Fish & Wildlife Service.

Visual/Aesthetics. To minimize visual impacts from the Project, engineering designs have been chosen to mitigate each segment's potential impacts. The applicant selected its route to maximize co-location within existing transmission line corridors, and in the new corridor (Segment 1) the selected route minimizes views through the use of intervening topography and vegetation. In addition, the applicant proposes to implement the following measures to reduce impacts on aesthetics:

- Management of full height vegetation or taller vegetation associated with the wildlife travel corridors (Wildlife Areas) for approximately 14.08 miles in Segment 1.
- Limiting the areas that will be maintained as scrub-shrub habitat. For the remaining portions of Segment 1, approximately 39.02 miles, areas that will be maintained as scrub-shrub habitat will be limited to a width of 54 feet beneath the overhead conductors. Areas outside the 54 foot width, vegetation will be managed in a tapered configuration, increasing in height as one approaches the 150-foot corridor limit.
- Underground installation at the Upper Kennebec River using Horizontal Directional Drilling (HDD), thereby avoiding visibility of the Project to users on the river.
- Structures constructed of natural wood and self-weathering steel.
- Reduced structure heights adjacent to Moxie Pond. Limited clearing in areas adjacent to the Appalachian National Scenic Trail (ANST or AT) by tapering the proposed 75 foot clearing width (27 feet beneath the overhead conductors managed as scrub-shrub and the remaining 48 feet to the edge of the clearing limits managed as tapered vegetation increasing in height).
- Allowing the existing cleared edge associated with Section 222 in areas adjacent to the ANST to grow into a tapered configuration.
- Use of non-specular (non-reflective) conductor within the viewshed of Coburn Mountain, Rock Pond, Moxie Stream, and the ANST.
- Tapered vegetation management within the viewshed of Rock Pond and Coburn Mountain.
- Preservation of riparian vegetation.
- Maintenance of vegetation at minimum height of 35 feet within 100 feet of Moxie Stream.
- Maintenance of roadside vegetation and buffer plantings at Fickett Road Substation, Troutdale Road in Bald Mountain Township, and Route 201 in Johnson Mountain Township and Moscow).
- Maximizing structure setbacks from roads and streams.

The only nationally significant feature impacted by the Project is the ANST. Impacts to the ANST are limited to minor aesthetic impacts. Visual impacts to the ANST will be mitigated through the implementation of the treatment plan in a Memorandum of Agreement (MOA – Refer to Section 10.3) which includes vegetation tapering, shorter transmission line structures, buffer plantings, partial relocation of the trail, and a reduction of ANST crossings of the transmission line right of way from three to one.

General. The applicant evaluated site specific means to minimize impacts that included proposing to use 100-foot tall steel poles that can be placed farther apart than typical H-Frame structures, site-specific adjustments to structure locations, use and location of temporary roads (versus construction of permanent access roads), and substation design. The proposed use of taller structures reduces the number of poles that need to be placed, the amount of temporary construction roads that would need to be created, and the number of poles located in wetlands.

Figure 1-2: Small Whorled Pogonia Location & No Herbicide Zone

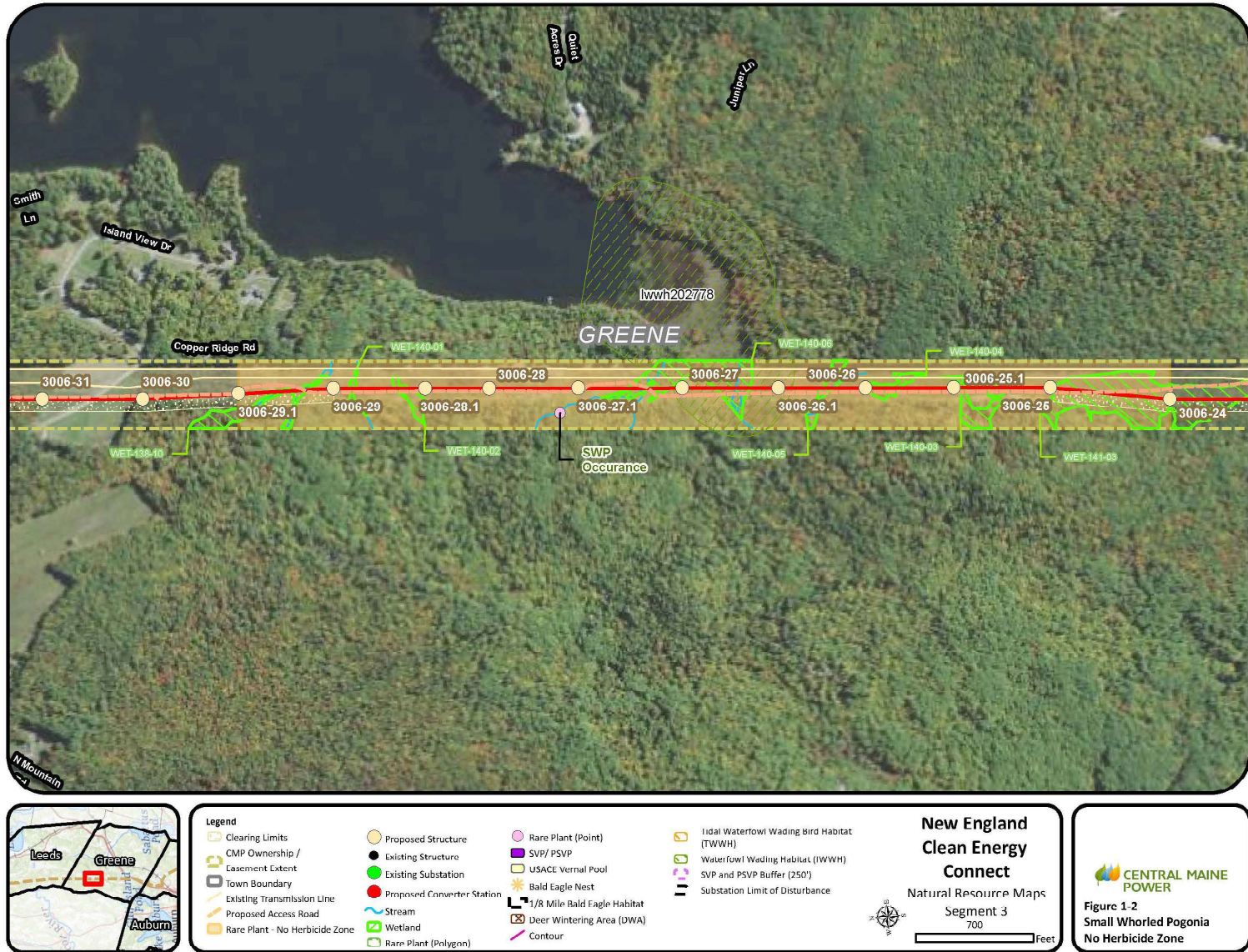
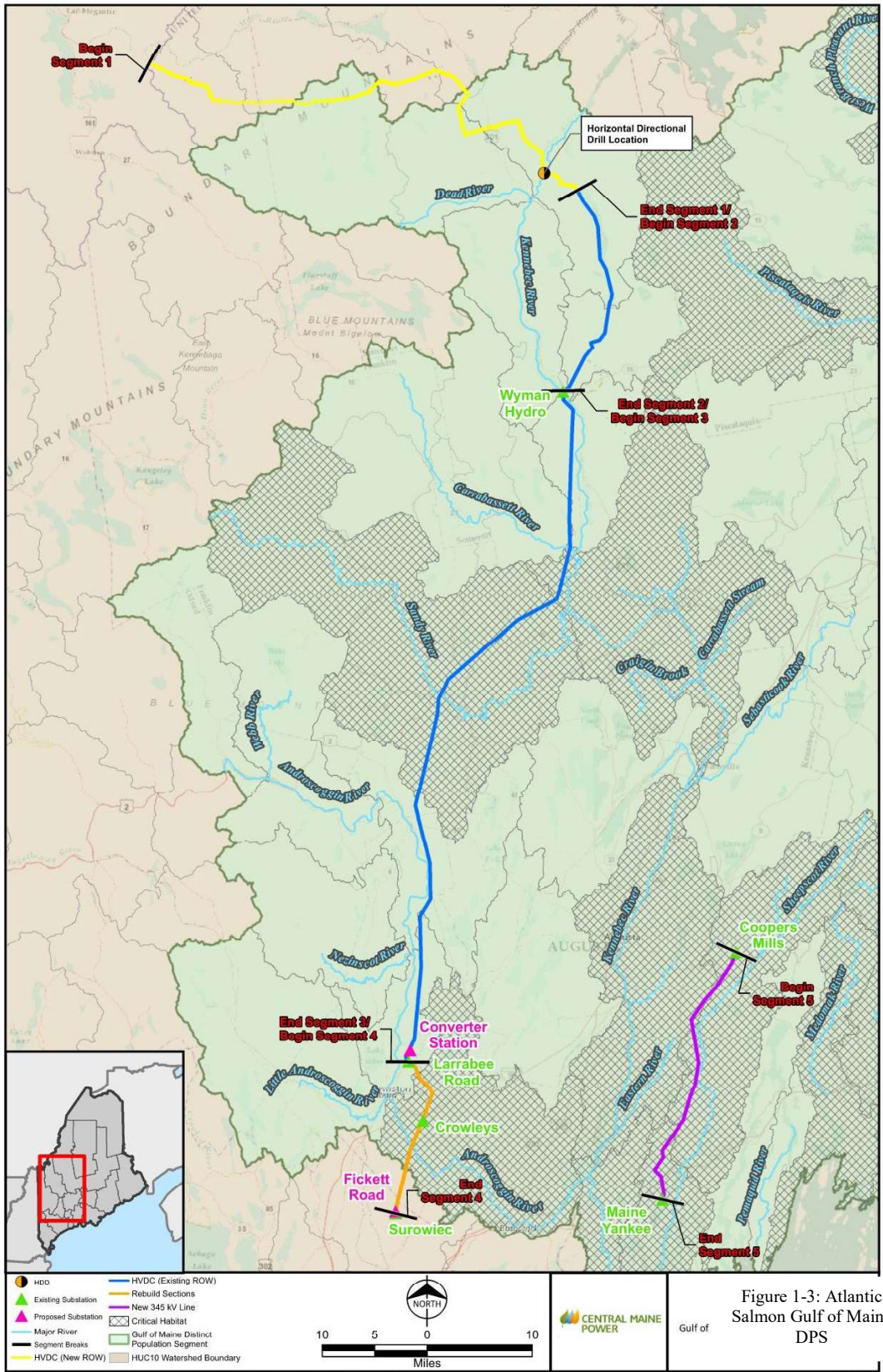


Figure 1-3: Atlantic Salmon Gulf of Maine DPS

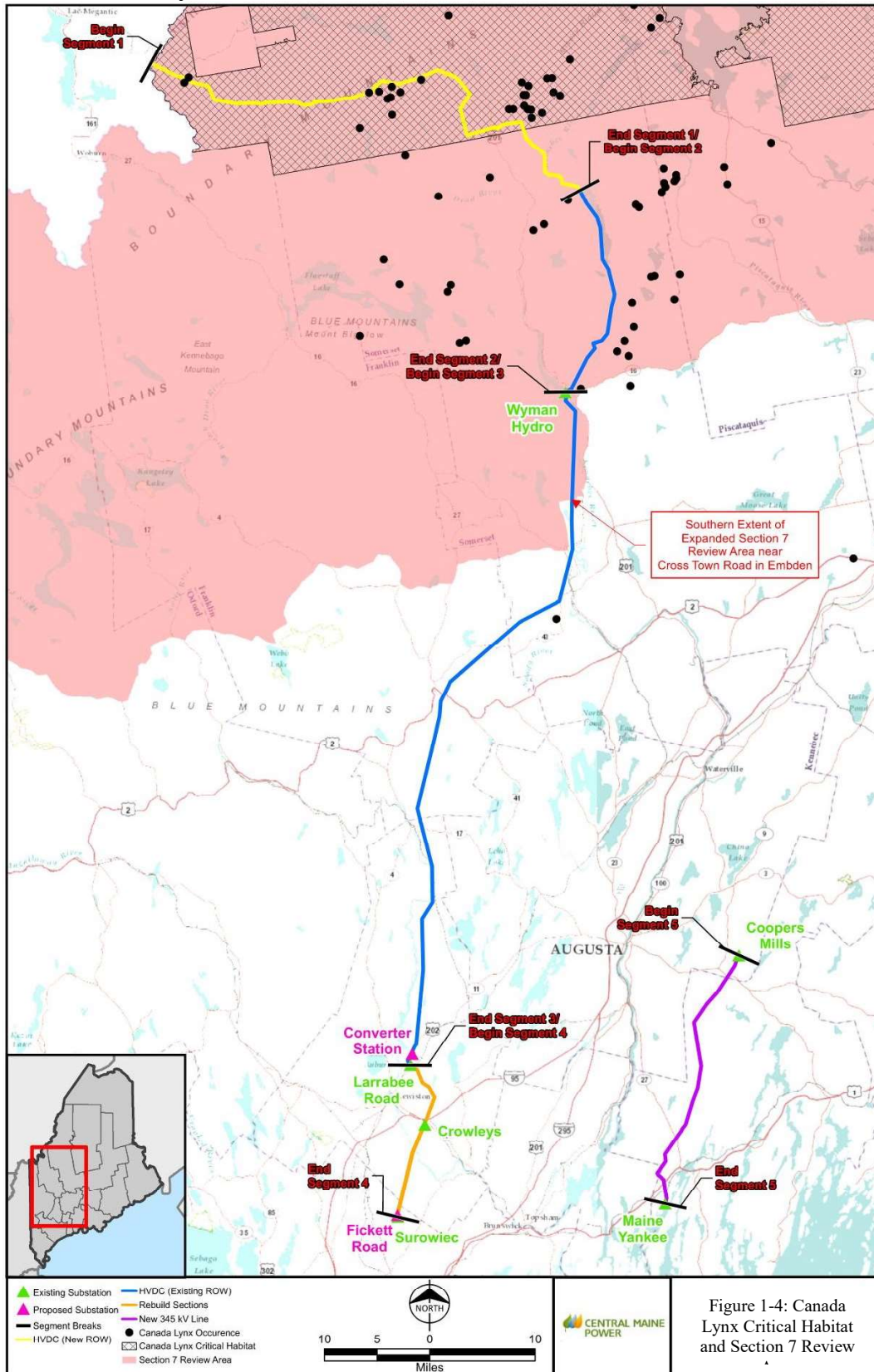


Source: ESRI; NOAA; Greater Atlantic Regional Fisheries Office; NHD; Avangird; Burns & McDonnell Engineering, Inc.

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Figure 1-3: Atlantic Salmon Gulf of Maine DPS

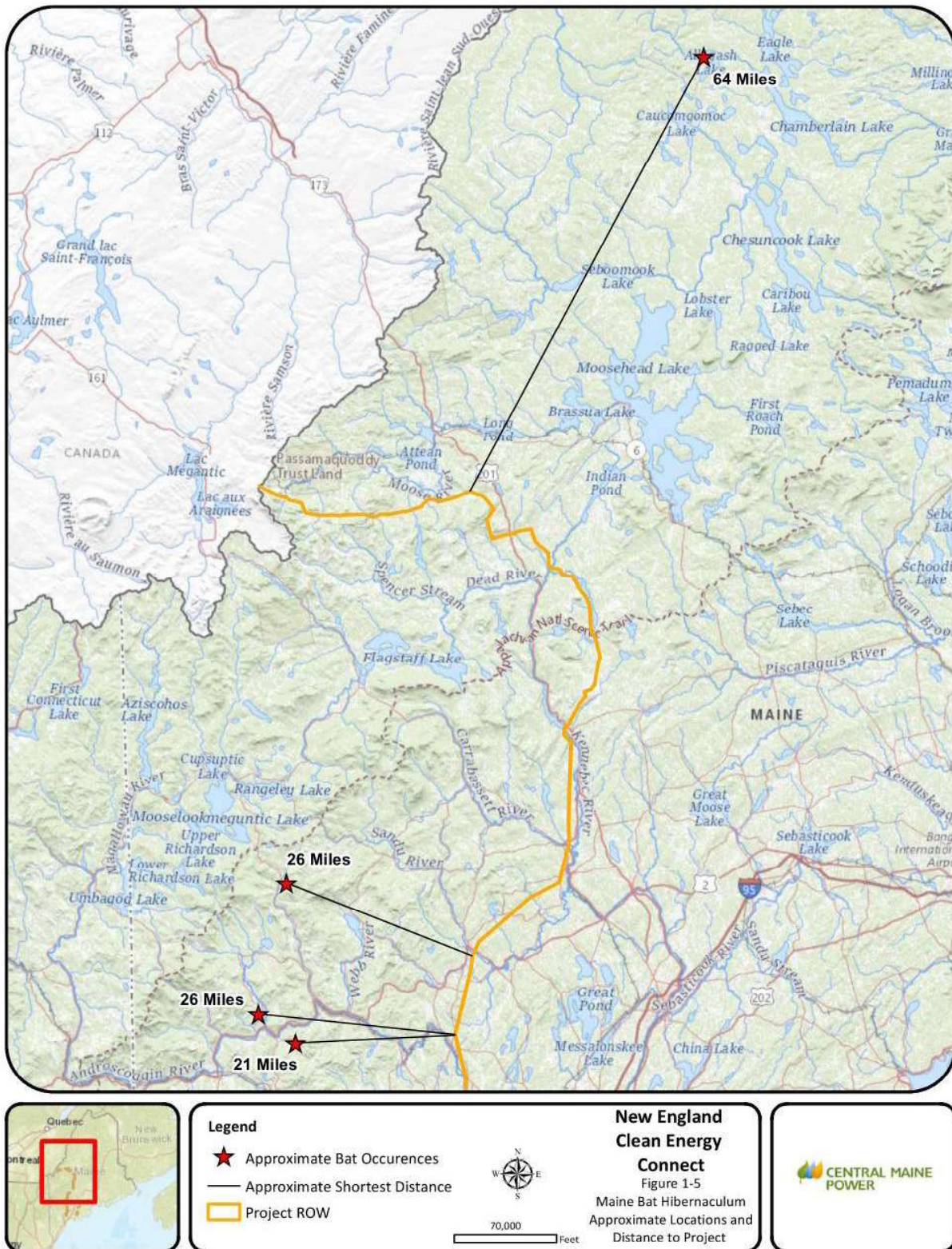
Figure 1-4: Canada Lynx Critical Habitat and USFWS Section 7 Review Area



Source: ESRI; NOAA; Greater Atlantic Regional Fisheries Office; NHD; Avangrid; Burns & McDonnell Engineering, Inc.

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Figure 1-5: Maine Bat Hibernaculum



5/18/2020

1.3.2 **Proposed compensatory mitigation:** To compensate for the Project's projected natural resource impacts, including unavoidable impacts to waterways and wetlands, the applicant has proposed a multi-faceted Compensation Plan. This plan addresses both federal and state requirements for compensatory mitigation. The applicant has proposed to compensate for the Project's unavoidable wetland impacts by contributing to Maine's Natural Resources Conservation Program (Maine In Lieu Fee program or ILF); by preserving lands containing high value wetlands and other natural resources; and by implementing enhancement measures to restore stream habitat connectivity (i.e., a Culvert Replacement Program).

To specifically address USACE requirements as they relate to unavoidable direct and indirect impacts to aquatic resources, the applicant has proposed to contribute \$3,046,648.37 to Maine's In Lieu Fee Program (ILF), the Maine Natural Resources Conservation Program, and preserve approximately 1022.4 acres of land on three parcels containing a total of 510.75 acres of wetland, 3.95 miles of streams, 16 vernal pools, 75 acres of state mapped Inland Wading Bird and Waterfowl habitat, and 511.65 acres of upland buffer.

The applicant's overall compensatory mitigation plan for unavoidable impacts to aquatic resources results in a combination of purchasing In-Lieu Fee (ILF) credits from the Maine Natural Resource Conservation Program (MNRCP) and permittee responsible mitigation in the form of preservation. This section is described in three separate parts. Part I describes the impacts to waters of the United States and credit requirements for compensation. Part II describes the applicant's proposed mitigation to compensate for those impacts to waters of the United States. Part III describes additional mitigation efforts.

Part I: Impacts to Waters of the United States (WOTUS) and Credit Requirements for Compensation

47.64 acres of temporary wetland fill

- The 2016 New England Mitigation Guidance (Guidance) offers ratios that may be utilized to mitigate for impacts associated with temporary fills of various wetland cover types. For simplicity, recognizing that in this case state requirements for compensatory mitigation exceed those of the USACE, the higher of the ratio of 1:6 or 15% has been applied.
- Therefore, a minimum of 7.146 wetland credits will be required.

2.652 acres of permanent fill in forested, emergent and scrub-shrub wetlands – Does not include 2.218 acres of permanent fill of vernal pools (see below)

- The Guidance states that a minimum of 1:1 wetland credit required for permanent loss; therefore 2.652 wetland credits are required.

2.218 acres of permanent fill of vernal pools

- The Guidance states that vernal pool impacts are mitigated at minimum of 1:1.

- Therefore 2.218 wetland credits have been proposed.
- The applicant has proposed a multiplying factor for secondary and indirect impacts to the vernal pools utilizing the Guidance Vernal Pool Characterization Form. These secondary impacts are given a ratio of 1:20 then multiplied (13,000 x Value of Vernal Pool x # of Vernal Pools) to calculate the total credits to be required.
 - For impacts to 49 High Value Vernal Pools, approximately 3.664 (13,000 x 5 x 49 x .05) wetland credits have been proposed.
 - Impacts to 122 Medium Value Vernal Pools, approximately 5.461 (13,000 x 3 x 122 x .05) wetland credits have been proposed.
 - Impacts to 71 Low Value Vernal Pools, approximately 1.059 (13,000 x 1 x 71 x .05) wetland credits have been proposed.

111.55 acres of forested wetland conversion

- The Guidance states that a ratio of 1:6.67(15%) may be utilized to mitigate for impacts associated with permanent conversion of forested wetland
- Therefore, a minimum of 16.733 wetland credits will be required.

The cumulative total wetland credit required by the USACE is 38.933 credits

Part II: Proposed Permittee Mitigation Credit Generation

Prior to the start of construction, the applicant proposes to contribute \$3,046,648.37 to the Maine Natural Resource Conservation Program (Maine ILF). This is a requirement of both the USACE and the DEP as compensation for direct and indirect impacts to vernal pools and permanent wetland fills. The applicant has proposed purchasing 13.361 wetland credits for impacts to WOTUS through the ILF program.

Historically (Since 2008) ILF credit sales from payments into the program have contributed to the creation of more than 103 projects and have resulted in the restoration or enhancement of approximately 157 acres of aquatic resources, significant wildlife habitat and the preservation of 7,561 acres of aquatic resources (MNRCP 2018 Annual Report). In addition, 56 miles of stream habitat have been enhanced or restored as a result of dam and barrier removals (MNRCP 2018 Annual Report). The MNRCP is considered a highly successful program and is in full compliance with the USACE regulations and policies concerning compensatory mitigation.

The applicant has proposed permittee responsible mitigation in the form of preservation. Consistent with the 2008 Mitigation Rule preservation may only be utilized when the following criteria have been met:

- (i) The resources to be preserved provide important physical, chemical, or biological functions for the watershed;

- (ii) The resources to be preserved contribute to the significantly ecological sustainability of the watershed. In determining the contribution of those resources to the ecological sustainability of the watershed, the district engineer must use appropriate quantitative assessment tools, where available;
- (iii) Preservation is determined by the district engineer to be appropriate and practicable;
- (iv) The resources are under threat of destruction or adverse modifications;
- (v) The preserved site will be permanently protected through an appropriate real estate or other legal instrument.

The criteria will be documented and evaluated on a site by site basis, in Section 8.

The applicant has proposed 3 preservation sites to provide compensatory mitigation for impacts to WOTUS. They are the Flagstaff Lake Tract; Little Jimmie Pond-Harwood Tract; and the Pooler Pond Tract. Each site has been evaluated via 33 CFR 332.4(c)(2) through (c)(14) or 12 Components of a Mitigation Plan in Section 8.0.

The Flag Staff Lake Tract currently has approximately 423.96 acres of mapped wetlands; 10,790 linear feet of stream and 417.33 acres of riparian upland. Therefore the site has the potential to produce 49.02 wetland credits (21.918 wetland conversion@20:1 + 27.822 upland conversion@15:1).

The Little Jimmie Pond-Harwood Tract currently has 68.46 acres of mapped wetland; 2 vernal pools; 3,030 linear feet of stream and 41.31 acres of riparian upland. Therefore the site has the potential to produce 6.177 wetland credits (3.423 acres + 2.754 acres).

The Pooler Pond Tract currently has 18.33 acres of mapped wetland; 1 vernal pool; and 4,480 linear feet of street, and 62.91 acres of riparian upland. Therefore the site has the potential to produce 5.11 wetland credits (0.916 acres + 4.194 acres).

To summarize, the applicant proposes to purchase 13.361 wetland credits from the MNRCP ILF Program and will generate approximately 60.307 wetland credits through permittee responsible mitigation to offset impacts to WOTUS. ***This exceeds the USACE required generation of 38.933 wetland credits.*** Further discussion of compensatory mitigation can be found in Section 8.0.

Part III: Additional Mitigation Efforts to satisfy other agency programs

The applicant has proposed additional mitigative actions as a result of coordination with state resource agencies. Impacts to these resources are not directly regulated under Section 404 of the Clean Water Act, or Section 10 of the Rivers and Harbors Act of 1899; therefore the mitigative actions are outside the Corps scope of review and monitoring, but overall would have a positive net benefit to the aquatic environment. The success of these mitigative actions will be evaluated by the respective resource agency. Even if the goals of the resource agencies are not completely in line with Corps requirements or regulations, these secondary mitigative actions will generally result in a beneficial effect on the aquatic environment.

To specifically address supplemental requirements of the Maine DEP's Natural Resources Protection Act (NRPA) regulations, the permittee added the following components to their mitigation plan:

- Prior to the start of construction, the applicant will contribute a total of \$3,759,298.77 in In-Lieu-Fee payments as follows:
 - \$1,224,526.82 to the Maine Natural Areas Conservation Program for direct and indirect impacts from conversion of Unique Natural Communities. According to the State of Maine's definition: All money in the fund and earnings on that money must be used for the investigation, conservation and management of native plants, natural communities, ecosystems or other significant features.
 - \$10,000 to the Maine Natural Areas Conservation Program targeted to result in rare plant surveys. This compensation is for conversion of habitat for Goldie's Wood Fern, a state listed species.
 - \$469,771.95 to the Maine Endangered and Nongame Fund for forest conversion in Roaring Brook Mayfly and Northern Spring Salamander Conservation Management Areas (state listed species);
 - \$180,000 to the Maine Endangered and Nongame Fund for conversion of riparian buffer areas; and
 - \$1,875,000 for a culvert replacement program (Refer to Table 1-3).

Funds contributed to the Maine Endangered and Nongame Wildlife Fund are used by Maine Inland Fisheries & Wildlife for the management of nongame wildlife and for necessary administrative and personnel costs. Funds contributed to the Maine Natural Areas Conservation Fund (administered by the Maine Natural Areas Program) must be used for the investigation, conservation and management of native plants, natural communities, ecosystems or other significant features and for associated administrative and personnel costs. Prior to the start of construction, the applicant will establish an escrow account, secure an irrevocable letter of credit, or otherwise provide a financial guarantee, to fund \$1,875,000 of culvert replacements within affected watersheds. Prior to commercial operation of the project, the applicant shall submit a plan for review

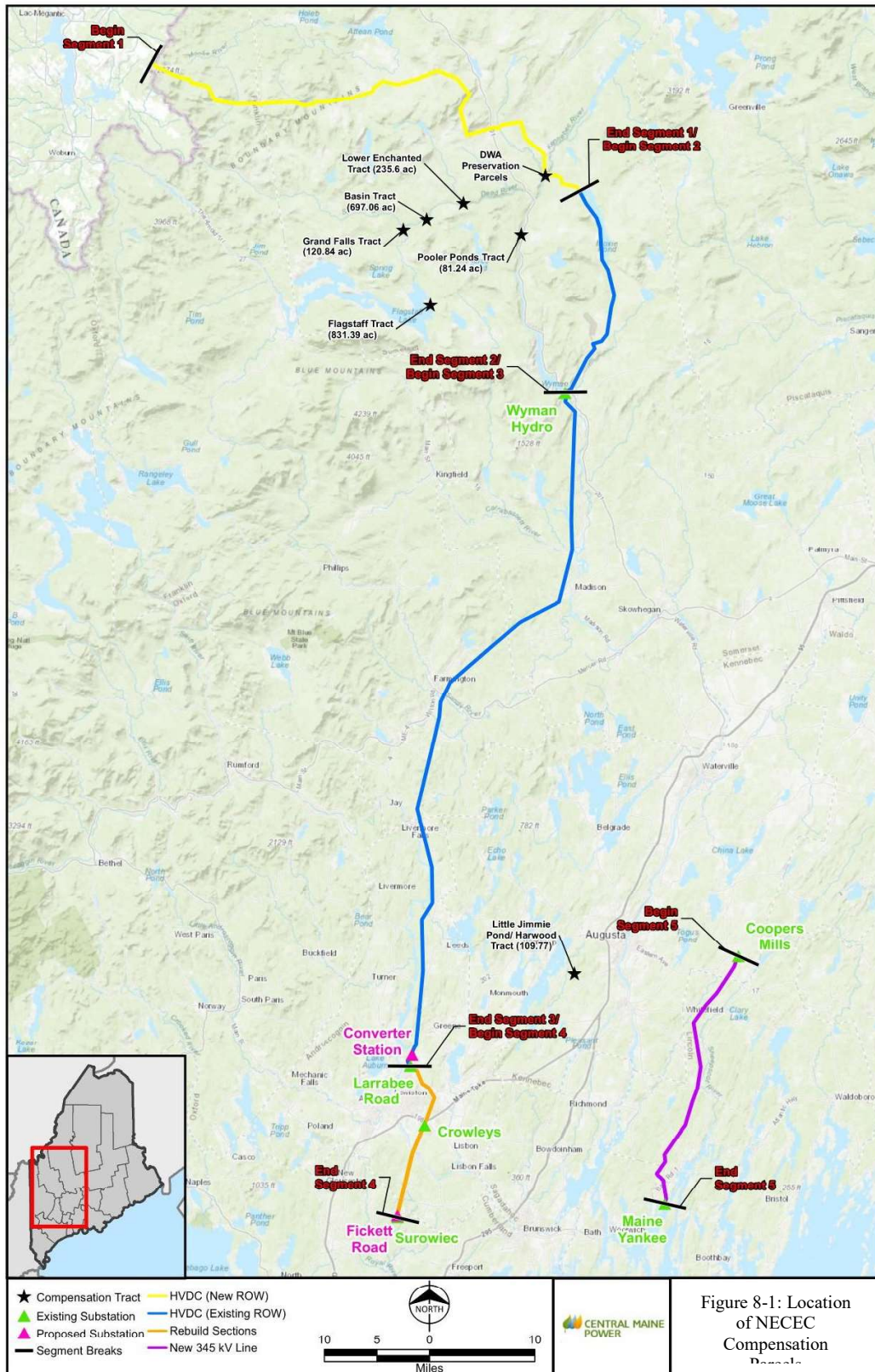
and approval that establishes the locations of the culvert replacements and how the funds will be disbursed. The culverts to be replaced must be in the vicinity of Segments 1 or 2, must completely or partially block fish passage, must be replaced with crossings consistent with Maine Audubon Society's Stream Smart principles, and must be selected to provide the greatest possible habitat benefit. CMP shall document each culvert replacement and monitor those replacements for one year from the date of replacement. Work on individual culverts is still subject to federal and state permitting requirements.

As a result of coordination with the Maine Department of Inland Fish and Wildlife for impacts to the Upper Kennebec Deer Wintering Area, and impacts from upland riparian forested conversion, the following mitigation has been proposed:

- Prior to the start of construction, the applicant will conserve the Basin Tract, Lower Enchanted Tract, and Grand Falls Tract totaling 1,053.5 acres of land along the Dead River. These parcels contain 90.85 acres of wetlands, 14 vernal pools, and 12.02 linear miles of stream. This land will be utilized for recreation and will serve as a link that connects multiple properties, some of which are conserved via Conservation Easement. These lands will be protected by conservation easement or deed restriction in perpetuity. These parcels are a requirement of the DEP to address indirect impacts to recreational use of state listed Outstanding River segments.
- The applicant will convey seven parcels of land totaling 717 acres in the upper Kennebec state mapped Deer Wintering Area (DWA) to the Maine Bureau of Public Lands for recreation. This is a requirement of the Maine DEP for direct and indirect impacts from tree clearing in state mapped DWA on the Project.
- The applicant must also preserve an additional 40,000 acres of land, yet to be formally identified, in the vicinity of Segment 1 to address forest and habitat fragmentation impacts. This latter preservation will be identified in a Conservation Plan, which will be provided to the Maine DEP for review and approval and implemented prior to commercial operation of the Project unless an extension granted. Figure 1-6 is an overview map showing the location of the six known preservation parcels; it does not depict the as yet unknown location of the 40,000 acres to be determined.

This discussion was not intended to highlight all additional resource impacts and mitigative efforts, as the Corps is not the responsible agency for addressing impacts or mitigation outside of our permit authority and scope of review. The intent of this discussion was to present additional mitigative efforts proposed by the applicant.

Figure 1-6: Location of NECEC Compensation Parcels



Source: ESRI; NOAA, Greater Atlantic Regional Fisheries Office; NHD; Avangrid; Burns & McDonnell Engineering, Inc.

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Figure 8-1: Location of NECEC Compensation Parcels

The following tables summarize resource types and impacts within the Project area and the proposed compensation types and amounts. The summary also includes resources which are compensated as a result of NRPA and consultation with state resource agencies and required by the Maine DEP Final Permit.

- Table 1-1 describes the form, type and amount of compensation required by NRPA and/or the Corps; and the agency whose requirements the compensation is intended to satisfy. The applicant applied the compensation ratios and adjustments established by the USACE 2016 New England District Compensatory Mitigation Guidance (“Mitigation Guidance”) and the DEP Fact Sheet – In Lieu Fee Compensation Program (2017) (“Maine ILF Program”), and where ratios differed the higher one was applied.
- Table 1-2 describes the location of each of the compensation parcels proposed for wetland mitigation and consideration under the Corps’ mitigation requirements and their relationship to the Project impacts, demonstrating that a watershed approach was contemplated in choosing the parcels. In its plan, the applicant provided rationale consistent with the General Mitigation Requirements (33 CFR 332.3 (h)) and supporting information that the proposed compensation parcels provide important functions, contribute to watershed sustainability, are appropriate and practical, will be permanently protected, and are under threat of destruction or adverse modification.
- Table 1-3 describes compensatory mitigation proposed as a result of consultation with various state resources agencies and required by the Maine DEP, demonstrating that the applicant has provided additional compensatory mitigation measures, beyond the minimal requirements of Section 404 of the CWA and NRPA.

Table 1-1: Summary of Compensation as Required by NRPA and/or the Corps

Resource Type & Impact	Agency Requiring	Form of Compensation	Type and Amount of Compensation
47.64 acres of Temporary Wetland Fill	Corps	Preservation and In-Lieu Fee	\$154,369.29 ILF payment to MNRCP generating a combined total of 73.502 credits. Preservation of three parcels, described below.
111.55 acres of Permanent Cover Type Conversion of Forested Wetlands ¹	Corps and Maine DEP	Preservation	PRM Preservation of three parcels (Little Jimmie Pond, Flagstaff Lake and Pooler Pond Tracts), containing 439.41 acres of wetlands. Generating a total of 60.307 credits.
3.814 acres of Permanent Fill in Wetlands of Special Significance (WOSS) ²			
0.307 acres of Permanent Fill in Wetland (Non-WOSS)			
0.743 acres of Permanent Wetland Fill in SVP Habitat	Maine DEP	In-Lieu Fee	\$623,657.53 ILF payment to MNRCP
3.678 acres of Permanent Forested Wetland Conversion in SVPH			
0.719 acres of Permanent Upland Fill in SVP Habitat			
27.572 acres of Permanent Upland Conversion in SVPH			
Direct and Indirect Impact to x acre Corps Jurisdictional Vernal Pools	Corps	In-Lieu Fee	\$2,015,269.01 ILF payment to MNRCP, generating 13.361 credits
0.003 acres of Permanent Wetland Fill in IWWH	Maine DEP	In-Lieu Fee	\$253,352.53 ILF payment to MNRCP
2.622 acres of Permanent Forested Wetland Conversion in IWWH			
0.014 acres of Permanent Upland Fill in IWWH			
12.387 acres of Permanent Upland Conversion in IWWH			
In-Lieu Fee			\$3,046,648.37
Land Preservation			1022.4 acres of preservation containing 510.75 acres of wetland.

¹The Corps requires compensation for Permanent Cover Type Conversion of Forested Wetlands. The Maine DEP requires compensation for Permanent Cover Type Conversion of significant wildlife habitat. Compensation for wetlands within significant wildlife habitat, IWWH, and SVPH are not included within the Permanent Cover Type Conversion of Forested Wetlands calculation and are calculated separately within their respective categories. Cover type conversion within upland areas of IWWH and SVPH are compensated separately as well.

²Permanent fill in WOSS excludes fill in IWWH and SVPH, which are calculated separately, in their respective categories.

Table 1-2: Preservation Parcels Proposed for Wetland Mitigation and Considerations under the Corps' General Compensatory Mitigation Requirements

Parcel Name	Little-Jimmie Pond Tract	Flagstaff Lake Tract	Pooler Pond Tract
Town/Township	Manchester	Carrying Place & Dead River Townships	The Forks Plantation
County	Kennebec	Somerset	Somerset
Coordinates of Site Centroid (Lat/Long WGS 84):	44°16'18.21"N, 69°52'23.75"W	45°11'11.48"N, 70°9'42.41"W	45°17'25.16"N, 69°59'28.86"W
Biophysical Region	Central Interior	Western Mountains	Central Mountains
Watershed (HUC 8)	HUC 0103003	HUC 0103003	HUC 0103003
Closest NECEC Segment in associated HUC 8 Watershed	Segment 3	Segment 1	Segment 1
Total Parcel Acreage	109.77	831.39	81.24
Delineated Wetland Acreage	68.46	423.96	18.33
Considerations under the General Compensatory Mitigation Requirements (33 CFR 332.3 (h))			
Resources to be preserved provide important physical, chemical, or biological function for the watershed (Yes/No);	Yes	Yes	Yes
Resources to be preserved contribute significantly to the ecological sustainability of the watershed (Yes/No)	Yes	Yes	Yes
Preservation is determined by the district engineer to be appropriate and practicable (Yes/No);	Yes	Yes	Yes
Resources are under threat of destruction or adverse modifications (Yes/No); and	Yes	Yes	Yes
Site will be permanently protected through an appropriate real estate or other legal instrument (Yes/No).	Yes	Yes	Yes

Table 1-3: Summary of Compensation Resulting from Applicant's Consultation with State Resource Agencies

Resource Type & Impact	Agency Requiring	Form of Compensation	Amount of Compensation
9.229 acres of forested conversion in Unique Natural Communities	MNAP ²	Fee Contribution to Maine Natural Areas Conservation Fund	\$1,224,526.82
Forested conversion to the Goldie's Wood Fern	MNAP	Funding for rare plant surveys to the Maine Natural Areas Conservation Fund	\$10,000
26.416 acres of forest conversion in Roaring Brook Mayfly and Northern Spring Salamander Conservation Management Areas	MDIFW ³	Fee Contribution to Maine Endangered and Nongame Wildlife Fund	\$469,771.95
39.209 acres of forest conversion in the Upper Kennebec Deer Wintering Area	MDIFW	Preservation	Seven parcels, totaling 717 acres of land in the Upper Kennebec DWA
11.02 linear miles of forested conversion in riparian buffers	Maine DEP and MDIFW	Preservation	Three preservation parcels, (Basin Tract, Lower Enchanted Tract and Grand Falls Tract) totaling 1053.5 acres, containing 12.02 linear miles of stream
		Fee contribution to Maine Endangered and Nongame Wildlife Fund	\$180,000
		Funding for Culvert Replacements	\$1,875,000
Impact to Outstanding River Segments	Maine DEP	Preservation	Three preservation parcels, (Basin Tract, Lower Enchanted Tract, and Grand Falls Tract) offering 7.9 miles of frontage on the Dead River, an Outstanding River Segment
Habitat fragmentation and impacts to wildlife movement	Maine DEP	Conservation	Conservation of 40,000 acres in the vicinity of Segment 1
		Total Additional Monetary Contribution	\$3,759,298.77
		Total Additional Land Preservation/Conservation	41,770.5 Acres

² MNAP: Maine Natural Areas Program³ MDIFW: Maine Dept. of Inland Fisheries & Wildlife

For a further discussion of compliance with USACE mitigation requirements, refer to Section 8 of this document.

- 1.4 Existing conditions and any applicable project history: The applicant's project extends from the Maine-Canada border at Beattie Township to Lewiston, Maine and includes work between Lewiston and Pownal and between Windsor and Wiscasset. The Project encompasses six Maine counties and 38 municipalities or townships. The Corps again notes our limited authority and scope of analysis in this permit review, but for purposes of this document, we describe the full extent of existing conditions and the project history to provide context.

Project maps, wetland and waterbody description tables, and other resource information are contained in the administrative record. The waterbody table includes detailed segment-specific information for each waterbody within the NECEC transmission line corridors, including stream name, average width, water quality classifications, width of the existing maintained corridor, width of additional proposed clearing, distance to new structure (pole) locations, and whether a temporary equipment crossing is proposed. A total of 757 vernal pools were identified within and adjacent to the full width of the NECEC transmission line corridors and substation development footprints and are mapped and characterized in resource information within the administrative record. The overall project area supports high value ecological resources including but not limited to state and federal listed threatened and endangered species and associated habitat, state mapped Deer Wintering Areas (DWA), state mapped Inland Waterfowl & Wading Bird Habitat (IWWH), and native wild brook trout habitat. As described in Section 1.3, the majority of these resources are being avoided. In general, terrain in Segment 1 is more remote, composed of rolling hills and mountains interspersed with numerous rivers, streams, lakes, ponds and wetlands, it is lightly developed, and dominated by heavily managed forest lands. Segments 2 and 3 are more rural, more developed with towns and cities and the terrain is less mountainous and a mixed of open and forested cover types interspersed with numerous rivers, streams and wetlands. The lands near existing and proposed substations are similarly characterized. Wetlands within the existing, developed portions of the transmission line ROWs are predominantly palustrine emergent or scrub shrub cover types with palustrine forested cover dominating the margins. Within the new corridor (Segment 1) wetlands remain a mix of covertypes but are dominated by forested. Common wetland functions and benefits throughout the project include but are not limited to wildlife habitat, shoreline stabilization, fish and wildlife habitat, floodflow attenuation, water quality maintenance, and production export. The NECEC Project is located within six different watersheds as defined by the United States Geological Survey (USGS) at the 8-digit hydrologic unit code or sub-basin level. This includes the Upper Kennebec, Dead, St. George-Sheepscot, Presumpscot, Lower Kennebec and Lower Androscoggin watersheds. Natural resource surveys identified 742 waterbodies as being intersected by the Project, many of which are currently spanned by existing transmission lines. Any of these

waterbodies that must be crossed with temporary access roads during construction (estimated 224) will be fully spanned with mats or similar bridge structures, therefore there are no regulated activities associated with temporary stream crossings. All others will be avoided. The transmission lines themselves will span all waterbodies. For all streams, all crossings will consist of a clear span, therefore no regulated activity will occur in these waterbodies.

The applicant has divided the project into five transmission line segments and construction or upgrades of eight substations or converter stations. The proposed NECEC transmission line components include two basic forms: building new lines and rebuilding existing lines. The Project will include a total of approximately 202.83 miles of new or rebuilt transmission lines, inclusive of the 144.9-mile long new HVDC transmission line.

New transmission lines will be built in locations where existing transmission line infrastructure does not exist or was determined to be inadequate to meet the needs of the proposed electrical load. The new transmission line equipment includes approximately 144.9 miles of new HVDC line and 28 miles of new 345kV Alternating Current (AC) line. The transmission line components of the Project will consist of construction in approximately 26% in new corridor (Segment 1); 50% co-located in existing corridor requiring widening; and 24% in existing corridor with no widening required. The Project also requires the construction of HDD termination stations, a DC to AC converter station, a new substation, and substation upgrades.

The applicant has submitted numerous applications for the Project, including to the U.S. Department of Energy (DOE) for a Presidential Permit, to the Maine DEP for Site Law and NPRP permits and a request for a Section 401 Water Quality Certification, and to the Maine Land Use Planning Commission (LUPC) for Site Law Certification.

The Maine DEP and LUPC held public hearings on the Project in April and May of 2019, which the USACE attended. The USACE held a public hearing on December 5, 2019 in accordance with 33 CFR 327. The hearing was well attended by members of the public who had an opportunity to submit comment both orally and in written format. Regardless of format, the USACE has given equal consideration to all comments received in its consideration of the public interest factors. Refer to Section 4.0 for further information. The Maine Public Utilities Commission (PUC) issued an order on May 3, 2019 granting a Certificate of Public Convenience and Necessity for the Project. The Maine DEP issued a permit and water quality certification on May 11, 2020.

CMP will submit an application to the International Boundary Commission requesting a Joint Letter of Authorization for the border crossing. To date, no permits have been approved or denied by that agency. Applications for required

municipal approvals are being pursued by the applicant, beginning in 2019 and continuing through 2021.

Other federal permits. The Federal Energy Regulatory Commission (FERC) has jurisdiction over rates for transmission services. Pursuant to Section 205 of the Federal Power Act, public utilities are required to file with FERC rate schedules for transmission services. In connection with the NECEC, on June 13, 2018 CMP executed seven bilateral, cost-based transmission service agreements (collectively, TSAs), with the participants that will fund the construction, operation, and maintenance of the NECEC. Pursuant to Section 205 of the Federal Power Act, on August 20, 2018, CMP submitted for filing with FERC the seven NECEC TSAs. On October 19, 2019, FERC issued an order accepting the TSAs for filing, without modification or conditions, to become effective as of October 20, 2018. Additionally, the Project will require certain “wires-to-wires” interconnection agreements for the northern and southern terminals of the NECEC and the execution of a transmission operating agreement to govern Independent System Operator New England (ISO-NE) operational control over the transmission facility. Such agreements are expected to be filed with FERC later this year.

- 1.5 **Permit Authority:** Section 10 of the Rivers and Harbors Act (33 USC 403) and Section 404 of the Clean Water Act (33 USC 1344).
- 1.6 **Presidential permit.** Construction, connection, operation, and maintenance of the proposed transmission line facility at the proposed location for the U.S. – Canada international border crossing at Beattie Township will require authorization from the US Department of Energy (DOE) in the form of a Presidential permit.

On September 27, 2017, DOE issued a Notice of Application in the Federal Register and invited motions to intervene in the Presidential permit process under 18 CFR 385.214 (see 82 CFR 45013). On April 9, 2020, the Applicant submitted a letter to DOE updating sections 2 and 3 of its Presidential permit application. The Presidential permit application and Federal Register Notice can be accessed at the DOE Presidential permit website:

<https://www.energy.gov/oe/services/electricity-policy-coordination-and-implementation/international-electricity-regulation/pending-applications>.

The above discussion of the DOE’s Presidential permit authority is for context only. The USACE only has authority to issue permits under Section 10 and Section 404. The USACE has no authority over the DOE’s Presidential permit decision.

- 2.0 **Scope of review for National Environmental Policy Act (i.e. scope of analysis), Section 7 of the Endangered Species Act (i.e. action area), and Section 106 of the National Historic Preservation Act (i.e. permit area)**

2.1 Determination of scope of analysis for National Environmental Policy Act (NEPA):

The scope of analysis includes the specific activity requiring a Department of the Army permit. Other portions of the entire project are not included because the Corps does not have sufficient control and responsibility to warrant federal review.

When a permit applicant proposes to conduct activities requiring a Department of the Army ("DA") Permit which is merely one component of a larger project, the District Engineer should establish the scope of NEPA analysis to address the impacts of the specific activity requiring a permit and those portions of the entire project over which the District Engineer has sufficient control and responsibility to warrant Federal Review. The District Engineer is considered to have control and responsibility for portions of the project beyond the limits of USACE jurisdiction where the Federal involvement is sufficient to turn an essentially private action into a Federal action.

- Determining Factors for Scope of NEPA Analysis include (33 CFR 325, Appendix B):
 - Whether or not the regulated activity comprises "merely a link" in a corridor type project.

Rationale: The project's regulated activities are "merely a link" in the corridor type project. The project includes a linear component consisting of a total of 202.83 miles of transmission line corridor and the construction or upgrade of eight substation development sites. The total corridor consists of the new 144.9-mile HVDC line and sections of new or rebuilt 345kV or 115 kV lines. Waters of the U.S. and a navigable water of the U.S. impacts are dispersed at separate and distinct locations along 202.83 miles of the transmission lines, at two of the eight substations, and at one HDD termination station. These regulated activities are 'merely a link' in a corridor type project, comprising approximately 1.9% of the total project corridor.
 - Whether there are aspects of the upland facility in the immediate vicinity of the regulated activity which affect the location and configuration of the regulated activity.

Rationale: Approximately 74% of the total 202.83 miles of transmission line corridor lies within existing transmission line rights of way. The siting of the new segment of the corridor, Segment 1, was based on an evaluation of a number of factors including both aquatic and upland resources and proximity to existing infrastructure. Wetland resources, are spaced throughout the corridor and most are not affected by crossings.

Six of the eight substation or converter stations associated with the Project are existing facilities that will be upgraded with no impact to waters of the U.S. Approximately 15.95 acres of land are proposed to be developed for the converter station, substation, and termination station components (i.e., station development sites) of the Project. Of this area, 4.72 acres of wetland will be permanently filled. The majority of permanent fill impacts project-wide are associated with the substation development sites, which account for 97% of overall Project permanent wetland fill, representing 0.32% of total wetland acreage in the project area. Siting of these substation sites, while optimized to the extent possible to minimize and avoid wetland impacts, was constrained by the need to be within specific proximities to other existing or planned project infrastructure.

- The extent to which the entire project would be within the USACE jurisdiction.

Rationale: Impacts to waters of the U.S. occur within only 1.9% of the total upland area. The remaining 98.1% of the project is outside USACE jurisdiction. The impacts to jurisdictional waters along the transmission lines are separate and distinct, i.e., consisting of 0.15 acre of permanent fill dispersed in a small number of wetlands and waters spread across a large area (98 pole installations along 202.83 linear miles of combined transmission line corridor), and have been avoided and minimized by the applicant to the extent practicable as detailed below.

There are approximately 8,600 acres of land associated with the entire 202.83-mile project corridor. Jurisdictional wetland impacts consist of 4.72 acres of permanent fill at two new converter/substations and one HDD termination station, 0.15 acres of permanent fill for pole structures, 47.64 acres of temporary fill, and 111.55 acres of forested wetlands affected by clearing and conversion to scrub-shrub and emergent cover types. Thus, only 164.06 of the project's approximately 8,600 acres are within USACE jurisdiction (approximately 1.9%).

- Wetlands in the Project area total approximately 1,463 acres
 - Permanent jurisdictional wetland fill represents 0.33% of total wetland area (4.87 acres).
 - 4.72 acres of permanent fill are proposed at two new converter/substations and one HDD termination station.
 - 0.15 acre permanent fill is proposed along the transmission line corridor.

- The upgrade of six existing substations will not require any additional fill in waters of the U.S.
- Temporary jurisdictional wetland fill represents 3.3% of total wetland area (47.64 acres).
- Of the 1,450 transmission poles proposed by the applicant, only 98 (6.7%) will be located in wetlands. The other 1,352 transmission poles proposed by the applicant could be constructed without requiring any authorization from the Corps.
- Six of the eight substation or converter stations associated with the Project are existing facilities that will be upgraded with no impact to waters of the U.S. These six stations could be upgraded without requiring any authorization from the Corps.
- Permanent wetland fill for the transmission line portions of the project is limited to a 30 to 195 square foot area per transmission line support structure, as such the full loss of wetlands functions and values from permanent fill is confined to such a small area that the impact to overall wetlands functions and values from transmission line installation is considered minimal.
- A total of 1404 wetlands are located within the transmission line portions of the Project area, of these only 82 (5.84%) will be impacted in part by permanent fill.
- The extent of cumulative Federal control and responsibility.
Rationale: Federal permits or approvals are required from the USACE for work in navigable waters and discharges of fill into other waters the U.S.; from DOE for the international border crossing at Beattie Township; and from the FERC for transmission rate approval, interconnection agreements, and an operating agreement. These three authorities are separate and independent. The scope of review for the Corps waters of the US does not overlap with the DOE review of the border crossing, nor does it overlap with the operational review of the FERC.

Neither the USACE nor DOE have siting authority; nor do we have approval authority for any of the proposed facilities that extend beyond the immediate area of the proposed border crossing at Beattie Township, Maine. The potential impacts from the Canadian portion of the proposed transmission line are not considered in detail in this document, because NEPA does not require an

analysis of potential environmental impacts that occur within another sovereign nation that result from actions approved by that sovereign nation.⁴

Final description of scope of analysis:

The scope of analysis is limited to the proposed impacts to waters of the U.S. and the immediately surrounding uplands to facilitate the regulated work. The regulated activities are a series of links of varying sizes within the transmission line corridors, at two of the eight stations, and at one HDD termination station. The other components of the project are outside our federal control and responsibility.

Waters of the U.S. comprise only 17% of the overall project area. Of those waters, only approximately 10% will be directly or indirectly impacted by jurisdictional work or discharges. Jurisdictional impacts are limited to approximately 1.9% of the Project's transmission corridor as a whole. The majority of the project occurs in uplands and is therefore outside our federal control and responsibility. The evaluation of direct and indirect effects of the project will encompass those portions of the overall transmission line that will be constructed within waters of the U.S.

- 2.2 Determination of the "Corps action area" for Section 7 of the Endangered Species Act (ESA): It is the USACE determination that the Action Area for the proposed Project includes both the aquatic and terrestrial habitats for the ESA-listed species for those segments that are affected. The Action Area includes not only the actual footprint of the proposed Project, but also the area within which a species or community might occur and experience the effects from a Project activity that extends beyond the footprint of the proposed Project, such as those from noise or downstream sedimentation.

The Action Area for the Canada lynx includes those portions of Canada lynx critical habitat areas and the area identified by the USFWS as the Canada lynx Review Area within the ROW of the transmission corridor where waters of the U.S. are being impacted, extending from Starks north to Beattie Township.

The Action Area for Atlantic salmon includes any streams within the transmission corridor ROW that may support salmon and that will be crossed, directly or indirectly impacted by authorized work, and extending up to 1000 feet downstream to consider any sediment plume.

The Action Area for Small Whorled Pogonia includes the specific section of ROW within Segment 3 in the vicinity of Allen Pond at Greene, Maine that runs

⁴ This approach is consistent with Section 2-3(b) of EO 12114, "Environmental Effects Abroad of Major Federal Actions" (January 4, 1979), which specifically states that federal agencies are not required to evaluate impacts outside the U.S. when the foreign nation is participating with the U.S., or is otherwise involved in the proposed action.

approximately 4,500' along a 174 acre area of identified habitat where the species was identified.

2.3 Determination of permit area for Section 106 of the National Historic Preservation Act (NHPA):

The permit area includes those areas comprising waters of the United States that will be directly affected by the proposed work or structures. Activities outside of waters of the U.S. are not included because all three tests identified in 33 CFR 325, Appendix C(g)(1) have not been met. Activities outside of waters of the U.S. are not included because all three tests identified in 33 CFR 325, Appendix C(g)(1) have not been met.

The applicant consulted with the SHPO outside the federal 106 process and determined the direct area of potential effect recommended by the SHPO consisted of the entire right-of-way (ROW) width or facility footprint where ground-disturbing activities could take place, for the purposes of the compliance with Maine's Site Location of Development Law. The applicant determined and acted on a permit area for indirect effects includes a 0.8 km (0.5 mi) buffer on each side of the Project centerline as well as a 0.8 km (0.5 mi) buffer around converter and substation footprints. The applicant acted outside the 106 process and consulted directly with the SHPO.

Final description of the permit area: The USACE has determined that the permit area for determining potential adverse effects on historic resources with respect to compliance with the requirements of Section 106 of the NHPA includes the waters of the U.S. impact areas and immediate surrounding areas to facilitate work in waters. In view of the applicant's previous coordination with the SHPO, the USACE also considered the effects to known significant sites outside the permit area.

3.0 Purpose and Need

3.1 Purpose and need for the project as provided by the applicant and reviewed by the Corps: The applicant indicates that the purpose of the NECEC Project is to deliver up to 1,200 MW of Clean Energy Generation from Québec to the New England Control Area at the lowest cost to ratepayers. The need for the project is driven by the Massachusetts RFP seeking 9,450,000 MWh of Clean Energy Generation to be procured through cost-effective long-term contracts. The Project's selection under the RFP demonstrates that Massachusetts has concluded that the NECEC will meet this need. The clean energy delivered by the Project will provide firm, guaranteed, and tracked year-round energy deliveries that will reduce winter electricity price spikes, improve system reliability, and provide renewable energy to help Massachusetts meet its greenhouse gas (GHG) emissions reduction goals.

- 3.2 Basic project purpose, as determined by the Corps: The basic project purpose is to provide a source of clean energy to the New England Control Area in response to a Request for Proposals for Long-Term Contracts for Clean Energy Projects from the State of Massachusetts.
- 3.3 Water dependency determination: A water-dependent project is one which will “require access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose” (40 C.F.R. § 230.10(a)(3)). The activity does not require access or proximity to or siting within a special aquatic site to fulfill its basic purpose. Therefore, the activity is not water dependent.
- 3.4 Overall project purpose, as determined by the Corps: The overall purpose to construct and operate an electrical transmission line and related facilities capable of delivering up to 1,200 megawatts of electrical power from hydroelectric sources in Quebec to the New England Control Area, specifically in response to a Request for Proposals for Long-Term Contracts for Clean Energy Projects from the State of Massachusetts.

4.0 Coordination

- 4.1 The Corps of Engineers Public Notice was issued on March 26, 2019. The comment period ended on April 25, 2019. The results of coordinating the proposal are identified below, including a summary of issues raised, any applicant response and the USACE evaluation of concerns.

Were comments received in response to the PN? Yes

In response to the above referenced public notice, we received 232 public comments (emails & letters). Of those comments, 102 supported the project, 130 opposed, and of the 130 letters of opposition, 88 included a request for a public hearing. Well after the public notice expired, we received a large influx of comments as an email form letter from concerned constituents (467). This form letter included a request for a public hearing.

- 4.2 Were additional issues raised by the Corps including any as a result of coordination with other Corps offices? No

Were comments forwarded to the applicant for response? Yes

Was a public meeting and/or hearing requested and, if so, was one conducted? Yes, a public meeting/hearing was requested and conducted. Comments collected during the meeting(s)/hearing(s) are summarized below. A USACE public hearing was held on December 5, 2019 in accordance with 33 CFR § 327. The public hearing was held in Lewiston, Maine, and was attended by over 300 members of the public, which were given the opportunity to provide both oral and written comments. Members of the public that did not have the opportunity to

make oral comments due to time constraints, as well as any other members of the public, were able to submit written comments until January 6, 2020. Oral and written comments are weighed equally in the USACE' consideration. All oral statements, written statements, charts, tabulations, and similar data offered in evidence at the hearing and until the January 6, 2020 deadline were received in evidence and constitute a part of the administrative record.

In addition to the nearly 10-month period (March 26, 2019 through January 6, 2020 inclusive of the December 5 2019 public hearing) in which the USACE was actively receiving public comments on the Project, the USACE notes that the public has had multiple other opportunities to participate in the Project review. The applicant held and/or participated in more than 250 public meetings allowing for public interaction concerning the Project. These include more than 120 meetings with officials and the public in towns and counties along the ROW and over 130 additional meetings and presentations with interested parties, organizations, associations, and environmental groups. There is an interactive Project website and social media forum, and the Project has been the subject of extensive media coverage throughout the state.

In the course of three state agency reviews (Maine PUC, LUPC, and Maine DEP) and two public legislative committee presentations, the Project was the subject of three pre-application Public Informational Meetings in Bingham, Lewiston, and Windsor; three public witness hearings before the Maine PUC in Farmington, The Forks Plantation, and Hallowell; a Maine PUC hearing open to the public; two public comment hearings before the Maine DEP and LUPC; six days of DEP hearings open to the public, which included three days of concurrent hearings before the LUPC that were open to the public; and multiple public debate forums at the county and municipal levels and in the media.

The USACE attended each of the DEP and LUPC public hearings and was acknowledged by the hearing officers. Attendees were made aware that the USACE was available during and after those hearings to address any questions regarding the federal application process. The transcripts of the DEP and LUPC hearings, including extensive testimony from the public were considered by USACE, to the extent the issues were within USACE authority to evaluate, and are included in the USACE administrative record.

The USACE continued to receive letters or emails even after our public hearing's formal comment period expired, most recently a batch of over 750 form letter style emails in late May and early June. In total, the administrative record contains over 1500 specific and more general public comments both in favor and opposed to the project. The number of comments in opposition of the project substantially outweigh those in favor of the project and positions generally fall to either side of individual issues.

Considering the totality of public comments received by the USACE to date,

comments from those in favor of the proposal centered on the following broad points:

- **Benefit to Maine.** Maine ratepayers pay nothing for the project and yet reap direct and indirect benefits from substantial regional reductions in greenhouse gas emissions and a stabilized, more reliable wholesale energy market. These positive effects outweigh the predominantly minor and localized impacts associated with the construction, operation, and maintenance of the project.
- **Environmental impact.** The project will have low permanent impact to aquatic and other natural resources, the majority of the project's impacts being temporary. The project will result in a permanent conversion of forested cover to primarily scrub-shrub cover within the corridor. Claims that the new portion of the project corridor will result in substantial deforestation, habitat fragmentation, and 'industrialization' of the Maine wilderness are not supported by the fact that most of the new corridor runs through lands that are in active, large scale commercial forest management. The applicant is proposing numerous best management practices to avoid or minimize direct and indirect impacts to natural resources and is proposing a robust, multi-faceted compensatory mitigation plan for the project's unavoidable impacts to the environment.
- **Carbon emissions.** The project is expected to provide a substantial reduction in greenhouse gases and diminished reliance on fossil fuels within the New England region as aging power plants come off line and are replaced with clean energy from hydro-electric sources in Quebec.
- **Economic benefit.** The project is expected to provide substantial direct and indirect economic benefits to Maine, not only in terms of short-term construction jobs with related spin off service industry benefits, but also long-term tax revenues for affected towns. Maine ratepayers are expected to benefit from greater stability within the New England energy market. Finally, the applicant has committed to a number of incentive funds and programs designed to stimulate economic development and growth in affected parts of the state.
- **Recreation.** The project will have no adverse impact to existing recreational uses. Along most of the new segment, outdoor enthusiasts recreate at the largesse of private landowners (timber harvesting companies). This use is not expected to change. Some users (hunters and snowmobilers) may actually benefit from the project. Regional tourism will not be affected by the presence of the transmission line.

Objections and concerns from those opposed to the proposal centered on the following broad points:

- NEPA. An Environmental Impact Statement and full NEPA review should be performed by the USACE.
- Alternatives. Alternatives to the project are available and practicable to include a previously authorized alternative in Vermont (TDI Project). Relative to siting the project in Maine, in particular the 52 miles of new corridor, alternatives exist to avoid or minimize impacts to include co-location within established transportation corridors and burial.
- No benefit to Maine. Maine citizens and the Maine environment will be adversely affected by a project that serves the needs of Massachusetts. There is no long-term benefit to the citizens of Maine.
- Public safety/Fire Safety. Multiple concerns were raised relating to the availability of fire protection and other emergency response services in the proposed transmission corridor and questions were raised concerning the risk of fire that a HVDC line might pose in Segment 1, a remote part of the state.
- Economic impact. Although the project will generate short-term construction jobs, no long-term sustainable jobs will be created and the outdoor recreation and tourist based economy of northwestern Maine will be adversely affected by the project. Property values could be adversely affected and Maine rate payers will receive no economic benefit. The project benefits the applicant, not the citizens of Maine.
- Environmental impact. The project will result in large scale environmental impact to include deforestation and forest and habitat fragmentation, particularly along the 53.1 miles of new corridor. This will adversely affect a large number of wildlife species (mammals, birds, amphibians, and reptiles), some of which are state listed as rare, threatened or endangered. Secondary effects could include degraded water quality, habitat 'edge effects', and disrupted wildlife travel patterns. These effects could be exacerbated should the applicant at some point in the future expand the corridor to accept additional transmission.
- Canadian Hydropower. Multiple public comments expressed concern for the impact of Canadian hydropower dams on the environment and on indigenous Canadian populations. Other comments alleged that Hydro-Québec cannot fulfill the MA purchase agreement without diverting power from other exports or producing more power, thereby potentially reducing greenhouse gas (GHG) savings or having other substantial environmental impacts (new dams). Still other comments alleged that hydropower is not truly 'clean energy' as it can result in deforestation, flooding of natural environments, water quality impacts, and negative downstream effects.

- False claims. The reduced greenhouse gas emissions and diminished use of fossil fuels claims of the applicant are misleading or false. Deforestation impacts and new hydro-electric development in Canada in support of the project are likely to offset any marginal reductions of carbon emissions in the region.
- Water quality & fisheries. Right of way clearing and project construction will adversely affect water quality and fisheries within the corridor's many highly valuable trout streams. Clearing and construction will lead to increased risk from erosion, higher water temperatures, diminished water quality, loss of woody debris input, noise, and contaminant spills. Long-term maintenance of the right of way could expose streams to herbicide and pesticide applications. Much of Segment 1 is known to support high value brook trout habitat. Application of herbicides was identified as a concern along this segment.
- Recreation. The segment of new corridor is heavily used by outdoor recreation enthusiasts including, but not limited to hunters, campers, fishermen, hikers (including those using the Appalachian Trail), naturalists, and winter sports enthusiasts. The project will adversely affect the wilderness character of the region and the values that draw outdoor recreationalists, thereby adversely affecting the local economy that thrives on this industry.
- Aesthetics. Large segments of the new corridor will be visible, thereby negatively affecting the scenic character of the region.
- Integrity. CMP, as a foreign owned company (Spain), cannot be trusted to have the interest of its ratepayers or Maine citizens foremost. CMP allegedly has a history of infractions that exemplify this.
- Renewable energy displacement. The operation of the NECEC will set statewide renewable energy initiatives back, thereby adversely affecting Maine's own clean energy goals.
- Cumulative impact. The Corps must fully consider cumulative impacts, in particular potential widening of the HVDC corridor and impacts of additional hydro-electric capacity in Canada.
- Bald & Golden Eagles. Several commenters suggested that the transmission line could adversely affect bald and golden eagles.
- Fickett Road/Surowiec Substation. Specific comments were received representing the Town of New Gloucester, Maine and concerning the risk

of increased stormwater flooding at and in the vicinity of the Surowiec station as a result of development at Fickett Road.

- **Border security.** Several comments questioned whether the project would somehow compromise border security at Beattie Township.

Agency Comments. In a letter dated April 25, 2019, the U.S. Environmental Protection Agency (USEPA) requested an updated permit application to include a more thorough analysis of alternative construction methods and routes and border crossing sites that could allow co-location within existing transportation corridors; they requested minutes of the Maine DEP/LUPC hearings; they advised the USACE to thoroughly analyze the proposed compensation plan; and reminded the USACE complete a thorough NEPA review.

4.3 Were comments raised that do not require further discussion because they address activities and/or effects outside of the Corps' purview? Yes

- **Integrity.** Allegations of improper billing practices by CMP and a reported lack of general consumer confidence in the company is more appropriately addressed by the Maine PUC and is not within the authority of the USACE to consider in its review. Public criticism of CMP because its parent company, Iberdrola SA, is a Spanish company, and because its partner in this venture, Hydro-Québec is a provincially-owned Canadian company, is not relevant to the USACE review considerations.
- **Energy dependence.** Within the context of the discussion of the NECEC project displacing Maine clean energy initiatives, there were also concerns expressed about energy dependence. As such issues relate to national energy policy, they are beyond the scope of the USACE authority and more appropriately for the DOE to consider in their evaluation.
- **Unregulated activity.** The limited extent of USACE scope of authority in this Project has been repeatedly noted in this EA. As such, activities occurring on uplands that are outside our control and responsibility, e.g. upland forest conversion/fragmentation are not discussed in great detail or considered further.

4.4 Evaluation of public comments.

4.4.1 Agency Comments.

In direct response to the request from USEPA for an updated permit application to include a more thorough alternatives analysis, the applicant submitted an updated application on July 1, 2019. A full copy was provided to the USEPA. Detailed analyses for alternative construction methods (undergrounding) and corridor routes (co-location) were provided. The USEPA has also been provided copies of minutes from the state and Corps public hearings and all of the

applicant's responses to USACE information requests. The USACE has thoroughly analyzed the proposed compensation plan and found it to be appropriate and practicable and more than commensurate with the Project's low levels of direct and indirect impact to aquatic resources. Finally, this document responds to their recommendation for a thorough NEPA review by the USACE.

No other federal agency comments were received beyond those from the U.S. Fish & Wildlife Service (USFWS) within the context of endangered species consultation.

4.4.2 Public Comments

- **NEPA analysis.** In response to recommendations that the Corps perform an Environmental Impact Statement (EIS) versus an Environmental Assessment (EA), the Corps has repeatedly responded that its regulations allow it to conduct an EA to determine whether an EIS is warranted. The findings of this document (Section 12) conclude that an EIS is not required.
- **Alternatives.** The USACE is in full agreement with comments recommending a full analysis of project alternatives. Alternatives to the Project are thoroughly discussed in this document (Section 5). The applicant has sufficiently demonstrated that alternative corridors, co-location, and construction methods are not available, practicable or environmentally less damaging. The suggestion that the previously authorized alternative in Vermont (TDI Project) or other projects elsewhere in New England should be selected over a project in Maine is thoroughly discussed in Section 5 as well. The USACE maintains that these alternatives are not practicable as they are not available.
- **No benefit to Maine.** The USACE acknowledges that the ratepayers of Massachusetts are key beneficiaries from the Project. As discussed in this document however, the applicant has sufficiently demonstrated that there are also broader benefits to the region in terms of GHG emissions, greater system reliability, and grid stability. This is supported by the findings of the Maine PUC in their Certificate of Public Convenience and Necessity. For Maine specifically, the applicant has identified substantial short-term and longer-term economic benefits derived from the Project, short-term construction jobs with related spin off service industry benefits, long-term tax revenues for affected towns, and benefits to Maine ratepayers from greater stability within the New England energy market..
- **Public safety/Fire Safety.** CMP has a well-established safety record in the construction and maintenance of its transmission corridors and must comply with all state and federal safety and health regulations for its employees and contractors. Within Segment 1, the risk to public safety

during construction is no greater than from active commercial logging operations that are prevalent and year-round in the region. Within the other segments and at the substation sites the risk to the public is similarly low.

In response to concerns for fire safety, CMP notes that the post-construction risk of wildfires from the NECEC line is no different than on other transmission lines statewide. All required code clearances are met on each of CMP's lines. These safety codes reflect industry standards as promulgated by the National Electrical Safety Code (NESC) and the Federal Energy Regulatory Commission (FERC). Vegetation management plans and other initiatives provide for regular ROW inspections and the removal of hazard vegetation including fire risks. The greater risk of fire in the ROW results from individuals using the corridor for recreational purposes and from fires started outside the ROW. This risk already exists, it is not exacerbated by the NECEC project. CMP's contractor specifications include clear and specific provisions for fire safety for all work sites and all phases of construction. Each contractor must provide a Fire Prevention Plan for approval by the Maine Forest Service. CMP has and will continue to engage with local fire protection and EMS services the Maine Forest Service, and the Maine State Federation of Firefighters on fire and emergency response planning in affected communities. CMP currently operates and maintains over 2,536 miles of transmission lines and 254 substations. Over the last 10 years, CMP has constructed approximately 500 miles of new transmission facilities in Maine. The applicant reportedly has an excellent safety record. The USACE recognizes the expertise and responsibility of agencies such as the FERC and national standards such as those of the NESC. It is not up to the USACE to determine or enforce these industry standards or regulatory requirements. The USACE has no reason to believe the NECEC project will not be operated safely and in accordance with all regulatory requirements.

- **Economic impact.** CMP has sufficiently demonstrated that the Project will provide both short-term and long-term economic benefits to Maine and to the region. Concerns that tourism will be adversely affected by the project are speculative. Once constructed, the NECEC project and all of its components are operationally benign, meaning there is little active human activity and no ongoing disturbance. As has been noted, Segment 1 in particular is a destination for hunters, fishermen, boaters/rafters, snowmobile and ATV users, hikers, and outdoor naturalists. Most of this recreation occurs on private timberlands under broad agreements with the landowners. Assuming landowner permission continues, none of these uses will be restricted. The HDD crossing of the Kennebec River Gorge eliminates any visual impact and the general outdoor experience for rafters and other users of the river. Hikers along the Appalachian Trail

(AT) and other local trails will continue to have full access, albeit with some new exposure to the transmission line, at least partially mitigated by actions proposed to minimize visual effects from higher vantage points and at the existing AT crossings at Moxie Pond. Pursuant to the Section 106 Memorandum of Agreement, the National Park Service and several key trail conservancies support the improvements at the Moxie Pond location. Hunting and fishing opportunities continue to abound in the region and the applicant has minimized the potential for short-term and long-term impacts to wildlife and fisheries. Existing levels of ATV use and trail networks are expected to remain unchanged and snowmobile opportunities may actually be improved. The spin off economic benefit from recreational use of the area, e.g. to hotel and restaurant owners, convenience stores and gas stations, and guide services, is expected to continue.

In response to comments that the project will depress property values, the applicant has sufficiently demonstrated to the State of Maine that he has full title, right, or interest in all lands directly affected by construction. Landowners adjacent to active areas of construction will experience clearing and construction related disturbance. These effects will be limited to the hours between 7AM and 7PM or daylight hours. Once construction is complete these impacts will cease. Some nearby landowners may experience alterations of views resulting from changes in vegetation or lighting. Noise and visual impacts will be controlled to ensure compliance with Maine DEP and municipal standards. These potential impacts to adjacent properties have been mitigated to the extent practicable.

A DA permit does not convey any property rights, either in real estate or material, or any exclusive privileges. Furthermore, a DA permit does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application. The district engineer will not enter into disputes but will remind the applicant of the above. The dispute over property ownership will not be a factor in the Corps public interest decision (33 CFR § 320.4).

- **Environmental impact.** The Project's overall environmental impact is thoroughly evaluated in this document and in great detail in material contained in the administrative file. Unavoidable direct and indirect impacts to aquatic resources within the USACE limited authority are fully mitigated in the applicant's compensatory mitigation plan. Impacts to the public interest are fully considered in this document and are not significant. The State of Maine (Maine DEP, LUPC, and PUC) has broader authority in this matter and have determined that the Project's overall impact on state regulated natural resources or to the public interest

is not adverse, after considering even more extensive compensatory mitigation.

Many public comments expressed concerns about forest and habitat fragmentation, especially in Segment 1. As noted above, the USACE's jurisdiction and the scope of USACE NEPA analysis is limited to the proposed impacts to waters of the U.S. and the immediately surrounding uplands to facilitate the regulated work. Upland forest fragmentation is outside the scope of this EA.

As it pertains to matters within USACE jurisdiction, 111.55 acres of forested wetland will be affected by clearing and conversion to scrub-shrub and emergent cover types. This clearing and conversion consists of only approximately 11% of the total amount of forest conversion for the project. As noted above, the Maine DEP has required the applicant to substantially reduce tree clearing in Segment 1 through maintenance of taller vegetation in twelve Wildlife Areas (14.08 miles) and to implement vegetation tapering throughout the remainder of Segment 1 (39.02 miles). These vegetation management practices will, over time, maintain forested conditions in forested wetlands, reducing permanent total forested wetland conversion within the HVDC transmission line to only 63.62 acres, or only approximately 6.13% of all forest conversion for the project. These 63.62 acres of permanent wetland forest conversion make up only a minimal 0.74% of the approximately 8,600 acres of land associated with the entire project. Additionally, as detailed in Section 8.2, the applicant has proposed mitigation to compensate for the full 111.55 acres of forested wetland conversion, in excess of the mitigation necessary to compensate for the 63.62 acres of permanent conversion. Accordingly, forest fragmentation as a result of activities within the scope of USACE jurisdiction is not significant.

Although outside of USACE jurisdiction, it should be noted for context that to specifically address impacts to upland forest conversion and habitat fragmentation, the state of Maine required the applicant to preserve 717 acres in the upper Kennebec state mapped Deer Wintering Area and an additional 40,000 acres of land in the vicinity of Segment 1.

Moreover, approximately 74% of the Project's transmission line components, inclusive of the 144.9-mile HVDC transmission line, are co-located within an existing transmission line corridor and will not measurably contribute to forest fragmentation present due to the existing transmission line corridor. Although the corridor in Segment 2 and Segment 3 will be widened by an average of 75 feet to accommodate co-location of the proposed transmission line, and Segments 4 and will require additional clearing, forests in those segments are already fragmented due to the existing transmission line and the expansion will not

significantly impact that fragmentation. Work at the eight converter and substations will not involve forest conversion or contribute to forest fragmentation. Although Segment 1 is not in an existing transmission line corridor, the 53.1 miles segment of new corridor for the HVDC transmission line will be almost entirely located within heavily managed commercial timberlands.

- **Canadian Hydropower/Canadian Impacts.** Multiple public comments expressed concern for the impact of Canadian hydropower dams on the environment and on indigenous Canadian populations. Other comments alleged that Hydro-Québec cannot fulfill the MA purchase agreement without diverting power from other exports or producing more power, thereby potentially reducing greenhouse gas (GHG) savings or having other substantial environmental impacts (new dams). As noted in Section 2.1 of this document, neither the Corps of Engineers nor Department of Energy have siting authority; nor do we have approval authority for any of the proposed facilities that extend beyond the immediate area of the proposed border crossing at Beattie Township, Maine. Additionally, the Corps of Engineers has no regulatory jurisdiction over Canadian waters, and as noted in Section 2.1 the scope of our NEPA review is limited to impacts to waters of the U.S. and the immediately surrounding uplands to facilitate the regulated work. We also cannot evaluate a sovereign nation's regulatory process. However, for purposes of this document we will briefly discuss the scope of work necessary in Canada to connect into the NECEC transmission line and meet the stated goal of providing up to 1200 MW of clean energy from hydroelectric sources in Quebec to Massachusetts.

According to the Hydro-Québec project website:

(<https://www.hydroquebec.com/projects/appalaches-maine-interconnection/>) The line route selected is 103.1 km (64 miles) long and crosses both the Appalaches municipal county (39.6 km/24.6 mi) and Du Granit municipal county (63.5 km/39.5 mi), affecting eleven municipalities in all. The future line will be paired with one or more existing lines along 72% of its route. Starting at Nantes, the planned line will run alone along a new corridor for approximately 24 km (15 mi) to the Canada–U.S. border. The line will be supported by approximately 320 towers; the average distance between towers will be 325 m (1066'); and the right-of-way to be cleared will be 43 m (141') wide where the line runs alone (27 % of the line route) and 10 to 25 m (33-82') wide where it is paired with an existing line (73 % of the line route). In tandem with this project, a new AC to DC converter will be installed at the Appalaches substation to supply the planned transmission line. The crossing point, where the line will connect to the power system on the U.S. side, is located on private land northeast of ZEC Louise Gosford in the municipality of Frontenac (ZEC

translates to 'controlled harvest zone', essentially publically conserved lands).

Much like in Maine, it is anticipated that this construction has been sited and has been proposed and is being evaluated in accordance with provincial and federal environmental regulations to include full consideration of cultural impacts and other public interest factors. The application for Canadian approval of the project is still under review (Reference - Québec Ministère de l'Environnement, http://www.environnement.gouv.qc.ca/index_en.asp)

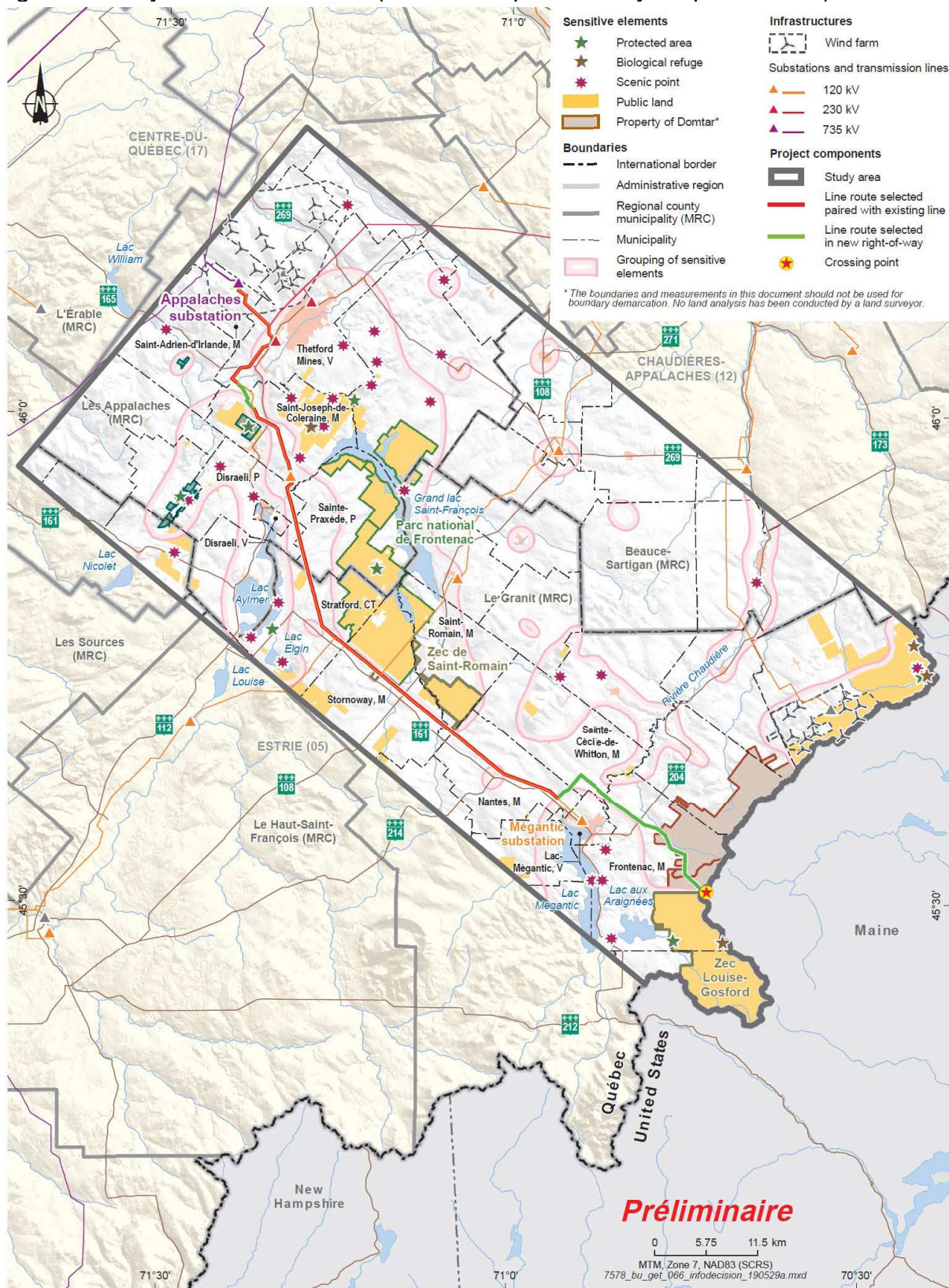
Hydro-Québec owns 27 large reservoirs. Together, they have a maximum storage capacity of 176 billion kWh. Many of their hydro-electric facilities have been in existence for decades. CMP has sufficiently demonstrated and the administrative record reflects that Hydro-Québec has the capacity and intends to supply energy to the NECEC from existing Hydro-Québec hydroelectric generation resources and that no new dams will be constructed in order to supply clean energy under the power purchase agreements with Massachusetts via the NECEC transmission line. As such, with the exception of the new transmission line connector and converter station minor system upgrades, e.g. the replacement of aging turbines with more efficient, new equipment, the NECEC project is not expected to require major new infrastructure or system upgrades in Canada.

Claims and public concerns that the Project will actually result in increased GHG emissions associated with the creation or construction of hydroelectric generation facilities or reservoirs appear to be unfounded. Claims that operation of the NECEC will cause Hydro-Québec to deliver less exports to existing markets, resulting in no net change in GHG emissions levels in the Northeast (and less project benefit), appear to also be unfounded. The administrative record contains documentation from CMP and Hydro-Québec that indicates there is sufficient existing excess capacity for Hydro-Québec to fulfill the MA purchase agreement without compromising other exports.

The applicant indicates that relative to Environmental Justice, the Project would not directly or through contractual or other arrangements, use criteria, methods, or practices that discriminate on the basis of race, color, or national origin nor would it have a disproportionate effect on minority or low-income communities, in accordance with Title III of the Civil Rights Act of 1964 and EO 12898. The lower electric rates, and increased jobs and access to broadband infrastructure that will be realized from the development of the Project will benefit low-income residents. Furthermore, as evidenced in CMP's GHG filings noted herein, as well as Hydro-Québec's May 20, 2019 letter to Governor Mills regarding its

available and projected energy supply, the Project will not require the construction of new dams in Canada, so the proposed transmission line would have no new effect on indigenous Canadian populations.

Figure 4-1. Hydro-Québec Route (Source: <https://www.hydroquebec.com>)



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- **False claims.** Refer to Section 7.1.1, Climate Change. The USACE has reviewed and considered the large amount of detailed and often conflicting information submitted by both sides in this matter. The applicant has furnished additional information to include information from Hydro-Québec. We have coordinated with DOE on this issue, and they in turn directed a peer review of all of the various analyses performed by an agency contractor with special expertise in this area. The independent review concluded that the expected operation of the NECEC would likely result in a reduction in greenhouse gas (GHG) emissions, specifically carbon dioxide emissions, in New England and neighboring markets. This aligns with the applicant's stated purpose. Furthermore, the DOE contractor concluded that it is likely that Hydro-Québec would be able to meet the energy delivery requirements for the NECEC with its current and planned incremental supply without diverting hydropower from other areas that it would otherwise serve. Various stakeholders had expressed concern that such a diversion would establish the risk for increased fossil generation to serve these customers with potentially increased GHG emissions. Considering the limited authority of the USACE in the project as a whole and over emissions specifically, we have determined that there is a sufficient level of analysis to determine that the applicant's project purpose can be met.

Water quality & fisheries. To minimize any potential for negative impacts to stream habitat and fisheries from vegetative clearing, CMP will allow vegetation to remain in place to the extent practicable and install appropriate sedimentation controls. All waterbody crossings will be spanned during construction and by the NECEC transmission line itself, and no work will take place within stream channels. No new poles will be installed within 25 feet of these waterbodies, and only minimal tree removal is proposed in these stream buffer areas. In streams supporting salmonids, including Atlantic salmon and brook trout, riparian buffers will be expanded to 100' to provide greater levels of protection. Best Management Practices (BMPs) will be utilized to minimize the contaminant spill risk posed by equipment operations and refueling near streams. Construction related noise and a general increase in human activity is expected to return to baseline conditions upon completion of the project.

In response to concerns about the use of herbicides and pesticides (in general and relative to brook trout), CMP has committed to not using pesticides or herbicides in Segment 1, known for its brook trout habitat, and in the vicinity of the Appalachian Trail crossings during NECEC construction and for the life of the NECEC Project. CMP will further avoid herbicide use in site-specific locations through restrictions associated with surface waters (i.e., 25-foot setback), water supplies, rare species, and through no-spray agreements with various parties throughout its

transmission system. CMP must comply with all state and federal standards for applications of these products to minimize the threat to public safety and environmental resources.

- **Recreation.** As noted above in the discussion of Economics, the Corps acknowledges that Segment 1 in particular is a destination for hunters, fishermen, boaters/rafters, snowmobile and ATV users, hikers, and outdoor naturalists. CMP's transmission corridors in the other segments similarly pass through lands that are available for outdoor recreation of one kind or another. Most of this recreation occurs on private land under broad agreements with the landowners, or with the applicant if they have ownership. Assuming landowner permission remains, none of these existing recreational uses will be restricted, although the Corps acknowledges that there could be site specific short-term disruptions to recreational use levels and patterns during construction.
- **Aesthetics.** Maine DEP regulations have standards pertaining to scenic impacts that must be satisfied in order to obtain a permit. CMP submitted a detailed Visual Impact Assessment that examined the potential scenic impacts of the transmission line and related substation upgrades and included photo-simulations from multiple key observation points. This information was subjected to intense examination and cross-examination through the state hearing, including its public hearing. The DEP concluded that the project will not have an unreasonable adverse effect on scenic uses or character of the surrounding area after considering available and practicable mitigation measures such as site specific clearing restrictions, shorter pole heights, and non-reflective cables. The USACE finds the DEP's conclusions to be reasonable and reflective of the detailed analysis of these effects in the administrative record.
- **Integrity.** Refer to Section 4.3.
- **Renewable energy displacement.** There is no evidence that the operation of the NECEC will suppress statewide renewable energy initiatives. On the contrary, in her February 2020 State of the State address, Governor Mills pledged the state would help with the research and development of offshore wind power, provide incentives for community and residential solar power, promote energy efficiency and weatherization, increase the use of heat pumps, build charging stations and create incentives for electric vehicles, and help local and state governments become more green. Recently the Maine DEP and the Corps have seen a surge in grid scale (5 MW or less) solar development proposals (many more do not impact waters of the U.S. and are DEP jurisdiction only); the Maine Aqua-ventus Project, an off shore floating wind turbine initiative proposed by a collaborative led by the University of Maine, has pending state and federal permit applications, and Maine's

wind power industry is reportedly poised to see its biggest period of growth since the state's first major project was built six years ago according to the Governor's Wind & Solar Energy Coalition (<https://governorswindenergycoalition.org/exporting-maines-%E2%80%A8wind-energy/>)

- **Cumulative impact.** The Corps is in full agreement with comments recommending an assessment of the cumulative impacts of the project. The cumulative impacts of the Project are fully addressed by the USACE in Section 9 of this document. As requested, this includes a discussion of the potential for widening the utility corridor and additional hydro-electric development in Canada. The latter is also discussed in detail above. When considering the overall impacts that will result from the proposed activity in relation to the overall impacts from past, present, and reasonably foreseeable future activities, the incremental contribution of the proposed activity to cumulative impacts in the area described in section 9.2 are not considered to be significant. Compensatory mitigation will be required and has been proposed to offset the impacts to eliminate or minimize the proposed activity's incremental contribution to cumulative effects within the geographic area described in Section 9.2. Mitigation required for the proposed activity is discussed in Section 8.0.
- **Bald & Golden Eagles.** The Corps notes that the applicant must comply with the provisions of the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c) including as necessary, obtaining a permit from the U.S. Fish & Wildlife Service (USFWS). Bald and golden eagle and eagle nest aerial surveys were conducted in May 2020 along the entire Project ROW. No known occupied nests within 660 feet of the Project ROW were observed during surveys. The applicant will conduct annual eagle and eagle nest surveys each spring in areas scheduled for construction in any given year along the Project ROW. If any new nesting sites are identified within 660 feet of planned construction activity for any given year, CMP will avoid construction in these areas during the March 1 through August 31 breeding period. The USFWS has independent authority to require permits under the above regulation. There is no need for the Corps to consider this issue further or condition our permit decision accordingly.
- **Fickett Road/Surowiec Substation.** The applicant responded directly to Town of New Gloucester and their spokesman regarding their concerns for flooding in the vicinity of the Surowiec Substation and how it might be exacerbated by the nearby development of the Fickett Road Substation. In Maine, the USEPA's NPDES Stormwater Permit Program is administered by the Maine DEP. The DEP concluded the applicant has made adequate provision to ensure that the proposed project meets their General and Phosphorus Standards, provided the applicant retain a stormwater design engineer to oversee the installation of the stormwater

best management practices. The DEP further determined that the applicant has made adequate provision to ensure the proposed project will meet the Flooding Standard their regulations for peak flow from the project site and that post-development peak flow from the substations will not exceed the pre-development peak flow from the site. The Corps notes that the applicant must still obtain a permit from the town pursuant to the Flood Hazard Prevention Act whereby the town has the opportunity to require additional flood mitigation measures.

- **Border security.** In response to concerns for border security, the Corps notes that the border crossing will be an aerial crossing of what amounts to a cleared international border corridor (very similar to a utility corridor). Active and passive border protections, overseen by the U.S. Border Patrol, will continue. The Border Patrol has final authority to determine what, if any, additional protections are warranted during and post construction.

5.0 Alternatives Analysis (33 CFR Part 325 Appendix B(7), 40 CFR 230.5(c) and 40 CFR 1502.14). An evaluation of alternatives is required under NEPA for all jurisdictional activities. An evaluation of alternatives is required under the Section 404(b) (1) Guidelines for projects that include the discharge of dredged or fill material. NEPA requires discussion of a reasonable range of alternatives, including the no action alternative, and the effects of those alternatives; under the Guidelines, practicability of alternatives is taken into consideration and no alternative may be permitted if there is a less environmentally damaging practicable alternative. Although the Corps scope of authority in this matter is limited by the small area of jurisdictional impact, a full analysis of alternatives is none the less presented.

5.1 Site selection/screening criteria: In order to be practicable, an alternative must be available, achieve the overall project purpose (as defined by the Corps), and be feasible when considering cost, logistics and existing technology.

5.2 Description of alternatives

5.2.1 No action alternative: Under the No Action Alternative, the proposed transmission system would not be constructed and the potential impacts from the project would not occur. If no alternative projects are ever built, the project benefits of reduced regional GHG emissions, reduced wholesale cost of electricity across the region, and enhanced electrical system reliability would not be achieved. No new ROW would be constructed in Segment 1 but commercial forestry operations would continue with associated direct and indirect impacts to aquatic and other natural resources, including forest and habitat fragmentation, and to the public interest. CMP would continue to maintain its existing infrastructure and as necessary, replace or upgrade it on a more limited basis. This alternative does not meet the project purpose and is therefore not practicable.

5.2.2 Off-site alternatives (Alternative Transmission Corridor Routes):

The alternatives considered in this analysis focus on the HVDC transmission line component, from the Canadian border to the interconnection point with the grid at Larrabee Road Substation (Segments 1, 2 and 3), and associated substation upgrades, with all other components (i.e., Section 62/64 115kV rebuilds (Segment 4) and the new Section 3027 345kV line (Segment 5)) assumed to remain as proposed in all scenarios. These latter line sections are being proposed in existing CMP corridors. Utilizing existing, previously altered transmission corridors or expanding existing substations is generally viewed by the USACE as the least environmentally damaging practicable alternative. Alternatives to upgrading existing transmission corridors would generally mean siting these sections in new corridors, which would generally be more environmentally damaging and potentially contrary to the public interest.

The HVDC transmission line component of the Project must be able to interconnect with the New England power grid in Lewiston, Maine (closest interconnection point) to utilize the existing developed area and infrastructure at CMP's 345kV Larrabee Road Substation. The transmission lines associated with the Project should use existing ROWs, to the extent practicable, to avoid and minimize environmental impacts and costs associated with the development of new corridors.

In the consideration of alternatives for the transmission line component of the Project the applicant evaluated overhead transmission route alternatives, underground transmission alternatives, transportation route alternatives, an electric distribution route alternative, border crossing alternatives; and state listed outstanding river segment alternatives. Route alternatives were first identified through a geospatial desktop analysis, utilizing publicly available Geographic Information System (GIS) data and then evaluated and compared based on the following criteria:

- Conserved Lands – existing conserved lands of high ecological, recreational, and/or aesthetic value were avoided
- Undeveloped Rights of Way - analysis favored transmission line routes that minimized previously undeveloped land requiring development as a transmission line corridor
- Clearing – analysis favored transmission line routes that minimized tree clearing, to minimize habitat conversion-related impacts
- Stream Crossings – analysis favored transmission line routes that minimized stream crossings
- Transmission Line Length – analysis favored transmission line routes that minimized total transmission line length in order to reduce overall environmental impacts

- National Wetlands Inventory (NWI) Mapped Wetlands – analysis favored transmission line routes that minimized crossings of mapped wetlands and water bodies
- Deer Wintering Areas (DWA) - favored transmission line routes that minimized intersections with DWAs, to minimize the need for clearing of woody vegetation within DWAs as a result of construction and maintenance activities.
- Inland Waterfowl and Wading Bird Habitat (IWWH) – analysis favored transmission line routes that minimized intersections with IWWHs, to avoid and minimize clearing of vegetation within IWWHs required
- Public Water Supplies - analysis favored transmission line routes that minimized crossing of public water supplies
- Significant Sand and Gravel Aquifers – analysis favored transmission line routes that minimized crossing of significant sand and gravel aquifers, which are, or may be, used as private or public water supplies
- Parcel Count Total – analysis considered and favored transmission line routes with the highest likelihood of successful land rights acquisition and utilized the number of parcels for which it would need title, right, or interest as one indicator of this.

Each of the route alternatives and their impacts are more fully described in the administrative record. The USACE has reviewed the applicant's evaluation criteria and their effects analysis and found them to be reasonable and consistent with similar large scale linear projects, most recently, CMP's 2010 Maine Power Reliability Program project (MPRP), a 350-mile transmission line upgrade project extending from Orrington to Eliot, Maine.

5.2.2.1 **Alternative Route 1**

The Alternative 1 corridor would extend from the Canadian border in western Maine approximately 119.3 miles to an interconnection point in Lewiston, Maine (see Figure 5-1). Alternative 1 would be located primarily in a new corridor and partially in expansions of existing corridors. Alternative Route 1 was based on a similar project the applicant proposed in the late 1980's. At that time, CMP had acquired title, right, or interest in a corridor that ran from western Maine to Lewiston and was 119.3 miles long. However, the options that CMP had to acquire much of that ROW have expired and portions of the area are now subject to conservation easements.

Alternative 1 begins in Bowmantown Township, Oxford County, Maine at a point on the Maine/Québec border about 0.75 mile east of the Maine/New Hampshire border. The corridor extends south through Bowmantown Township, Parmachenee Township, Lynchtown Township, Parkertown Township, and Lincoln Plantation, all in Oxford County. The corridor is west of Parmachenee Lake and Aziscohos Lake. In Lincoln Plantation, the corridor crosses Route 16 approximately 0.75 mile west of the bridge across the Magalloway River and then crosses the Magalloway River. At the south line of Lincoln Plantation, the

corridor turns east for about 1.25 miles and then south across Magalloway Plantation, Oxford County, following the west property boundary of an industrial forest landowner to the south line of Magalloway Plantation. The entire eight miles across Magalloway Plantation is subject to a conservation easement held by the New England Forestry Foundation, so a realignment to cross other properties would be necessary in this area.

From Magalloway Plantation the corridor continues south across the Town of Upton, Oxford County, crossing the Rapid River about 0.5 mile south of the outlet of Pond-in-the-River. In the 1980s the land along the Rapid River was owned by an affiliate of CMP. That land and additional land on each side of the river is now controlled by the Rangeley Lakes Heritage Trust and the Maine Dept. of Inland Fisheries & Wildlife (DIFW) and is subject to a conservation easement. Obtaining rights for a transmission line through this conservation easement is highly unlikely.

South of the Rapid River the corridor runs southeast to C Surplus Township, Oxford County, and then turns south following the west line of C Surplus Township to the southern boundary of the township. C Surplus Township is now subject to a conservation easement held by the New England Forestry Foundation; therefore, the alignment would need to be moved to the east boundary of Upton Township. From C Surplus, the route follows the western line of Andover North Surplus or the eastern line of Grafton Township, both in Oxford County, for about two miles before turning east to the southern boundary of Andover North Surplus and the western boundary of the ANST corridor.

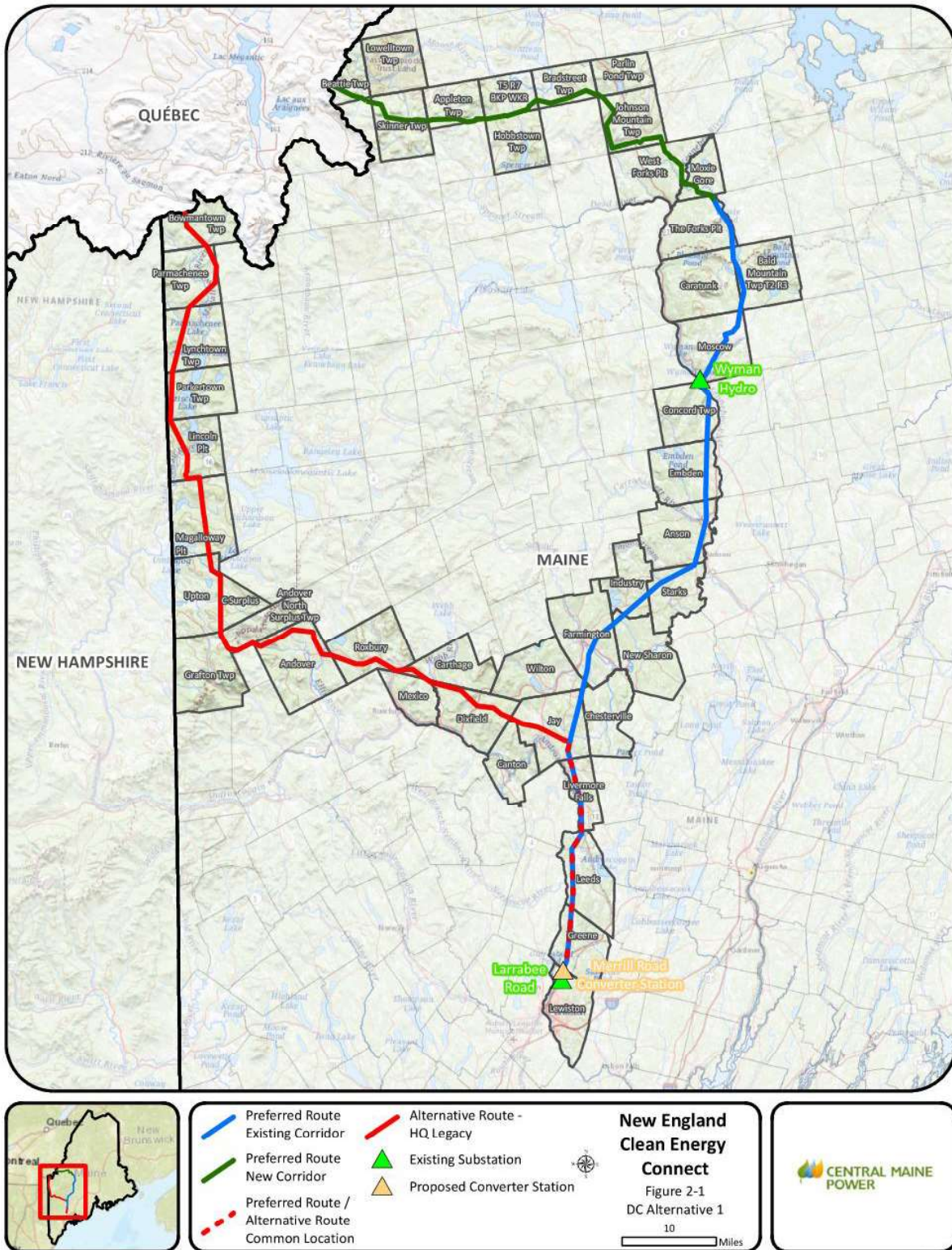
From the eastern boundary line of the ANST corridor the Alternative 1 corridor follows the southern boundary line of Andover North Surplus for about one mile before turning east and crossing into the Town of Andover, Oxford County, where the corridor roughly follows the north and then east town lines before crossing into the Town of Roxbury, Oxford County. The corridor crosses Route 120, the Swift River, and Route 17 in the southeast part of the town and then exits Oxford County, entering Franklin County for about three miles in the Town of Carthage before reentering Oxford County on the northern boundary of the Town of Mexico. In less than 0.75 mile, the Alternative 1 corridor then crosses the Webb River and into the Town of Dixfield, Oxford County, where the corridor continues southeast across Dixfield, crossing U.S. Route 2 before crossing the eastern boundary line of the Town into the Town of Jay, Franklin County. Continuing southeasterly across the Town of Jay and the very northern tip of the Town of Canton, Oxford County, the corridor crosses Route 4 and then Route 133 before connecting with the Section 278 corridor about 2.25 miles north of the Livermore Falls Substation. From the point of intersection with Section 278 south to Larrabee Road Substation, a distance of approximately 26 miles, Alternative 1 is the same as the Preferred Alternative.

Alternative 1 has a shorter overall length than the Preferred Alternative but would require 93.1 miles of new corridor versus the 53.1 miles proposed (see Table 5-1). This alternative reduces the number of stream and wetland crossings but the acreage of wetland impact is greater. The conversion of forested habitat, including within waters of the U.S, would be greater along the Alternative 1 route than the Preferred Alternative. Alternative 1 transmission structures would be visible from Black Mountain Ski Area in the Town of Rumford, Maine, Rapid River in Upton, and Aziscohos Mountain in Lincoln Plantation as well as from the ANST. Alternative 1 has greater effect on conserved lands. The Preferred Alternative is comparatively advantageous in that it would cross the ANST in a location with an existing overhead transmission line corridor, whereas Alternative 1 would require a new corridor crossing of the ANST. AT crossing rights would be difficult to obtain and a new crossing less desirable than the proposed co-located crossing under the Preferred Alternative. A new crossing of the AT where one doesn't currently exist would be contrary to the public interest. The inability to obtain easements across established conservation easements along the Rapid River brings into question the availability of this alternative as well. Based on the greater number of conservation acres impacted, greater number of wetland acres impacted, and a new AT right of way crossing, it has been determined Alternative 1 would be more environmentally damaging than the preferred alternative.

Table 5-1: Comparison of NECEC Preferred Alternative to Alternative 1

Point of Comparison	Unit	Preferred Alternative	Alternative 1
Conserved lands	no./acres	6 parcels/42 acres	8 parcels/275.3 acres
Undeveloped ROW	miles	53.1	93.1
Clearing	acres	1,823	1,934
Stream crossings	no.	115	88
Transmission line length	miles	146.1	119.3
NWI mapped wetlands	no./acres	263 wetlands/76.3 acres	238 wetlands/118.3 acres
Deer wintering areas	no./acres	8 DWAs/44.3 acres	8 DWAs/71.3 acres
Inland waterfowl and wading bird habitat	no./acres	12 IWWH/22.7 acres	9 IWWH/23.1 acres
Public water supplies within 500 feet	no.	1	1
Significant sand and gravel aquifers	no.	12	7
Parcel count total	no.	7	120

Figure 5-1: HVDC Alternative 1



5/18/2020

5.2.2.2 **Alternative Route 2**

Alternative 2 would extend from the Canadian border in western Maine approximately 138.5 miles to an interconnection point in Lewiston, Maine (see Figure 5-2). The line would be located partially in a new corridor and partially in undeveloped width in existing corridors.

The Alternative 2 corridor begins in western Maine in Beattie Township, Franklin County, Maine at a point on the Canadian border approximately 2.5 miles north of the southwest corner of the township. The alternative corridor extends southeast along the Preferred Alternative for approximately 7.75 miles across Beattie Township, the southwest corner of Lowelltown Township and southerly across Skinner Township to a point where the Preferred Alternative turns east. The Preferred Alternative corridor has been acquired; therefore, no additional acquisition would be necessary in the first 7.75 miles of Alternative 2. Both routes require the acquisition by lease of the Lowelltown parcel from the Passamaquoddy Tribe.

Alternative 2 continues southerly approximately 8.75 miles to a point in Kibby Township, Franklin County, where the corridor begins to parallel the Kibby Mountain Wind Farm 115kV generation lead line. Elevations range from 1,900 feet near the intersection with the generator lead to just under 2,700 feet. The Alternative 2 corridor parallels the generator lead south across Kibby Township, Jim Pond Township, the Town of Eustis, and Coplin Plantation, all in Franklin County. The 115kV generator lead from the Stratton Energy biomass plant begins to parallel the Kibby generator lead in Coplin Plantation and both lines continue to parallel the Alternative 2 corridor southeast across Coplin Plantation and Wyman Township to the Bigelow Substation located on the east side of Route 27 along the northern line of the Town of Carrabassett Valley.

Alternative 2 parallels the generator lead for a total distance of approximately 27.5 miles. Elevation ranges from about 1,250 feet to about 1,900 feet on this portion of the alternative. The Alternative 2 corridor from the Preferred Alternative to Bigelow Substation would require the acquisition of a 150-foot wide corridor. This section of new corridor would be located parallel to, but would not overlap, the existing generator lead corridor. It is not possible to co-locate the Alternative 2 corridor and the Kibby generator lead corridor because there is insufficient available space within this corridor to host two transmission lines. Thus, development of Alternative 2 would result in a new full width corridor adjacent to the existing corridor in this location.

The surrounding land generally is industrial forest land typified by spruce-fir and northern hardwood forest types that are owned and managed for timber production. Most of the area is undeveloped, with only a few seasonal dwellings. Recreation is typically permitted on the industrial forest lands. The Village of Stratton is located about 0.25 mile east of the alternative corridor, but the corridor does not impact any residential areas. There is one industrial wind farm located

in Kibby Township, and both a biomass generation plant and sawmill are located in Stratton.

The Alternative 2 corridor crosses Route 27 twice and Route 16 once. Access routes would need to be acquired over private roads. The alternative corridor crosses the ANST on the north side of the Wyman/Carrabassett Valley town line. A crossing of the AT in this area by a utility corridor does not presently exist. Overhead rights were obtained from the U.S. Department of the Interior (DOI) for the Stratton Energy generator lead circa 1985. However, DOI refused to grant rights to cross the AT, either overhead or underground, for the Kibby Wind generator lead circa 2010 and the generator lead was placed underground in the Route 27 highway right of way.

Starting at the Bigelow Substation, the Alternative 2 corridor would be co-located for approximately 23.5 miles with CMP's Section 215 corridor, which crosses the Town of Carrabassett Valley and Highland Plantation and Pleasant Ridge plantation, all in Somerset County. Elevation ranges from about 1,100 feet to about 1,900 feet for this portion of the alternative.

Section 215 is a 115kV radial line built on H-frame structures in a 150-foot wide corridor. For approximately 9.5 miles, the Section 215 corridor is located along the northern boundary line of Carrabassett Valley, which is also the southern line of the Bigelow Preserve, a large Maine-owned tract with strict land use restrictions designed to limit development. A one mile portion of the Bigelow Preserve extends across the Section 215 corridor. Section 215 originates at Wyman Hydro and terminates at Bigelow substation.

Most of the eastern half of Carrabassett Valley is owned by the Penobscot Indian Nation. Most of the land in Highland Plantation and Pleasant Ridge Plantation is industrial forest land, although there are smaller tracts of private forest ownership and some residential development along Rowe Pond Road in Pleasant Ridge, which is crossed twice by Section 215. The acquisition of an additional 75 feet of width would be necessary to co-locate with the Section 215 corridor. However, acquiring additional width through the Bigelow Preserve would be impossible due to significant land use restrictions in the Preserve. Therefore, Alternative 2 would require that the DC line be double circuited with the existing Section 215 line, placed underground, or rerouted southerly around the Bigelow Preserve ownership.

A new corridor approximately 0.75-mile-long will be necessary to connect the Section 215 corridor in southeastern Pleasant Ridge Plantation and the Section 63 corridor in northeastern Concord Township. This segment of the Alternative 2 corridor would need to be 150 feet wide.

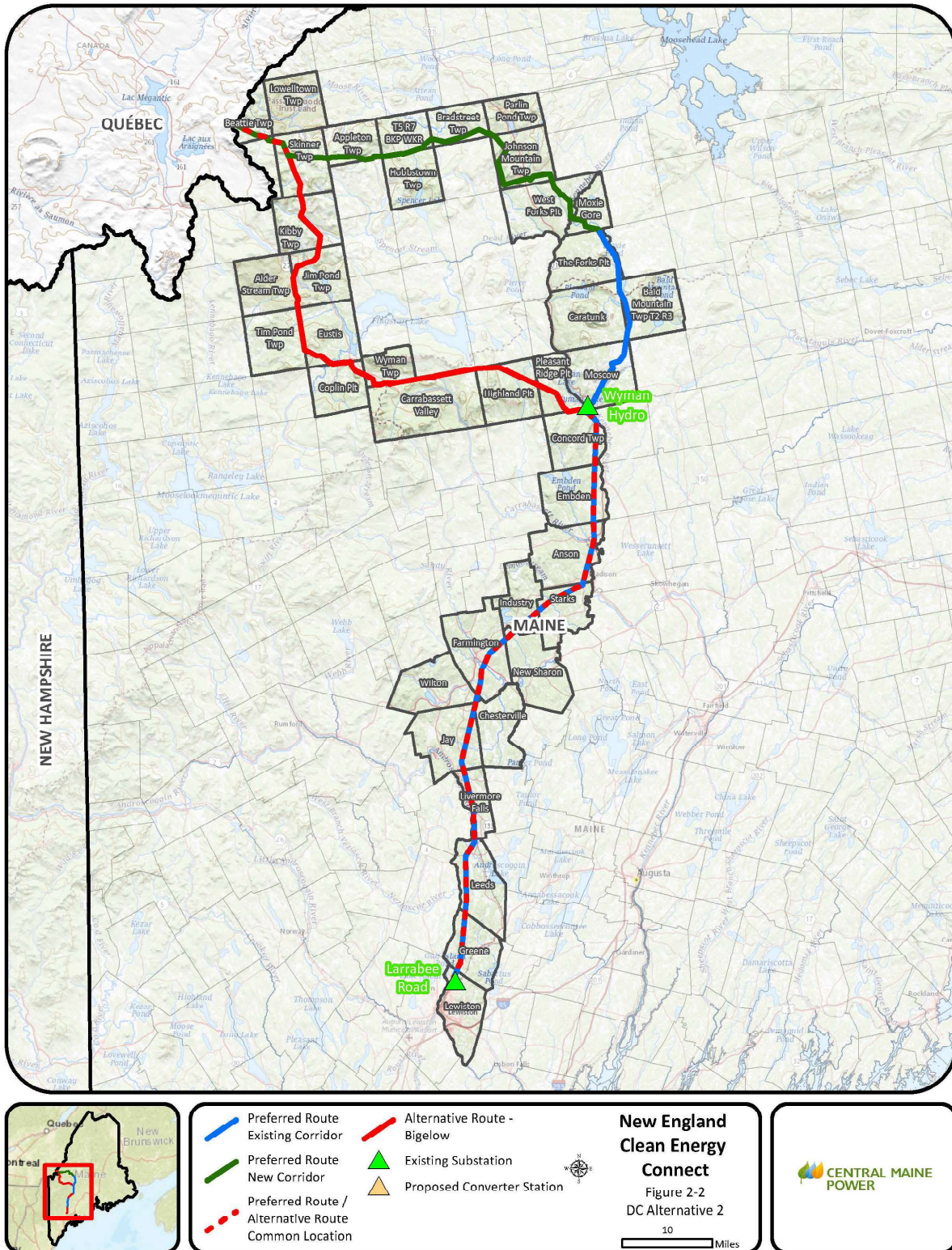
From the point of intersection with the Section 63 corridor, which is approximately 0.75 mile south of the Wyman Dam, Alternative 2 would follow the Preferred Alternative to Larrabee Road Substation in Lewiston.

When compared to the Preferred Alternative (Refer to Table 5-2), Alternative 2 would have resulted in crossing three more conserved parcels with an increase in the impacts on conserved land of 11.2 acres; a decrease of 36.2 miles of undeveloped ROW; a decrease in the amount of cleared area of 153 acres; an increase of 8 stream crossings; an increase of 20 wetland crossings, with an increase of 37 acres of wetland impact; the same number of DWA crossings, but a decrease of 0.3 acres of impact; the same number of IWWH crossings, but a 6.2 acre decrease of impact. Approximately 34 parcels would need to be acquired, including rights across the Penobscot Indian Nation, the Bigelow Preserve, and the Appalachian Trail corridor. Past attempts by others, including Highland Wind and Foster Mountain Wind (a/k/a West Hills Wind), to develop transmission and generation in this area have not been successful, due in part to local opposition; therefore, the acquisition of private land in these areas is expected to be difficult. In addition, Alternative 2 transmission structures would likely be visible from points on the Appalachian Trail and other trails on the Bigelow Preserve and from the Sugarloaf Mountain Ski area. This alternative appears to be practicable but it is not less environmentally damaging. In addition, CMP's projected inability to obtain an easement to cross the AT brings into question the overall availability of this alternative. Overcoming this issue would require a costly and complex underground crossing, whether buried roadside in the Route 27 right of way or placed underneath the Appalachian Trail corridor via directional bore, which would not be technologically or economically practicable. When considering this alternative's additional wetland acreage, additional conservation acreage, and issues associated with the AT crossing, Alternative 2 would not be less environmentally damaging than the preferred alternative.

Table 5-2: Comparison of NECEC Preferred Alternative to Alternative 2
 Table 5-1: Comparison of NECEC Preferred Alternative to Alternative 1

Point of Comparison	Unit	Preferred Alternative	Alternative 2
Conserved lands	no./acres	6 parcels/42 acres	9 parcels/53.2 acres
Undeveloped ROW	miles	53.1	17.3
Clearing	acres	1,823	1,670
Stream crossings	no.	115	123
Transmission line length	miles	146.1	138.5
NWI mapped wetlands	no./acres	263 wetlands/ 76.3 acres	283 wetlands/ 113.3 acres
Deer wintering areas	no./acres	8 DWAs/44.3 acres	8 DWAs/44 acres
Inland waterfowl and wading bird habitat	no./acres	12 IWWH/22.7 acres	12 IWWH/16.5 acres
Public water supplies within 500 feet	no.	1	1
Significant sand and gravel aquifers	no.	12	10
Parcel count total	no.	7	34

Figure 5-2: HVDC Alternative 2



6/9/2020

5.2.2.3 **The Preferred Alternative**

The preferred alternative is more fully described in Section 1 of this document. This alternative does not contain the least amount of new corridor clearing; however, CMP concluded in its analysis, that the Preferred Alternative is the shortest practicable route from the Canadian Border to an existing transmission line corridor. In siting the Preferred Alternative, the applicant chose a route that it states would avoid crossing conserved lands or ridgelines and would avoid natural resources and scenic resources to the greatest extent practicable. The Corps has determined that this alternative meets the project purpose, it is practicable, and in consideration of the applicant's siting factors, it is less environmentally damaging.

5.2.3 **Underground Alternatives.**

The applicant did not initially consider underground alternatives but has since done so at the urging of the USACE and the Maine DEP. The minutes of the state public hearings reflect detailed testimony concerning underground installations. Similarly, the administrative record has a more detailed analysis of this construction alternative. Underground construction types include direct burial, concrete encased duct bank installation and trenchless installations.

In order to meet the power transfer and reliability requirements for the Project an underground installation would require two cables per pole, with an installed spare, for a total of five polymer insulated power transmission cables and two fiber optic cables. (In specific areas with limited trenchless installations a single cable per pole is sufficient to meet the load, but to connect two cables per pole to one cable per pole requires construction of above grade terminal stations; construction of terminal stations would have substantial additional cost and natural resource impacts.) The cables are limited to approximately 2,500-foot shipping lengths, requiring the cables to be jointed or spliced approximately every 2,200 feet. Jointing the cable requires weather- and humidity-controlled enclosures. Installing the entire line underground would therefore require an estimated 390 jointing locations with five joints at each location.

When transitioning between overhead and underground transmission, termination stations are required to terminate the underground cable and connect to the overhead lines. Termination stations would be approximately 135 feet by 135 feet and include overhead line dead-end structures, surge arrestors, and termination stands. These stations would appear similar to a substation, with fencing and crushed stone surfacing.

Direct burial. The lowest cost underground installation method is direct burial. In this type of installation, a trench the full length of the cable shipping length is opened using an excavator. In areas with shallow bedrock, trenching will require blasting, hoe ram, or similar excavation methods. The cables are placed in a single row in a sand bedding layer approximately one foot deep in the bottom of the trench. Above the sand bedding layer a protective concrete slab would be

poured and the trench above the slab would be backfilled with native soil. A typical trench would be approximately five feet wide at the bottom with sloping sides for a minimum surface width of 12 feet, increasing when trench depth increases. The cables would be installed with a minimum depth of 60 inches to the top of bedding layer for a minimum depth of six feet to the bottom of the trench. In areas where the cable crosses other below ground infrastructure the cable would need to be deeper.

At each jointing location a large excavation, approximately 60 feet long, 20 feet wide, and seven feet deep would be opened. A concrete pad would be poured in the bottom of the excavation. Temporary structures would be erected over the jointing locations. Once the cables have been jointed, precast concrete enclosures approximately 12 feet long and 4 feet wide would be placed over each joint for additional protection and the jointing pit would be backfilled with sand and native soil.

The direct burial installation method requires several thousand feet of trench and a clear work area approximately 75 feet wide to stay open while the cable is installed and jointed. This generally makes direct burial unsuitable for installation within roadways due to the impacts to users of the road, large installation area, and insufficient protection from damage due to future utility or road construction.

Duct Banks. In roadways, shared ROW, or other exposed areas, cable systems are typically installed in concrete encased duct bank. In this type of installation, several hundred feet of trench is opened using an excavator. In areas with shallow bedrock, trenching would require blasting, hoe ram, or similar excavation methods. Polyvinyl Chloride (PVC) conduits would be installed using spacers in the bottom of the trench, and concrete would be used to encase the conduits. Above the concrete the trench would be backfilled and topped with pavement.

Duct bank would include five conduits for the power cables, two conduits for the fiber-optic cables, and one spare conduit installed in two rows of four conduits. The trench would be approximately five feet wide. Trenches for duct bank are typically shored, keeping the width the same at the top and bottom. The duct bank would be installed with a minimum of 60 inches to the top of the concrete encasement. The encasement would be approximately three feet deep for a minimum trench depth of eight feet. In areas where the cable crosses other below ground infrastructure the cable would need to be deeper.

At each jointing location a pair of precast jointing bays, approximately 33 feet long, 10 feet wide, and 10 feet deep (roughly the size of a school bus) would be buried. The jointing bays would be buried completely, with access provided by two 30-inch manhole entries per vault. Additional smaller handholes, approximately two feet wide by four feet long, would be required for the installation of the fiber optic cables at the jointing locations.

Duct bank construction typically requires a 30-foot wide work area along with space for an access road. At the jointing locations the work area would need to be approximately 10 feet wider to allow for installation of the jointing bays. Once the duct bank system is complete the cable would be pulled into the duct bank system from the jointing bays. Cable installation does not require re-excavating at the jointing bays. The cable would then be jointed in the vaults.

Trenchless Installations. In areas where surface obstacles such as highways, railroads, wetlands, or waterways would prevent installation by direct buried or trenched duct bank, trenchless installation methods such as HDD can be used. While there are other trenchless methods available, HDD is the lowest impact trenchless method for the conditions present on the NECEC Project. Trenchless installation methods are two to 10 times more expensive than trenched installations and 8 times more expensive than overhead installations. Trenchless installation methods are susceptible to disruption due to variable, unfavorable, and unexpected subsurface conditions such as rock, boulders, or cobbles. As discussed below, trenchless installation for the Project is expected to be at the higher end of the cost range due to access constraints, subsurface conditions, and necessary site preparation.

HDD operation would require a temporarily cleared work area on each side of the installation, approximately 100 feet wide and 250 feet long. The pipe to be pulled into the HDD would need to be assembled into a single string in a cleared, mostly straight area the length of the crossing and approximately 30 feet wide. HDD installations would typically be connected by duct bank to nearby joint bays before continuing as either duct bank or direct buried installation or to a termination station for transition to an overhead configuration.

Considerations of Cost of Undergrounding. Installing transmission lines underground is much more expensive than overhead. Reflective of detailed information contained in the administrative record, CMP estimates that to install the entire 144.9 miles of HVDC transmission line underground on the proposed route would cost approximately \$1.9 billion. To install just the 53.1-mile new corridor portion of the Project underground along the proposed route (Segment 1) would cost approximately \$750 million. These are preliminary estimates and do not include costs for the convertor station, interconnecting lines, upgrades to other transmission and substation assets, and indirect costs. Total estimated cost for constructing the Project with underground lines would be \$2.6 billion on the current route, on just the new corridor (Segment 1) it would be \$1.6 billion, and on the alternate underground route (a co-location scenario, discussed later in this analysis) it would be \$2.8 billion. These costs are approximately three times more costly than the preferred alternative. In each scenario, the underground alternative is not practicable due to cost, relative to the overall cost of the Project as proposed and contractually agreed to through the Massachusetts RFP solicitation.

Environmental impacts of undergrounding. Underground transmission installations have different impacts from overhead transmission. Specific impacts are dependent on the aquatic ecosystems and the protected and sensitive resources present at specific locations. Underground transmission typically requires less clearing width than overhead transmission, but still requires a significant area to be cleared and for the majority of that area to be grubbed and graded. For the NECEC Project a cleared width of 150 feet is required for overhead lines and a minimum cleared width of 75 feet would be required for trenched underground lines. However, the surface disruption caused by trenched underground transmission line construction is continuous along its length rather than intermittent and widely spaced at each overhead structure installation location. In areas of uneven or side-sloping terrain, grading and significant cuts and fills would need to occur to provide a safe travel surface for equipment and personnel during construction, operation, and maintenance. The additional surface disruption would require additional control measures for soil erosion, sedimentation, and dust generation during construction, and poses a risk that those control measures could be damaged during an extreme weather event. Further, underground installations involving trench excavation entail significantly more trench de-watering than individual transmission structure excavations, resulting in an increased risk of sedimentation in wetlands and waterbodies.

Clearing width for overhead transmission is determined based on electrical clearances and vegetation management. In underground transmission applications, clearing width is determined based on a combination of operational and maintenance requirements, preventing damage due to root growth, and preventing future vegetation impacts to line capacity. In both installations shorter vegetation is not a concern.

Preventing damage due to root growth and preventing future impacts to the line capacity of underground transmission lines are both driven by the roots of large trees. The roots of large trees remove moisture from the soils and under drought conditions can increase the thermal resistance of the soils, causing an unacceptable temperature increase in the cables. While it varies with the species of tree, most trees have a root area of impact similar to the crown spread (dripline) of the tree.

Surface disruption during construction for overhead transmission includes access roads and work sites at each structure, with minimal impacts between structures. Surface disruption during construction for underground transmission is continuous and at the full 75-foot wide work area unless higher cost and higher risk trenchless methods are used. Underground installation would create significantly more subsurface disturbance, including a marked increase in the amount of blasting that would be needed along the length of the installation, as opposed to isolated blasting required for transmission line structure installation. Blasting to the extent needed to install the transmission line underground would

add significant risk to the hydrology of wetlands and waterbodies along and adjacent to the project route.

The inspection, maintenance and repair requirements for underground transmission lines requires access to every jointing location along the route. This requires permanent access roads to be maintained to each jointing location. For overhead lines, permanent access roads to each structure are not required. As a result, the extent of permanent wetland fill to construct the Project in an underground configuration would be significantly higher than an overhead design. In addition, for an underground design, permanent stream crossings would need to be constructed and maintained.

Overhead lines can generally avoid or minimize direct wetland impacts by locating structures outside of wetlands and spanning sensitive environmental areas. Underground transmission installation, being continuous, can only avoid wetlands and waterways by using higher cost and higher risk trenchless methods.

Public impacts of undergrounding. In general, construction of underground transmission lines will have a larger impact on the general public than overhead transmission lines. This is particularly the case when the line is being installed in public roadways.

Underground transmission line construction in roadways will have significant public impacts. Most of the roads in the Project area are two lane roads. Underground construction would require closure of half the road, resulting in alternating one-way traffic.

Underground transmission line construction is slower than overhead construction with significantly more construction activity along the route. Construction at each splicing location would require 2-3 weeks of continuous activity. Direct buried cable sections would require continuous work along the 2,200-foot-long trench for approximately three weeks. Duct bank construction would advance at approximately 200 feet per day. HDD operation duration would depend heavily on the subsurface conditions and length of the crossing, with each drilling location being occupied for 8 to 24 weeks.

Additional risks of undergrounding. Underground transmission construction is particularly susceptible to cost and productivity impacts due to unforeseen subsurface conditions, such as shallow bedrock, boulders, cobbles, and unstable soil or bedrock conditions. While overhead transmission construction allows targeted soil sampling and borings at each proposed structure location, underground transmission is continuous, and it is therefore impossible for borings to identify all subsurface conditions in advance of construction.

The most common risk for below grade construction is encountering bedrock shallower than expected. In areas with shallow bedrock, trenching would require blasting, hoe ram, or similar excavation methods.

Trenchless construction methods in particular are very susceptible to unforeseen pockets of gravel or cobbles, which may collapse into the boring, binding the drill tooling or conduit piping.

The amount of excavation required for underground transmission makes progress and productivity particularly susceptible to extreme rain events.

The purpose of the Project is to allow the Applicant to deliver clean hydropower energy generation from Québec to New England at the lowest cost to ratepayers, which delivery requires availability of at least 90% of the generation every month. Faults on the transmission line are one risk factor the Applicant must overcome to meet the availability requirements of the Project. Overhead faults are often due to debris (e.g., limbs, trees) that is dislodged during the fault or quickly removable, allowing the line to return to service quickly. When a fault occurs on an overhead transmission line it would automatically be isolated at the HVDC converter station. The overhead line would then be drained of any remaining energy and within seconds the line would automatically be restored to service, assuming the fault was temporary. This automatic return to service process is referred to as reclosing the line. With an underground cable good utility practice necessitates not reclosing on the cable segment, because most underground cable faults result from inherent damage to the cable insulation and require repair before being restored to service. This practice helps to avoid additional damage to the cable and prevents public exposure to potentially energized cable that has been exposed and damaged due to, for example, improper excavation by a third party.

When overhead and underground segments are combined in a single transmission line, a typical solution to allow reclosing would be to establish larger cable termination stations with a full local protection system that can accurately determine the location of the fault and prevent the line from automatically reclosing if the fault is expected to be in the buried cable segment. Operation of such protection and monitoring equipment requires AC electrical station service to supply power. The cost of establishing AC station service may be excessive, and thus not practicable, due to the distance from existing AC electrical distribution service.

As an alternative approach to such local protection equipment, remote monitoring equipment could be used to estimate the fault location. These estimates of the fault location are not precise. CMP would need to block automatic reclosing for faults near the underground portion, including some length of the overhead line. Estimates from converter vendors indicate that the length of overhead line where

faults would not be able to be reclosed would be approximately one mile on each side of the underground cable, or two miles in total.

This configuration would prevent CMP from quickly restoring the line in the case of faults in the overhead portions of the line adjacent to underground sections, reducing overall line availability and reliability. CMP has accepted this reduction in reliability for the upper Kennebec River underground cable section, but every additional section of underground would add more segments of overhead transmission line that would not automatically reclose for temporary faults, which would prevent quick restoration of the line and would therefore be inconsistent with the Project's purpose.

Also, while cable faults are less likely with underground cable than overhead lines, they typically result in more significant damage to the cable system, preventing a return to service without difficult repairs. Underground faults are very costly and time-consuming to identify, isolate, and repair, and usually require dispatching heavy equipment to the affected section to repair or replace the cable. The repair time of an underground fault increases in cold weather, with access limitations due to winter ground conditions.

As a result of the above, outages in an overhead line are often restored in a few hours, while outages in underground cables typically require 2 to 5 weeks to restore.

The applicant has sufficiently demonstrated that the underground alternative is not practicable due to cost. To install the entire 144.9 miles of HVDC transmission line underground on the preferred route would cost approximately \$1.9 billion. To install just the 53.1-mile new corridor portion of the Project underground along the proposed route (Segment 1) would cost approximately \$750 million. These are preliminary estimates and do not include costs for the converter station, interconnecting lines, upgrades to other transmission and substation assets, and indirect costs. Total estimated cost for constructing the Project with underground lines would be \$2.6 billion on the current route, on just the new corridor (Segment 1) it would be \$1.6 billion, and on the alternate underground route (co-location; discussed later in this analysis) it would be \$2.8 billion. These costs are approximately three times the currently estimated cost for the preferred alternative. In each scenario, the underground alternative is not practicable due to cost, relative to the overall cost of the Project as proposed and contractually agreed to through the Massachusetts RFP solicitation.

The applicant has also sufficiently demonstrated that this alternative is not environmentally less damaging than the preferred alternative. Underground transmission typically requires less clearing width than overhead transmission, but still requires substantial areas to be cleared and for the majority of the areas, to be grubbed and graded. Overhead transmission conversely requires very little grubbing or other soil disturbance. HDD installations have the potential to avoid

aquatic and other sensitive resources but are far too costly to apply to every resource, leaving standard trenching as the least costly option. However, and as evidenced by typical gas installations in a number of New England states including Maine, trenching results in far greater short-term impact to wetlands, vernal pools, streams, trout and salmon streams and wildlife resources than aerial installations. Trenching also results in greater surface disruption as construction is continuous along the length of the corridor rather than intermittent and widely spaced at each overhead structure installation location. In areas of uneven or side-sloping terrain, grading and large scale cuts and fills would need to occur to provide a safe travel surface for equipment and personnel during construction, operation and maintenance. And while buried utilities diminish the visual impact of a pole line, the ROW must still remain open.

5.2.4 Co-location alternatives

The USACE and the Maine DEP requested that the applicant provide more detailed information regarding the co-location of the HVDC transmission line with existing transportation corridors and an electric distribution corridor. This information has been fully considered in this analysis. These alternatives include Maine State Route 27 (Route 27), U.S. Route 201 (Route 201), Existing Private Logging Roads, the Central Maine and Québec Railway (CM&Q Railway), and the Jackman Tie Line. Several of these alternatives were referenced in public comment and hearing testimony. These alternatives were considered as potential hybrid options, as the use of any of these transportation routes would need to tie into CMP's existing transmission system or require some portion of new corridor to route into the existing system.

Route 27. Co-locating the HVDC transmission line with Route 27 would require it to be installed within or parallel to this highway from the Canada border to a point at which the transmission line would join CMP's existing Section 215 transmission line corridor, associated with the HVDC Alternative 2 (described in Section 5.2.2.2), in Carrabassett Valley (See Figure 5-3). The width of the Route 27 ownership varies from four to eight rods (66 to 132 feet). An overhead transmission line such as NECEC requires a 150-foot-wide corridor; consequently, there is insufficient space for an overhead transmission line along Route 27. An underground transmission line of the capacity to transmit the load projected for this transmission line would require excavating a trench approximately six feet deep, five feet wide at the bottom and generally 12 feet wide at the top. Approximately 37.5 feet from the center of the trench must remain tree free to maintain the integrity of the cables. The Maine Dept. of Transportation (Maine DOT) Utility Accommodation Rules (17-229 CMR Chapter 210) do not allow the construction of underground electrical services below highways. Underground and overhead electrical services must be constructed within the road shoulder or sidewalk. Even at the widest highway corridor width, there is insufficient space for an underground line if the trench is placed outside the highway ditch line.

There are over 660 parcels along Route 27 between the Bigelow Substation located at the north town line of Carrabassett Valley and the Québec border with the majority of these located in the villages of Stratton and Eustis. Rights across the road frontage of an estimated 300 parcels, many of which are residential, would be required. CMP assumed a probability of success of 95% for each parcel producing a Project success probability of .00002% ($.95^{300}=.0000002$ or .00002%). Even using an extremely aggressive probability factor of .995 still produces a project success probability of 22.2%. In addition, this route would require the acquisition of additional width along the Section 215 transmission line corridor between Bigelow Substation and Wyman Dam through the Bigelow Preserve Public Reserved Land.

In summary, acquiring additional width along Route 27 is not practicable. Because of the highway's proximity to residential structures, the use of eminent domain may not be available to CMP in these areas pursuant to 35-A Maine Revised Statute Annotated (MRSA) § 3136, as the Project may be within 300 feet of inhabited dwellings. Additionally, Maine DOT rules further constrain CMP's ability to co-locate within the existing highway ROW, effectively eliminating this as a practicable alternative, based on the ROW not being available. There is also some question of its environmental benefits. Although co-locating along roadways and other established corridors is generally environmentally preferable, in this case Route 27 is a scenic byway and only supports local distribution lines. An aerial installation would affect aquatic and other natural resources in much the same way as the preferred alternative but would be highly visible to travelers along the roadway. A buried line could mitigate visual impacts, but could have high temporary/short-term construction impacts, and is not practicable due to cost as previously described.

Route 201. Route 201, the Old Canada Road National Scenic Byway, is designated as both a Maine State Scenic Byway and a National Scenic Byway. This 78.2 mile Byway follows the Kennebec River, crossing Segments 1 and 2 once each. This section of road is also part of the Kennebec-Chaudiere Heritage Corridor, which links Fort Popham to the south with the City of Québec (Canada) to the north.

Co-locating the HVDC transmission line with Route 201 would require the Project to be installed within or parallel to this highway from the Canada border to a point at which the transmission line would join CMP's existing Section 222 transmission line corridor, associated with the Preferred Alternative (described below), near Wyman Dam in Moscow (see Figure 5-3). The spatial constraints for the co-location of the transmission line within the Route 201 corridor are nearly identical for those described above for Route 27.

There are over 510 parcels along Route 201 and Lake Moxie Road between CMP's transmission line (Section 222) and the Québec border, with the majority of these parcels located in the villages of West Forks, Jackman, and Moose River. Rights across the frontage of an estimated 225 parcels, many of which

are residential, would be required. According to CMP, the lower parcel count along this route produces a slightly higher probability of Project success, but still only 32.4% at a probability of 99.5% for each parcel.

Similar to Route 27, acquiring additional width along Route 201 is not practicable. Because of the proximity to residential structures, the use of eminent domain may not be available to CMP in these areas. As stated previously, Maine DOT rules further constrain CMP's ability to co-locate within the existing highway ROW, effectively dismissing this alternative as practicable, due to lack of availability.

Existing Private Logging Roads. The network of logging roads in this region are privately owned and on private heavily maintained forest land. These roads are temporary as they are used and maintained only when forest harvesting is occurring in the vicinity and are often relocated by the private landowners, as needed. These roads do not offer the connectivity or sufficient width required to be useful as a corridor and generally terminate somewhere in the woods. For these reasons, the only logging road considered as a potential practicable alternative was the Spencer Road.

While also a privately owned forest management road, Spencer Road is used year-round to access adjacent private timberlands for forest management purposes. The Applicant first approached the then primary forest landowner along Spencer Road, Plum Creek Maine Timberlands LLC (PCT), in 2014 to discuss a potential alignment of Segment 1 of the Project west of Route 201 along Spencer Road (See Figure 5-3). PCT specifically did not want a transmission line located along Spencer Road because such a transmission line, whether overhead or underground, would limit PCT's ability to ditch, blast, create, and use landings, operate heavy equipment, or relocate the road to facilitate its forest products business. Additionally, PCT had concerns that activity associated with transmission line construction, whether overhead or underground, would create congestion and negatively impact its ability to access its land and transport timber. Thus, the use of Spencer Road as an alternative alignment was unavailable to CMP.

PCT was subsequently acquired by Weyerhaeuser Company (Weyerhaeuser) in February of 2016. CMP and PCT had previously entered into an option to purchase a transmission line corridor substantially along the Preferred Alternative route. The option was amended five times with PCT and once with Weyerhaeuser before CMP acquired the corridor. At no time during the negotiations with Weyerhaeuser for lands needed to complete the acquisition of the Preferred Alternative did the new owners indicate that it had reconsidered the availability of lands or show a preference for a co-located transmission line along Spencer Road. Weyerhaeuser continues to utilize and maintain Spencer Road and conduct forestry operations in much the same way that PCT did.

The Applicant has since asked Weyerhaeuser if acquiring a corridor for either an overhead or underground transmission line along the Spencer Road would be possible. The landowner responded that in order to determine if there was an interest in selling, CMP would need to follow the same process that was used when acquiring the existing transmission corridor from the landowner. On CMP's part, it would need to negotiate the terms and conditions, including the purchase price, for these lands and then determine the practicality of making a purchase. The process CMP followed to acquire the new corridor associated with the Preferred Alternative was generally as follows:

- Obtain right of entry.
- Develop a preliminary alignment.
- Make a formal offer to purchase including price and conditions of purchase.
 - If the proposal were acceptable in principle, the landowner and CMP would execute a contract detailing the terms, conditions and purchase price. The process would not proceed until or unless there was agreement between CMP and the landowner.
 - During the contract period, CMP would perform resource surveys and due diligence.
 - CMP would most likely request one or more amendments to the contract based on the results of the resource surveys and due diligence. If the changes were acceptable to the landowner, the contract would be amended. The process would not proceed until or unless there was agreement between CMP and the landowner on all terms and conditions including any adjustment to purchase price based on the contract changes.

In summary, although the current landowner has not specifically ruled out the possibility of conveying to CMP access rights along Spencer Road for a transmission line, he has not indicated a current willingness to do so. CMP started the acquisition of the Preferred Alternative in early 2014 and completed the purchase in the fall of 2017. It would take a similar period of time to acquire a new corridor adjacent to Spencer Road. Also, to try to convince the current owner to grant easement rights, at this late date (years after it was initially ruled out due to unavailability), is not reasonable because the logistics and time required to acquire the land would result in the NECEC not moving forward, i.e., it would no longer meet the Project purpose and need. The contracted in service date with Massachusetts is December 13, 2022. At the time state and federal permit applications were filed, due diligence on the applicant's part determined that this alternative was not available. A significant commitment of resources and time has been made in the meantime by CMP based on that determination. State permits, water quality certification, and the Maine PUC Certificate of Public Necessity and Convenience have been issued based on that determination. For this analysis, the Spencer Road alternative remains not practicable.

Central Maine & Quebec Railway line (CM&Q). The CM&Q Railway crosses the Maine-Québec border about 2.6 miles north of the Preferred Alternative border crossing location and generally follows the Moose River and the shores of Holeb, Attean, and Big Wood ponds easterly about 28 miles to Jackman. From Jackman, the railway continues easterly along the Moose River, Long Pond, Brassua Lake, and the shore of Moosehead Lake about 40 miles to Greenville Junction (See Figure 5-3). The railway corridor does not have sufficient width for either an underground or overhead transmission line. The railway is still considered active, so any use of the railway corridor must assume that the track needs to remain intact. The ownership is generally six rods (99 feet) wide, which does not provide the area needed for either an underground or overhead electric transmission line outside the toe of slope of the roadbed. Additional land or land rights would need to be acquired for either an overhead or an underground electric transmission line. A very rough estimate of the additional land area needed is 35 to 50 feet for an underground line and 50 to 75 feet for overhead line. The railway is close to the shore of Attean Pond and very close to the shore of Holeb Pond, both part of the Moose River Bow Trip, an iconic Maine canoe trip. The railway is also close to the shore of Big Wood Pond in Jackman. Much of the land next to the railway is either subject to a conservation easement, is State owned, or is developed as recreational properties, including virtually all the land adjacent to the railway in Attean Township as well as a large part of Holeb Township. These lands have high recreational use. The probability of successfully acquiring the required title, right, or interest in the lands needed to develop a transmission line along a currently active railway is very low, would be very costly, and would require several years at best. This aligns with the USACE general experience with rail companies in Maine, they are generally reluctant to engage in discussions of any activity that potentially puts their lines at risk.

Finally, at no point does the railway cross or come close to CMP's Harris Dam or to the Lewiston transmission line corridor. As a result, the only possible route using the railway as a co-located corridor would be to join it with the Route 201 alternative in Jackman. As discussed previously, the Route 201 alternative is not a practicable alternative.

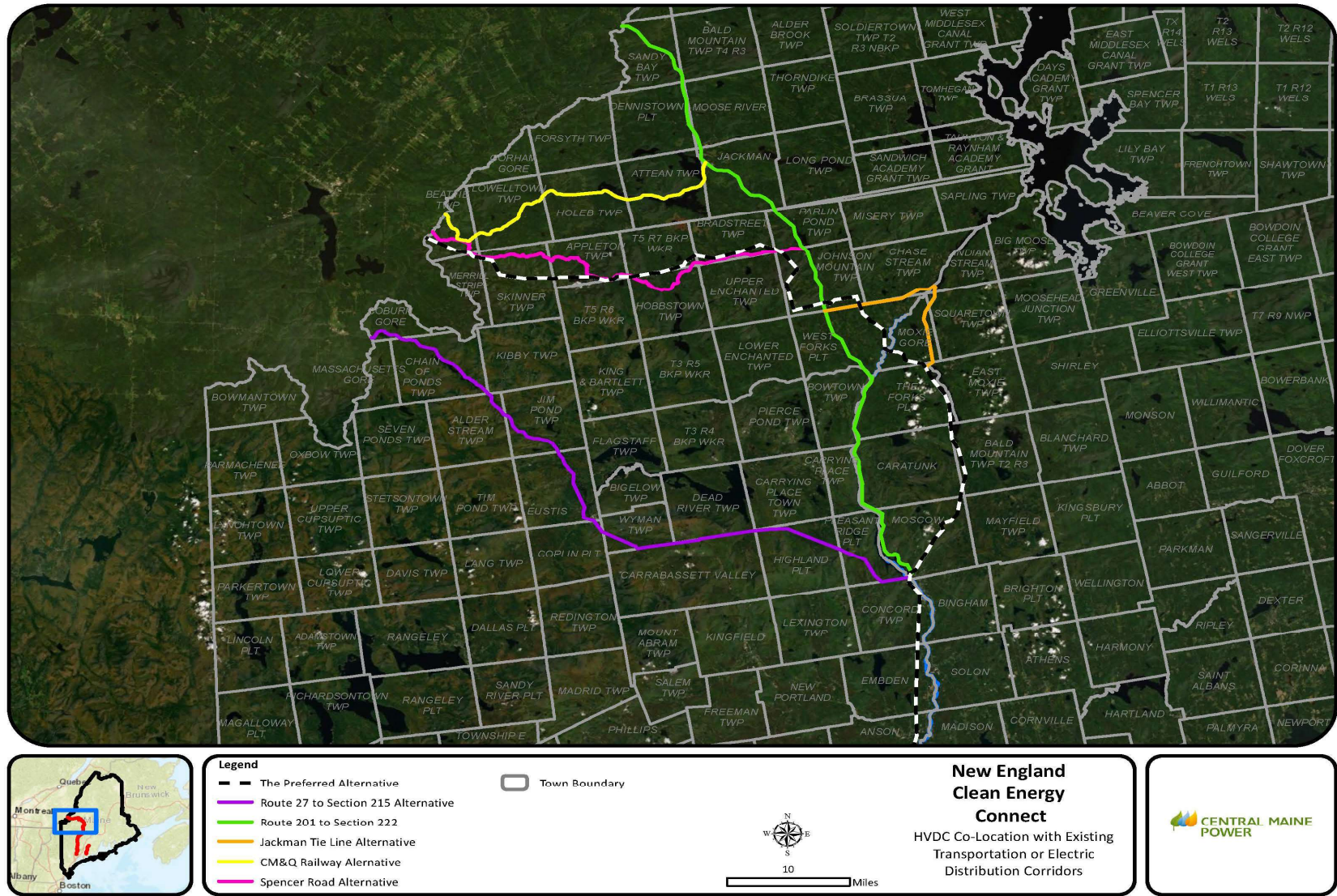
It is the USACE determination that this alternative is not practicable because it is not available. The USACE further notes that this alternative would likely be contrary to the public interest (at a minimum aesthetically) and aerial or buried lines along this corridor would likely face a similar scope of aquatic and other natural resource impacts to that of the preferred alternative. It is common for rail lines to be sited in relatively flat terrain, which in this region typically supports wetlands and stream corridors.

Jackman Tie Line. The Jackman Tie Line is an electric distribution line that extends from Harris Dam west to a point on Route 201 in West Forks Plantation south of the boundary of Johnson Mountain Township. From that point, about 18 miles to the Town of Jackman, the Tie Line is a standard roadside distribution line located within the highway limits of Route 201. The Tie Line terminates in

Jackman approximately 16 miles from the Canada border (See Figure 5-3). Not only would a new corridor need to be acquired through the towns of Jackman and Moose River, but a corridor would need to be acquired along Route 201, a designated Maine State Scenic Byway and a National Scenic Byway, for the entire distance from Jackman to West Forks Plantation. In addition, the Jackman Tie Line corridor between Harris Dam and Route 201 would need to be expanded through two conservation easements and across the State-owned Cold Stream Forest, which specifically prohibits commercial development.

As stated previously, a co-located corridor along Route 201 is not practicable as it is not available. Additionally, expansion of the portion of the Jackman Tie Line from Route 201 to Harris Dam is not possible because existing deed covenants and restrictions associated with conservation lands along that route prohibit this type of development. These constraints further speak to relative unavailability of this alternative.

Figure 5-3 HVDC Co-Location with Existing Transportation or Electric Distribution Corridors



5.2.5 On-site alternatives (On Alignment Design/Construction Alternatives):

5.2.5.1 Border Crossing Alternatives

The preferred border crossing location was identified through the consideration of routes on both sides of the border that would accommodate the needs of both CMP and Hydro-Québec while minimizing the length of transmission line to do so, thereby minimizing the environmental impacts associated with a new corridor. The Corps notes that the nearest water of the U.S. to the preferred border crossing location is approximately 300' away, yet it has been avoided in the preferred alternative.

In evaluating routing and border crossing alternatives, the following criteria were considered: conserved lands; undeveloped rights of way; required clearing; total parcel count; land availability; number of stream crossings; transmission line length; National Wetland Inventory mapped wetlands; deer wintering areas; inland waterfowl and wading bird habitat; public water supplies within 500 feet; and significant sand and gravel aquifers. Avoiding or, alternatively, minimizing impacts to these resources, resulted in the preferred transmission line route and, necessarily, the preferred border crossing. Alternative border crossings would have caused or increased impacts to one or more of the listed resources or attributes.

In addition, sufficient access to a corridor was a primary consideration, and the preferred border crossing has relatively good existing access on both sides of the border. An alternative border crossing farther south would have limited access in an area with higher elevations. Further, a border crossing south of the current location would require land acquisition in Merrill Strip Township. CMP was unable to negotiate a mutually acceptable alternative alignment with the landowner who owns the majority of property in Merrill Strip Township. An alternative border crossing farther north than the proposed crossing would avoid crossing the LUPC mapped Recreation Protection Sub-district (P-RR) at Beattie Pond (see Figure 5-4) but would also result in greater impacts to Passamaquoddy Tribal lands because it would extend the length of transmission line within Lowelltown Township, which is entirely owned by the Passamaquoddy Tribe, and would also result in a significantly longer transmission line overall.

The USACE has determined that CMP's analysis of border crossing alternatives is appropriate. The border crossing site was visited with state agencies and is relatively free of wetlands. While the USACE has no ability to assess alternatives or impacts on the Canadian side of the border, there is no reason to believe that Provincial and Federal regulatory agencies in Canada aren't applying similar avoidance and minimization review criteria in their review of the Hydro-Québec segment leading to the border.

5.2.5.2 State Listed Outstanding River Segment Alternatives

Maine state law protects certain rivers that, “because of their unparalleled natural and recreational values, provide irreplaceable social and economic benefits to the people in their existing state.” 12 MRSA § 403. The NECEC crosses the following five locations which are afforded special protection as Outstanding River Segments, as identified in 38 MRSA § 480-P and 12 M.R.S § 403:

- Upper Kennebec River
- Kennebec River below Wyman Dam
- Carrabassett River
- Sandy River
- West Branch of the Sheepscot River

The applicant considered alternatives to crossing these five Outstanding River Segments in its applications submitted in September 2017, and provided supplemental information in responses to agency data requests demonstrating that “no reasonable alternative exists” for each river segment the transmission line crosses, also as summarized here. Although indirect, non-jurisdictional clearing effects to Outstanding River Segments, a state listed resource of importance, do not warrant analysis pursuant to the Section 404(b)(1) Guidelines per se, they are none the less also waters of the U.S. and actions taken to avoid adverse impacts have at least partially driven the project alignment and design and its impact to aquatic resources and the general public interest. They are therefore discussed in this section of our analysis.

The Preferred Alternative for the crossing of the Upper Kennebec River is underground, using HDD. This is further discussed in detail in Section 5.2.5.3. The applicant has clearly demonstrated that avoiding direct and indirect impacts to this Outstanding River Segment is also the least environmentally damaging practicable alternative relative to waters of the U.S.

All other Outstanding River Segment crossings listed above are within existing transmission line corridors, so any alternatives would require new transmission line corridors and new crossings. This would result in new indirect and possibly direct impacts to aquatic and other natural resources and to the public interest. By using the existing ROW, additional clearing adjacent to the four Outstanding River Segments crossed aerially by the Project will be limited to a typical width of 75 feet and impacts will be concentrated in locations where transmission lines already cross the rivers. Colocation of this nature is commonly the least environmentally damaging practicable alternative and is the least environmentally damaging practicable alternative for this project.

Underground crossings of those rivers would have to be accomplished using HDD. Termination stations with permanent access roads would need to be sited on each side of the rivers to facilitate the transition from an overhead to underground configuration. It is possible that despite best efforts to minimize views of the termination stations, they would still be visible from these rivers, especially given the existing transmission line corridor and views down the

corridor. As discussed in Section 5.2.3, the applicant has demonstrated that trenchless installation methods such as HDD are up to 8 times more expensive than standard overhead crossings and are therefore not practicable due to cost. The applicant's Visual Impact Assessment documents the limited impact of co-located aerial crossings of these resources and provides additional support that they are the least environmentally damaging practicable alternative.

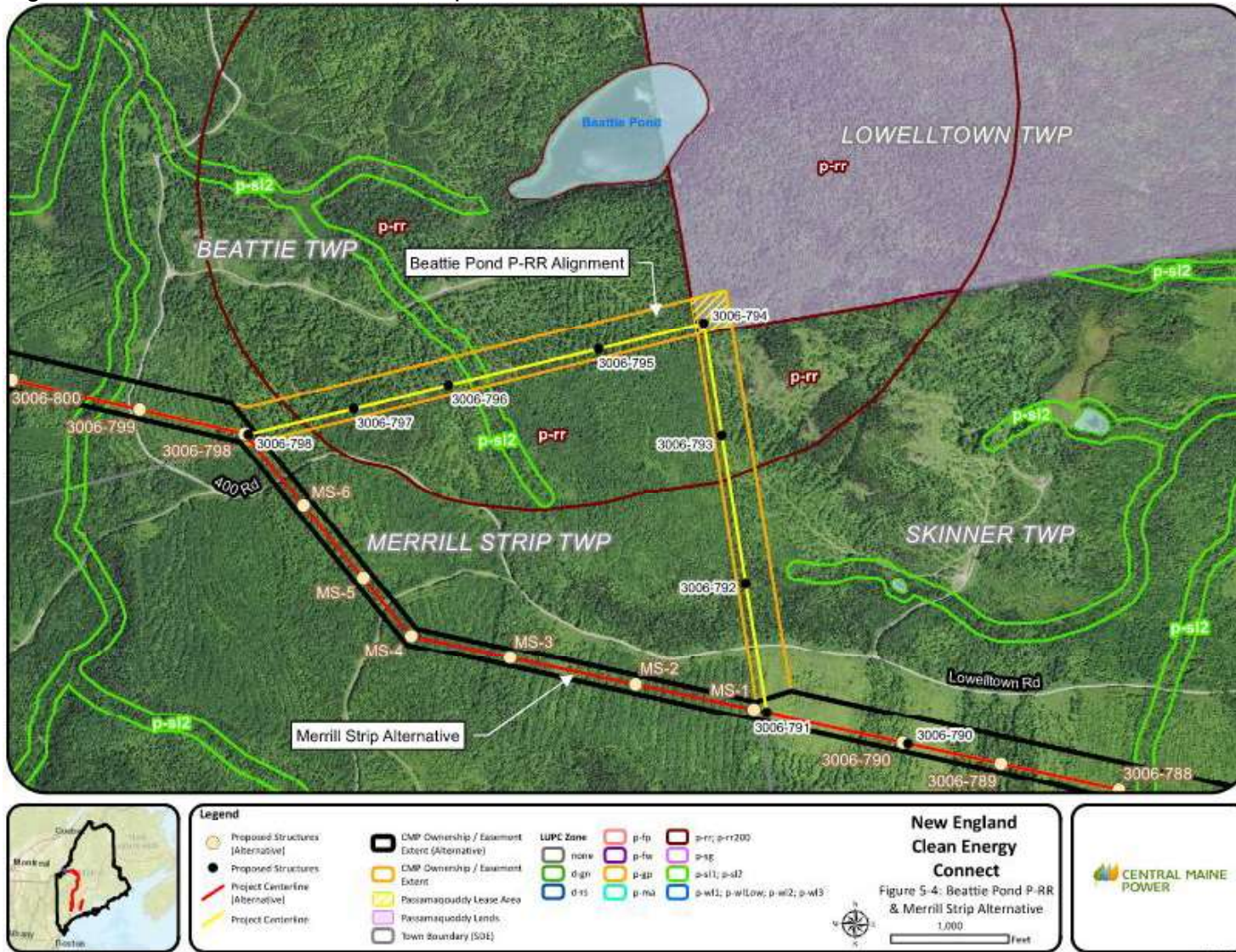
5.2.5.3 State Listed Recreation Protection Sub-district (P-RR) Alternatives

The Maine Land Use Planning Commission (LUPC) serves as the planning and zoning authority for the unorganized and deorganized areas of the State, including townships and plantations. The Commission has established zoning subdistricts to protect important resources and prevent conflicts between incompatible uses. P-RR sub-districts consist of trails and areas surrounding standing or flowing bodies of water and other areas which the LUPC has identified as providing or supporting unusually significant opportunities for primitive recreational experiences. CMP evaluated alternatives to locating the Project in P-RR subdistricts which require the LUPC's special exception approval. A description of these subdistricts and a discussion of the alternatives evaluated is provided below. Although effects to the sub-districts do not warrant analysis pursuant to the Section 404(b)(1) Guidelines per se (Kennebec River HDD crossing is a Section 10 activity), actions taken to avoid adverse impacts within the sub-districts have at least partially driven the project alignment and design and its impact to aquatic resources and the general public interest. They are therefore discussed in this section of our analysis.

Beattie Pond Sub-district. The applicant initially proposed an overhead transmission alternative using a corridor that crossed the P-RR sub-district associated with Beattie Pond, classified as a Management Class VI Lake and referred to as a Remote Pond (Figure 5-4). The P-RR sub-district associated with Beattie Pond encompasses a ½-mile buffer from the normal high-water mark of the waterbody. This encroachment was proposed because alternatives, several reroute options and an underground installation were impracticable due to cost or were more environmentally damaging.

Subsequently the applicant was able to come to terms with the seller for the alternative alignment south of the Beattie Pond P-RR subdistrict through Merrill Strip Township and submitted an application amendments to state and federal regulators. This "Merrill Strip Alternative" is a 150-foot wide corridor that extends for approximately 1 mile across the northeast corner of Merrill Strip between Skinner and Beattie Townships. This alternative eliminated the need to lease Passamaquoddy Tribal land in the vicinity of Lowell Township, Maine, reduced forested wetland conversion, and increased the visual buffer along Beattie Pond.

Figure 5-4: Beattie Pond & Merrill Strip Alternative



Upper Kennebec River Sub-district. The preferred alternative crosses the P-RR subdistrict associated with the Upper Kennebec River in West Forks Plantation and Moxie Gore. The P-RR subdistrict extends 250 feet from the ordinary high-water mark on both sides of the river. As stated previously, the P-RR subdistricts identified by the LUPC are those areas that provide or support unusually significant primitive recreation opportunities. Whitewater rafting is the primary recreational use in this portion of the river.

CMP's original proposal was an overhead crossing of the river. Several alternative overhead crossing sites were evaluated, each being clear spans with limited impact to aquatic resources. An underground transmission alternative at the Upper Kennebec River using HDD technology was initially determined to be impracticable at up to 8 times the cost of an aerial crossing. However, on October 19, 2018, CMP submitted amendments to its application proposing to replace the overhead crossing of the Upper Kennebec River with an underground crossing alternative using HDD technology to eliminate visual impacts on recreational users of this Outstanding River Segment and the associated concerns of environmental regulators, the host communities, and other stakeholders.

The transmission line within an HDD crossing would be entirely underground as it passes below the river. The termination stations that transition the transmission line from an underground to overhead configuration on each side of the river are in uplands and outside of protected natural resource areas (see Figure 5-6). The HDD installation and termination stations will not be visible from the Kennebec River and therefore visual impacts to recreational users will be avoided. The positioning of the HDD entry and exit points will result in an expanded forested buffer on each side of the river as compared to the overhead crossing. An HDD crossing avoids a biologically important Deer Wintering Areas (DWA) identified by the state, avoids several areas of wetland impact and results in a 9,384 square foot reduction of forested wetland conversion in this area.

It is the least environmentally damaging practicable alternative for the crossing of the Kennebec River and the alternative that affects the public interest the least.

Figure 5-5: Kennebec River Crossing Alternatives

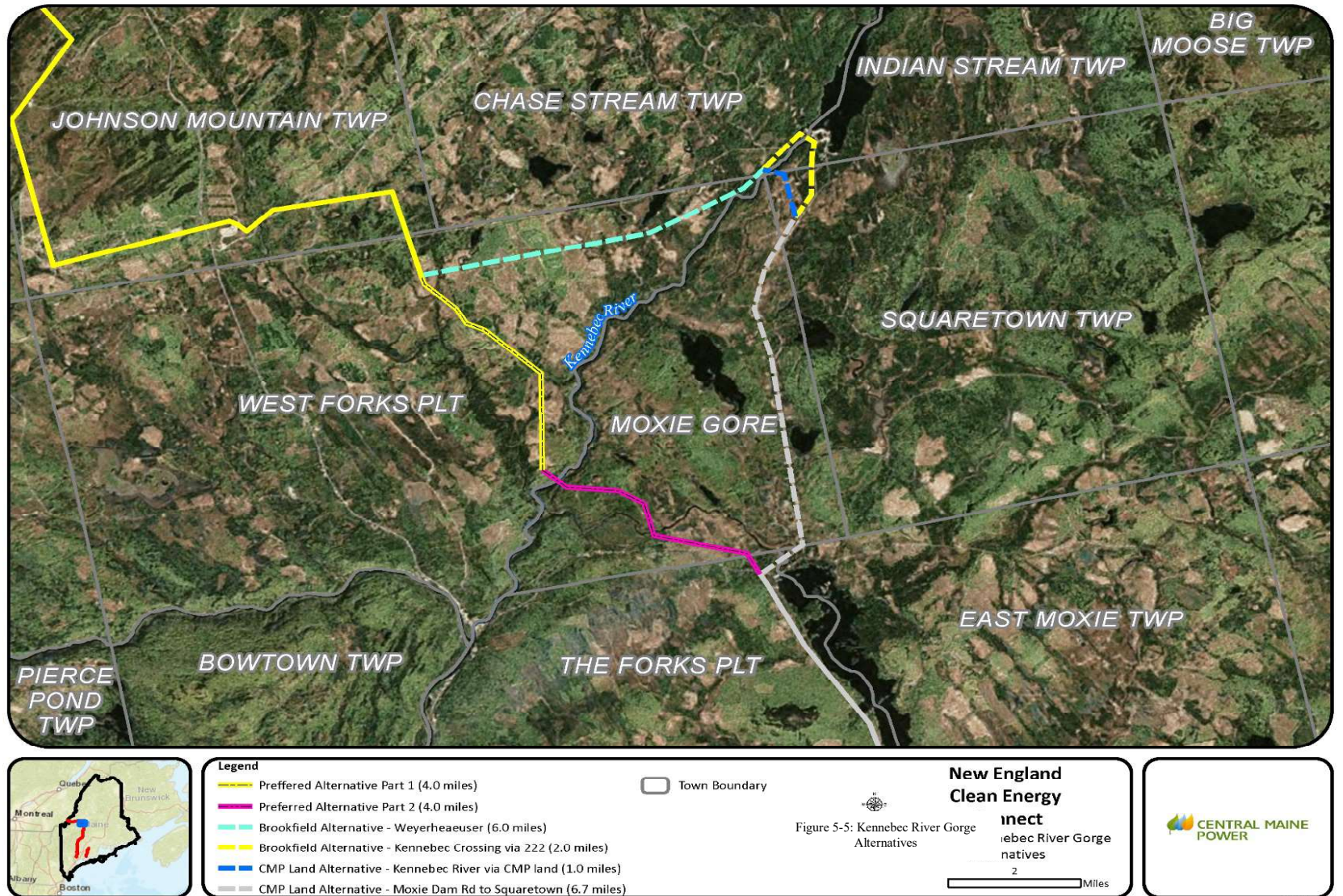
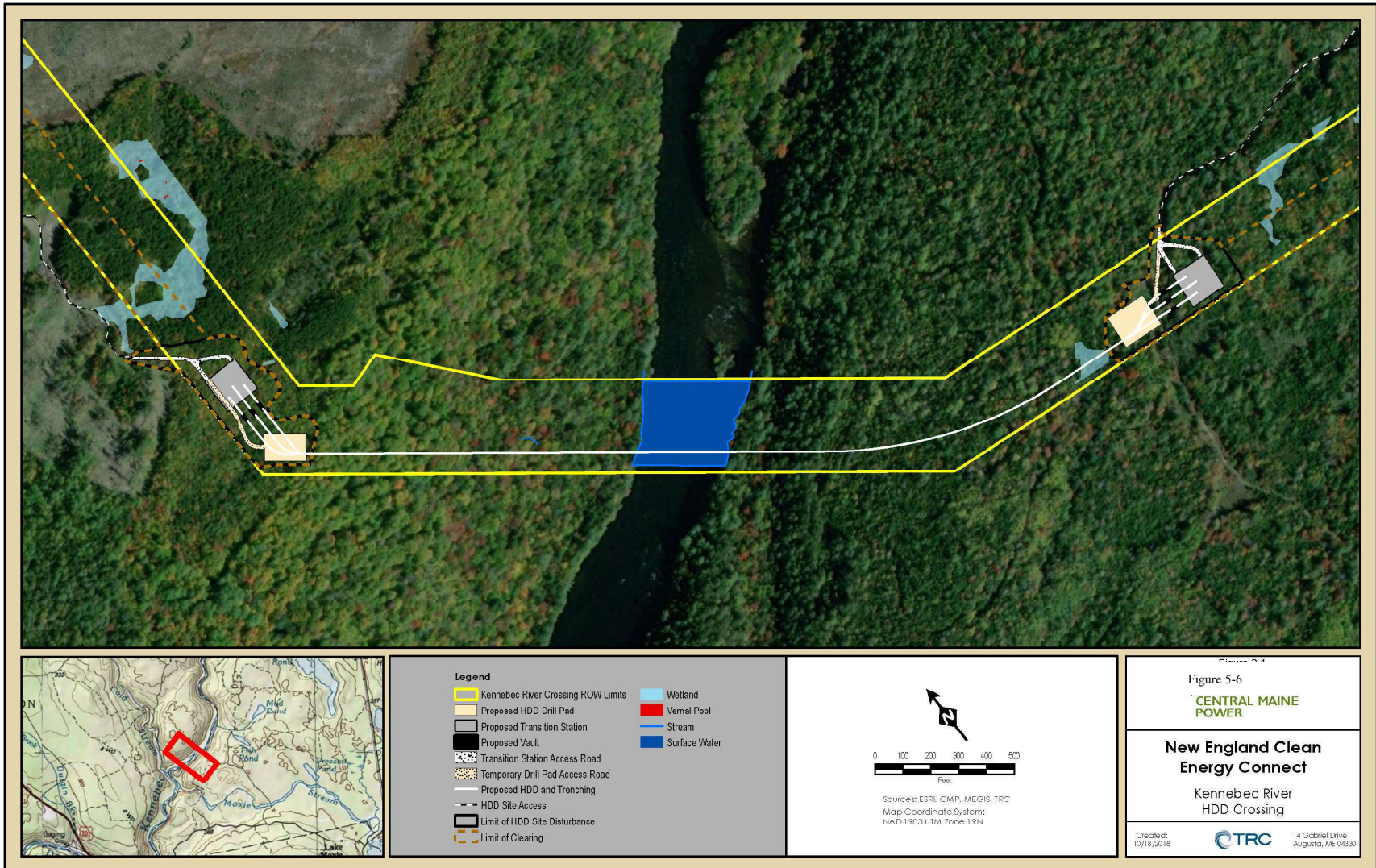


Figure 5-6 Kennebec River HDD Crossing (Preferred Location)



Appalachian National Scenic Trail (AT or ANST) Sub-district. The NECEC Project crosses the P-RR sub-district in two locations at the ANST adjacent to Moxie Pond and Trestle Road in Bald Mountain Township in an existing CMP corridor containing a 115kV transmission line (Figure 5-7). The P-RR sub-district in this location includes a 200-foot-wide strip centered over the ANST. The existing transmission line pre-dated the present trail which crosses the ROW three times. Co-location of the new line in the existing ROW places two of five transmission line structures within the P-RR sub-district. Avoiding this impact is not possible without establishing a new corridor which would result in new AT crossings where they don't currently exist. The applicant has adequately demonstrated that co-location within the existing ROW is less environmentally damaging than alternative alignments in this area. In the long-term, under the terms of the Section 106 Memorandum of Agreement (MOA), the three trail crossings will be reduced to one, vegetated buffers will be enhanced and a segment of the trail will be relocated to mitigate existing and proposed utility impacts to the AT. Implementing the stipulations of the MOA are a condition of this permit.

CMP indicates that an underground alternative would require construction of termination stations within sight of the ANST, along with a trenchless crossing of the ANST, approximately 3,500 feet long, at a cost of approximately \$28.9 million, \$28 million of which would be an incremental additional cost to the Project when subtracting associated overhead transmission line costs. Furthermore, construction activities would last approximately 10 months and would require HDD rigs powered by a diesel-powered hydraulic power plant that would generate noise of approximately 110 decibels continuously while in operation. Additionally, the easement allowing the ANST in CMP's corridor includes provisions for additional overhead lines, but does not contemplate underground installations, so CMP would need to seek such rights from the NPS to allow underground installation.

Co-location of the transmission line within the existing transmission line corridor in an overhead configuration is therefore the least environmentally damaging practicable alternative.

Figure 5-7: Appalachian Trail



Legend			<p>New England Clean Energy Connect</p> <p>Figure 5-7 Appalachian Trail</p> <p>1:10000 Feet</p>
CMP Ownership / Easement Extent Project Centerline Proposed Structures Town Boundary	<p>LUPC Zone</p> p-rr; p-rr200		



5.2.5.4 **On Alignment Shifts**

Alternately utilizing the full width of the corridor to “zig-zag” to attempt to avoid impacts to waters of the U.S. was determined to be practicable from a logistics and cost standpoint, but no less environmentally damaging. Zig-zagging through the 300-foot-wide corridor would require at least three additional angle structures for each jog in the corridor, which would increase soil disturbance through larger site development and temporary impact areas, increasing the threat of erosion and sedimentation and the potential to directly impact protected natural resources. Also, zig-zagging throughout the corridor may not achieve the overall goal of avoidance and then minimization, since it may simply shift the impacts to other protected natural resource areas.

In response to an inquiry from the Maine DEP, the Applicant provided an evaluation of an on-site alternative alignment for the portion of the proposed HVDC transmission line located in new corridor between The Forks Plantation and Beattie Township, i.e., Segment 1. As requested by the Maine DEP, the Applicant evaluated whether aligning the 150-foot wide proposed ROW would have fewer environmental impacts on the north side or on the south side (Preferred Alternative) of CMP’s 300-foot wide corridor. The Applicant performed a comparative analysis and found the difference in natural resource impacts to be comparatively minor but favored the south alignment primarily due to a smaller area of forest conversion impact in wetlands and significant wildlife habitat. The Applicant further refined this analysis to compare resource impacts of the southern alignment to those of the northern alignment. A summary of this natural resource impact comparison is provided below:

- Temporary wetland fill - south alignment favorable (less) by 0.36 acre
- Conversion of forested wetland - south alignment favorable by 4.93 acres
- Conversion of upland inland waterfowl and wading bird habitat (IWWH) - south alignment favorable by 1.65 acres
- Impacts (structure or guy anchor fill) to upland areas of IWWH - north alignment favorable by 0.0015 acre (approximately 65 square feet)
- Direct impacts (structure/guy anchor fill) to significant/potentially significant vernal pool critical terrestrial habitat (outside of the vernal pool depression) - north alignment favorable by 0.001 acre (approximately 44 square feet)
- Direct impacts (structure/guy anchor fill) to wetlands of special significance (WOSS)-north alignment favorable by 0.0095 acre (approximately 415 square feet)
- Direct impacts (structure/guy anchor fill) to non-WOSS wetlands – north favorable by 0.009 acre

This evaluation confirmed that direct impacts to waters of the U.S. for both alignments were similar but that secondary impacts, i.e., temporary fill and forested wetland conversion, were substantially greater on the northern

alignment. Based on a review of this information, the USACE has determined the northern alignment to be practicable but not less environmentally damaging.

5.2.6 **Substation and Converter Alternatives**

Merrill Road Converter Station Alternatives. Several sites for the DC to AC converter station were identified and evaluated based on availability, adequacy of land area suitable for the converter station siting, location along the preferred HVDC transmission route, proximity to the nearest substation capable of interconnection, and potential impacts to the environment and on surrounding land uses (see Figure 5-8).

CMP evaluated six sites (including the Larrabee Road Substation) as possible options for the converter station. Two sites were eliminated as they were of insufficient size to accommodate the proposed facility (Refer to Figure 5-8). The existing Larrabee Road Substation was ruled out for this same reason. The Alternative Parcel 3 has sufficient land area but available resource information indicated that its development would have had greater wetland impact than the preferred site and construction challenges due to poor soils. CMP identified two of the six properties as being available, thus practicable but dismissed Alternative Parcel 1 as being more environmentally damaging and logistically and technologically less practicable due to the fact that a more lengthy connector line would be required. The Corps has determined that the preferred alternative is the least environmentally damaging practicable alternative.

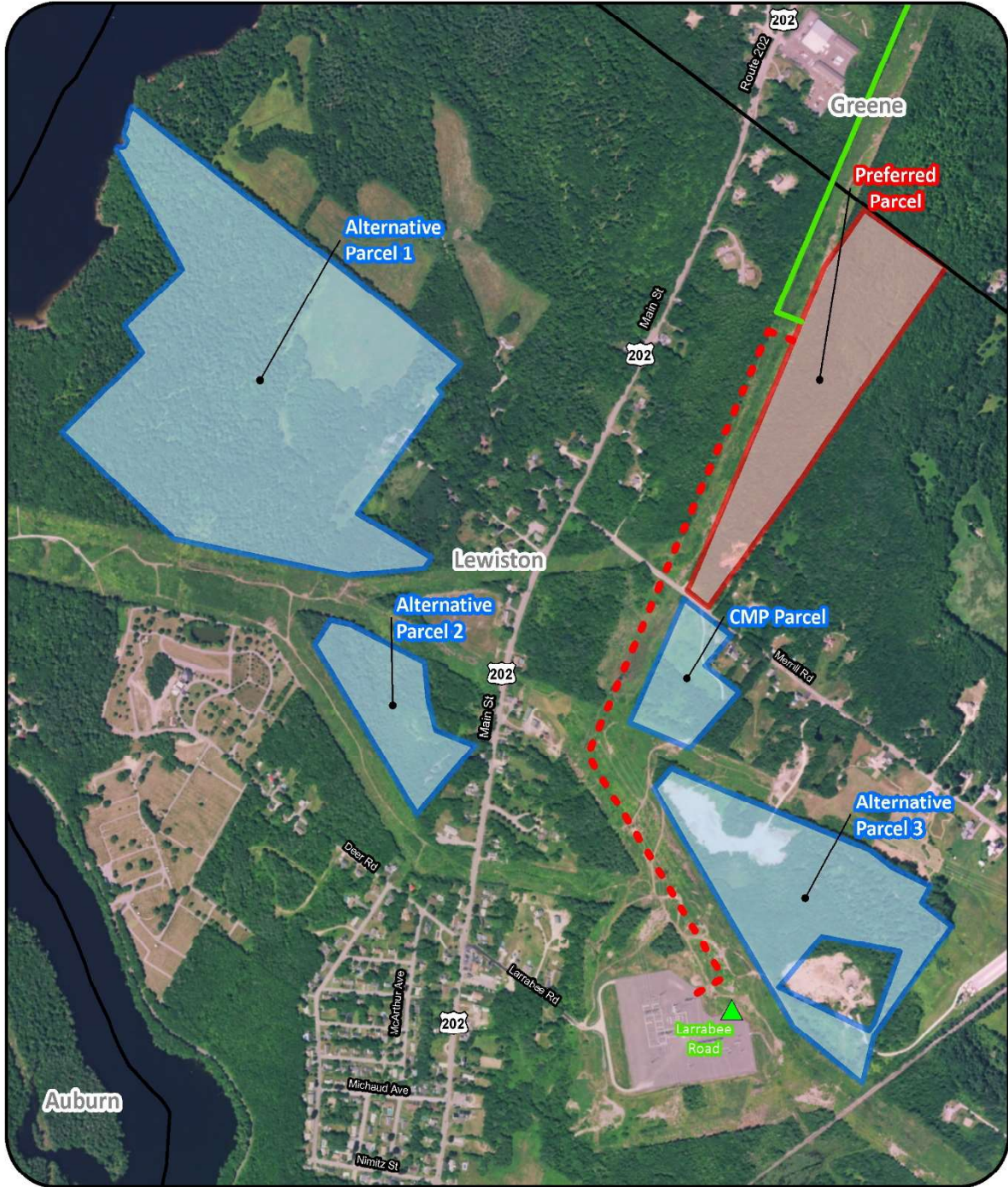
Fickett Road Substation Alternatives. The Applicant analyzed several locations across the CMP transmission system to identify the optimal location and size of the STATCOM units needed to maintain system voltage stability. A static synchronous compensator (STATCOM), also known as a static synchronous condenser (STATCON), is a regulating device used on alternating current electricity transmission networks. The optimal design and location to ensure electrical performance and to maintain system voltage stability, and in order to minimize the size and number of the units required, was determined to be a 200 MVAR STATCOM located at Fickett Road in Pownal, adjacent to the existing Surowiec Substation, as well as a 200 MVAR STATCOM at the existing Coopers Mill Substation in Windsor.

The STATCOM at Coopers Mill Substation will be within the existing fence line; no alternatives were considered for this option as it meets the objective of avoiding or minimizing environmental impacts better than any potential alternative could.

The location of the STATCOM proposed at Fickett Road is electrically optimal, because it is located as close to Surowiec Substation as possible. The existing Surowiec Substation yard is not large enough to accommodate the new STATCOM, and site restrictions due to the location of Runaround Brook and adjacent wetlands do not allow for expansion of the yard. The parcel located

north of the Surowiec Substation, bordered by Fickett and Allen roads, is on existing CMP owned land, adjacent to an existing CMP transmission line corridor. The preferred parcel minimizes the length of new transmission line that would need to be constructed between the two substations. The Fickett Road substation is located on the parcel to maximize the upland area used by the necessary structures and minimize the wetland impacts. Therefore, the USACE has determined that expanding the Surowiec Substation is not practicable and that the location and design of the Fickett Road Substation is the least environmentally damaging practicable alternative.

Figure 5-8 Merrill Road Converter Station Alternative.



Legend		New England	
Preferred Site	DC Line	345kV Line	Existing Substation
Alternative Site			
Existing Substation			

500 Feet

Figure 5-8
Converter Station
Alternatives

BY

Converter Station
Alternatives

5.2.7 Other alternatives

The purpose of the NECEC Project is to deliver 1,200 MW of clean energy generation from hydro-electric sources in Quebec to the New England power grid through the State of Maine. This is in direct response to a Request for Proposals (RFP) for Long-Term Contracts for Clean Energy Projects from the State of Massachusetts. Beyond submitting their competitive bid, CMP had no control over the selection process and in fact, was not initially the preferred selection as discussed below. The State of Maine was not consulted in the MA selection process nor was the Corps of Engineers. The MA process essentially pre-determined CMP's role as applicant and limited the alternatives analysis to only those which are available and capable of being done by CMP. Although the USACE believes an analysis of competing transmission proposals *not* selected by Massachusetts or alternative clean energy sources in general is beyond the scope of the Section 404(b)(1) Guidelines in this case, for purposes of this Environmental Assessment, CMP has provided a summary of the alternatives reviewed by Massachusetts.

The Legal Framework of the Section 83D RFP, The Massachusetts Global Warming Solutions Act (GWSA), requires the Commonwealth to achieve greenhouse gas (GHG) emissions reductions of between 10 percent and 25 percent below statewide 1990 GHG emission levels by 2020; and 80 percent below statewide 1990 GHG emissions levels by 2050. To ensure that the Commonwealth achieves those reductions, Section 83D of Massachusetts law requires the Electrical Distribution Companies (EDCs), in conjunction with Massachusetts Department of Energy Resources, to solicit proposals for, and enter into, cost-effective long-term contracts for clean energy generation and associated transmission in an annual amount of 9,450,000 megawatt hours (MWh). This amount represents the electricity needed to power over 1.2 million houses in Massachusetts annually. Pursuant to this requirement, the Soliciting Parties issued the Section 83D RFP on March 31, 2017.

The Soliciting Parties received 46 joint or independent bids (53 distinct projects) offering more than 17,000 megawatts (MW) and 99,000,000 MWh (aggregate) of annual clean energy generation from large-scale hydro, small hydro, solar, on-shore wind, off-shore wind, and battery storage resources. Only four projects were proposed for development (in whole or in part) in Massachusetts. The output of the generation proposed for construction in Massachusetts represented a very small fraction (less than 2%) of the energy sought by the 83D RFP.

Some project opponents suggested that if Massachusetts is requesting clean energy, it should be produced in state and not at the cost of another state's environment and public interest. Based on the bids submitted in response to the Section 83D RFP, it is clear that Massachusetts, as the largest load center in New England, would in all likelihood not be able to source all of the clean energy it seeks from renewable energy projects developed solely in the Commonwealth. This is not surprising, given that the successful siting of renewable projects is in

large part tied to the availability of developable land in locations where wind and solar generation development will be feasible and cost effective.

A total of five transmission line proposals were submitted. Central Maine Power and its parent company Avangrid submitted two projects for consideration. The 1,200 MW **NECEC** (proposed) and the 1,100 MW **Maine Clean Power Connection** would travel 140 miles from the western part of the state to a connector in Lewiston as well. National Grid submitted two transmission proposals that would ship in wind and solar power under development in New York and Canada. One, the **Granite Power Link** in partnership with non-profit Citizens Energy, was proposed to link New England with Canadian hydropower and would allegedly lower energy costs by more than \$1 billion over a 10-year span. The other project, the **Northeast Renewable Link**, would ship roughly 600 MW of wind, solar and small hydropower from New York to the state. Emera proposed the 1,000 MW **Atlantic Link** project, a 375-mile undersea cable that would link onshore wind and hydropower from Nova Scotia and New Brunswick to Massachusetts. Eversource proposed the 192-mile **Northern Pass** project, transmitting 1200 MW of energy from hydroelectric sources in Quebec through New Hampshire. Finally, **TDI-New England**, a transmission developer, partnered with Hydro-Quebec to submit two proposals that would deliver 1,000 MW of clean power through the proposed New England Clean Power Link. The first proposal would ship 1,000 MW of hydropower from existing dams owned by Hydro-Quebec. And the second proposal would deliver 700 MW of hydropower and 300 MW from a new wind farm.

Criteria used in the evaluation of the bids included an economic evaluation of the benefits for ratepayers, ability to meet goals established by the MA Global Warming Solutions Act, as well as environmental impacts including the extent to which a project demonstrates that it avoids or mitigates impacts to natural resources. As a result of stringent review, the Northern Pass project (Eversource) was determined to provide the greatest overall value to Massachusetts customers by delivering approximately 9,450,000 megawatt hours (MWh) of clean energy per year while providing significant ratepayer benefits. The project was expected to produce significant emissions reductions as the Commonwealth continues its compliance with the ambitious goals established by the Global Warming Solutions Act.

In 2018, after a lengthy multi-agency review, including that of the USACE, and in what became a highly controversial review in the State of New Hampshire, the New Hampshire Site Evaluation Committee denied a permit to Northern Pass Transmission. The committee concluded that the project failed to show it would not impact property values, tourism and land use. This decision was affirmed by the New Hampshire Supreme Court in 2019. By then Massachusetts had terminated the earlier selection of the Northern Pass project and established an agreement with CMP for the NECEC project. The Soliciting Parties chose the NECEC as the proposal with greatest renewable energy impact and value. No

other bid, including the few proposed Massachusetts projects, reportedly provided a more cost effective solution. The Corps notes that the Soliciting Parties also did not choose the above referenced TDI project in Vermont, despite its proponents having received their necessary federal permits, nor did they choose any of the other competing alternatives to the NECEC project. This selection process, outside the authority and control of the USACE, effectively made those alternatives unavailable and therefore impracticable. Requiring the MA Electrical Distribution Companies (EDC) to select only from in-state generation and transmission would have limited the alternatives available to meet the Massachusetts clean energy need and undoubtedly resulted in higher costs to ratepayers. Imposing any such limitation on competitive solicitations would also represent bad policy, and would establish an inefficient model for future RFPs that seek to meet legislative mandates for GHG emissions reductions or enhanced Renewable Portfolio Standard requirements (including, potentially, in Maine).

A requirement that Massachusetts obtains “its own” clean energy also ignores the benefits of a regional approach. Construction of in-state solar, wind, and battery storage facilities to satisfy the Section 83D procurement of 9,450,000 MWh annually would impose severe land use impacts on Massachusetts. For example, based on an average net capacity factor of 13.35% for solar generation, meeting the annual 9,450,000 MWh procurement may require over 8,000 MW of installed solar capacity, requiring more than 32,000 acres of land. This estimate does not include the land necessary for the battery storage facilities that would be needed to store the solar energy for use during periods when the sun is not shining or for the transmission facilities that would be needed to interconnect the new solar generation to the existing transmission system. It is doubtful that sufficient, appropriate land exists in Massachusetts for development of this quantity of solar generation, and such development would presumably involve substantial environmental, natural resource, and visual impacts and in turn meet local opposition.

The “in-state only” approach also ignores the fact that the New England states lie within the same control area, administered by ISO-New England, Inc. (ISO-NE). The benefits of NECEC-delivered clean energy will accrue to electricity customers throughout New England, not solely to the customers of the MA EDCs. Such benefits include lower electricity supply and forward capacity prices, and increased reliability and fuel security, including during the winter season. The NECEC will also deliver clean energy into the ISO-NE control area that will displace fossil generation and reduce carbon dioxide emissions across New England by more than 3 million metric tons annually. This benefit of the NECEC, like the others articulated above, will accrue to customers throughout the region.

- 5.3 Evaluate alternatives and whether or not each is practicable under the Guidelines or reasonable under NEPA. Included in the above analysis.

5.4 Least environmentally damaging practicable alternative under the 404(b)(1) Guidelines (if applicable) and the environmentally preferable alternative under NEPA: The range of alternatives discussed above were based upon the overall purpose and need. In evaluating the practicable alternatives for this project, all included impacts to special aquatic sites. Having considered the cost, technology, logistics, environmental impacts, the minimization of unavoidable impacts the USACE has determined the applicant's Preferred Alternative is the LEDPA.

6.0 Evaluation for Compliance with the Section 404(b)(1) Guidelines. The following sequence of evaluation is consistent with 40 CFR 230.5

6.1 Practicable alternatives to the proposed discharge consistent with 40 CFR 230.5(c) are evaluated in Section 5. The statements below summarize the analysis of alternatives.

In summary, based on the analysis in Section 5.0 above, the no-action alternative, which would not involve discharge into waters, is not practicable.

For those projects that would discharge into a special aquatic site and are not water dependent, the applicant has demonstrated there are no practicable alternatives that do not involve special aquatic sites.

It has been determined that there are no alternatives to the proposed discharge that would be less environmentally damaging. (Subpart B, 40 CFR 230.10(a)).

The proposed discharge in this evaluation is the practicable alternative with the least adverse impact on the aquatic ecosystem, and it does not have other significant environmental consequences.

6.2 Candidate disposal site delineation (Subpart B, 40 CFR 230.11(f)). Each disposal site shall be specified through the application of these Guidelines:

Discussion: Disposal sites for the Project include ephemeral, scrub shrub and forested wetlands within the ROW. The jurisdictional limits in this case are the wetland boundaries as defined by the 1987 Corps of Engineers Wetland Delineation Manual and its 2012 North Central and Northeast Region Regional Supplement. A Preliminary Jurisdictional Determination (PJD) is contained within the administrative record. Relative to the recently published Navigable Waters Protection Rule, the applicant was advised of his right to request a new PJD or an Approved Jurisdictional Determination (AJD) and has elected to rely on the original PJD in order to move expeditiously through the permitting process. Discharges will not occur in stream resources to facilitate construction of the project. So, traditional stream mixing zones are not a factor. The wetlands have various water depths, yet all have hydrophytic vegetation that naturally reduces any mixing zone to a more localized area, than non-vegetated resources.

6.3 Potential impacts on physical and chemical characteristics of the aquatic ecosystem (Subpart C 40 CFR 230.20). See Table 1:

Table 1 – Potential Impacts on Physical and Chemical Characteristics						
Physical and Chemical Characteristics	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Substrate				X	X	
Suspended particulates/turbidity				X		
Water				X		
Current patterns and water circulation				X	X	
Normal water fluctuations		X				
Salinity gradients	X					

Discussion:

- *Substrate: Discharges of dredged or fill material into waters of the U.S. will alter the substrate of those waters, usually replacing the aquatic area with dry land, and changing the physical, chemical, and biological characteristics of the substrate. In areas of permanent fill, the original substrate will be removed or covered by other material, such as concrete, soil, gravel, etc. Temporary fills (timber mats) may be placed upon the substrate and could have similar effects, albeit short-term as they must be removed upon completion of the work and restored.*

Only clean fill material will be used and to the degree practicable this material will be compatible with the underlying substrate. Overall, permanent impacts to substrate will have a minor effect on the physical and chemical characteristics of the aquatic ecosystem because the overall impact to these resources is limited to the small footprint (30 to 195 square feet depending on structure type) of fill around each structure and those structures are spatially distant (averaging 900 feet) from each other. Greater effect may be expected from permanent fills in wetlands at the Merrill Road Converter Station and Fickett Road Substation, but the potential impacts on substrate project-wide remain minor, particularly after considering appropriate compensatory mitigation.

- *Suspended particulates/turbidity: Depending on the method of construction, soil erosion and sediment control measures, equipment, composition of the bottom substrate, and wind and current conditions during construction, fill material placed in waters of the U.S. may temporarily result in turbidity. Materials could be further subject to erosion*

during removal of temporary fills. Any turbidity generated will normally be limited to the immediate vicinity of the disturbance and should dissipate shortly after each phase of the construction activity.

- *Current patterns & water circulation: All water courses will be spanned during construction; there is no expectation that stream flows will be altered. Earthwork and fills within the ROW and at substations could temporarily or permanently affect surface water flows and drainage patterns, however this is regulated through the state’s Stormwater Law to avoid long-term adverse effects.*
- *Water: The discharge of dredged or fill material in waters of the U.S. can affect some characteristics of water, such as water clarity, chemical content, dissolved gas concentrations, pH, and temperature. These activities can change the chemical and physical characteristics of the waterbody by introducing suspended or dissolved chemical compounds or sediment. Changes in water quality can affect the types and quantities of organisms inhabiting the aquatic area. Water quality certification has been issued by the State of Maine for discharges into waters of the U.S. authorized by this permit. Implementation of its terms and conditions will ensure that the work does not violate applicable water quality standards. Only clean fill material will be used.*
- *Normal water fluctuations: The activities authorized by this IP will have little or no adverse effects on normal patterns of water level fluctuations due to flooding.*

6.4 Potential impacts on the living communities or human uses (Subparts D, E and F):

6.4.1 Potential impacts on the biological characteristics of the aquatic ecosystem (Subpart D 40 CFR 230.30). See Table 2:

Table 2 – Potential Impacts on Biological Characteristics						
Biological characteristics	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Threatened and endangered species				X	X	
Fish, crustaceans, mollusk, and other aquatic organisms				X	X	
Other wildlife				X	X	

Discussion:

- *Threatened and endangered species: Reference the “Final Biological Assessment” submitted to USFWS on June 23, 2020 and Section 10.1 of this document. The USFWS concurs with the USACE determination that the proposed project may affect but is not likely to adversely affect Atlantic salmon, Canada lynx, and Northern Long-eared Bats and critical habitats for Atlantic salmon and Canada lynx.*
- *Fish, crustaceans, mollusk, and other aquatic organisms: No work authorized under this permit will substantially disrupt the necessary life-cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area. No in water work is proposed by CMP.*
- *Other wildlife: Activities authorized under this permit may have both temporary and permanent adverse effects on other wildlife associated with aquatic ecosystems, such as resident and transient mammals, birds, reptiles, and amphibians, through the destruction of aquatic and terrestrial habitat, including breeding and nesting areas, escape cover, travel corridors, and preferred food sources. The applicant’s proposed avoidance and minimization measures, including vegetation management practices that have been modified specifically to address wildlife and habitat fragmentation concerns, are intended to minimize short-term and long-term adverse effects on wildlife.*

6.4.2 Potential impacts on special aquatic sites (Subpart E 40 CFR 230.40). See Table 3:

Special Aquatic Sites	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Sanctuaries and refuges	X					
Wetlands				X	X	
Mud flats	X					
Vegetated shallows	X					
Coral reefs	X					
Riffles/Pools	X					

Discussion: The project will result in 47.64 acres of temporary and 4.87 of permanent impact to freshwater wetlands, widely dispersed over the length of the project to include at two of the eight converter or substations. Another 111.55 acres of wetland will be impacted by some degree of clearing. All areas of temporary fill will be removed and the affected areas restored to wetland upon completion of the project. All areas of wetlands affected by clearing will be remain vegetated, ranging from emergent, to scrub-shrub to forest, depending on the operational needs of the utility. Unavoidable permanent and temporary

wetland impacts are subject to state and federal requirements for compensatory mitigation. Provided all applicable conditions are implemented and state and local authorizations have been issued, the project is expected have no more than minor effects on wetlands.

6.4.3 Potential impacts on human use characteristics (Subpart F 40 CFR 230.50). See Table 4:

Table 4 – Potential Impacts on Human Use Characteristics						
Human Use Characteristics	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Municipal and private water supplies	X					
Recreational and commercial fisheries				X		
Water-related recreation		X				
Aesthetics					X	
Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves					X	

Discussion:

- *Recreational and commercial fisheries: There are no commercial fisheries (i.e. commercially harvested species) affected by the project. Provided all applicable conditions are implemented and state and local authorizations have been issued, the project is not expected to have more than short-term minimal effect on waterways supporting wild brook trout. State mandated compensatory mitigation in the form of a culvert replacement program should result in long-term benefits to fisheries in terms of improved passage and greater habitat connectivity.*
- *Water-related recreation: There is no expected effect on water related recreational uses. The public’s access to and use of waterways for boating or fishing will not be affected by the project. Construction could temporarily disturb fish populations (noise, tree clearing, increased human activity, etc) and could displace individual fishermen from certain waterways. A return to baseline conditions is expected upon completion of the project.*
- *Aesthetics: The activities authorized in this permit may alter the visual character of some waters of the U.S. The extent and perception of these changes will vary depending on the amount of fill, the size of the structures, the nature of the surrounding area, and the public uses of the area. Refer to*

the applicant's Visual Impact Assessment and the Aesthetics findings of the State of Maine, both of which are contained in the administrative record.

- *Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves: The utility corridor will be visible from several vantage points along the Appalachian National Scenic Trail (ANST), the most visible being off Troutdale Road, in the vicinity of Moxie Pond, at Bald Mountain Township, Maine. Here the trail crosses the **existing** line three times. CMP will implement a number of measures to include eliminating two of the existing crossings, buffer plantings, reduced pole heights, and non-specular (non-reflective) cables in order to reduce the long-term effects of new construction.*

In addition to a route selection which minimizes views through the use of intervening topography and vegetation, the applicant proposes to implement the following measures to reduce adverse aesthetic impacts.

- *39 miles of ROW in Segment 1 will only be cleared to a width of 54 feet, with tapered vegetation extending to 48 feet beyond in each direction*
- *Limited clearing in areas adjacent to the ANST (75 feet wide with the first 27 feet from the wire zone being managed as scrub-shrub and the remaining 48 feet to the edge of the clearing limits managed as tapered vegetation)*
- *Allowing the existing cleared edge associated with Section 222 in areas adjacent to the ANST to grow into a tapered configuration.*
- *Underground installation at the Upper Kennebec River*
- *Structures constructed of natural wood and self-weathering steel*
- *Reduced structure heights adjacent to Moxie Pond/ANST, and Beattie Pond*
- *Non-specular conductor near Rock Pond, within the viewshed of Coburn Mountain, and near Moxie Stream and the ANST*
- *Tapered vegetation management (Rock Pond and Coburn Mountain)*
- *Preservation of riparian vegetation*
- *Maintenance of roadside vegetation*
- *Buffer plantings (Moxie Stream, Troutdale Road, ANST, Route 201, Fickett Road Substation)*
- *Maximizing structure setbacks from roads and streams*

6.5 Pre-testing evaluation (Subpart G, 40 CFR 230.60):

The following has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. See Table 5:

Table 5 – Possible Contaminants in Dredged/Fill Material	
Physical characteristics	X
Hydrography in relation to known or anticipated sources of contaminants	
Results from previous testing of the material or similar material in the vicinity of	

Table 5 – Possible Contaminants in Dredged/Fill Material	
the project	
Known, significant sources of persistent pesticides from land runoff or percolation	
Spill records for petroleum products or designated (Section 331 of CWA) hazardous substances	
Other public records or significant introduction of contaminants from industries, municipalities, or other sources	
Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities	

Discussion:

- *Only clean fill material will be discharged into waters of the U.S. No introduction of new contaminants, relocation, or increase in existing contaminant discharge is expected by activities authorized under this permit.*
- *Use of timber mats during construction must adhere to state requirements in order to avoid the risk of introducing contaminants and invasive species.*
- *State WQC from the Maine Dept. of Environmental Protection has been issued.*
- *It has been determined that testing is not required because the proposed fill materials are unlikely to be carriers of contaminants because they are comprised of sand, gravel or other naturally occurring inert material.*

6.6 Evaluation and testing (Subpart G, 40 CFR 230-61):

Discussion: *NA - No introduction of new contaminants, relocation, or increase in existing contaminant discharge is expected by activities authorized under this permit.*

6.7 Actions to minimize adverse impacts (Subpart H). The following actions, as appropriate, have been taken through application of 40 CFR 230.70-230.77 to ensure minimal adverse effects of the proposed discharge. See Table 6:

Table 6 – Actions to Ensure Adverse Effects are Minimized	
Actions concerning the location of the discharge	X
Actions concerning the material to be discharged	X
Actions controlling the material after discharge	X
Actions affecting the method of dispersion	X
Actions affecting plant and animal populations	X
Actions affecting human use	X
Actions related to technology	X
Other Actions	X

Discussion: *This permit includes general and special conditions addressing specific actions necessary to ensure minimization of adverse project related impacts. State permits and the Water Quality Certification contain additional conditions, the implementation of which are also required by this permit. A list of the proposed conditions are listed in Section 11.0.*

6.8 Factual Determinations (Subpart B, 40 CFR 230.11). The following determinations are made based on the applicable information above, including actions to minimize effects and consideration for contaminants. See Table 7:

Table 7 – Factual Determinations of Potential Impacts						
Site	N/A	No Effect	Negligible Effect	Minor Effect (Short Term)	Minor Effect (Long Term)	Major Effect
Physical substrate				X		
Water circulation, fluctuation and salinity				X		
Suspended particulates/turbidity				X		
Contaminants	X					
Aquatic ecosystem and organisms				X		
Proposed disposal site				X		
Cumulative effects on the aquatic ecosystem			X			
Secondary effects on the aquatic ecosystem			X			

Discussion:

- *Physical substrate: See Section 6.3 Table 1 in this document*
- *Water circulation, fluctuation and salinity: See Section 6.3 Table 1 in this document*
- *Suspended particulates/turbidity: See Section 6.3 Table 1 in this document*
- *Contaminants: See Section 6.5 in this document*
- *Aquatic ecosystem and organisms: See Section 6.4 Table 2 in this document*
- *Proposed disposal site: See Section 6.2 in this document*
- *Cumulative effect on the aquatic ecosystem: See Section 9.0 in this document*
- *Secondary effects on the aquatic ecosystem: See Section 9.0 in this document*

6.9 Findings of compliance or non-compliance with the restrictions on discharges (40 CFR 230.10(a-d) and 230.12). Based on the information above, including the factual determinations, the proposed discharge has been evaluated to determine whether any of the restrictions on discharge would occur. See Table 8:

Table 8 – Compliance with Restrictions on Discharge		
Subject	Yes	No
1. Is there a practicable alternative to the proposed discharge that would be less damaging to the environment (any alternative with less aquatic resource effects, or an alternative with more aquatic resource effects that avoids other significant adverse environmental consequences?)		X
2. Will the discharge cause or contribute to violations of any applicable water quality standards?		X
3. Will the discharge violate any toxic effluent standards (under Section 307 of the Act)?		X
4. Will the discharge jeopardize the continued existence of endangered or threatened species or their critical habitat?		X
5. Will the discharge violate standards set by the Department of Commerce to protect marine sanctuaries?		X
6. Will the discharge cause or contribute to significant degradation of waters of the U.S.?		X
7. Have all appropriate and practicable steps (Subpart H, 40 CFR 230.70) been taken to minimize the potential adverse impacts of the discharge on the aquatic ecosystem?	X	

Discussion: *Refer to previous sections. State WQC has been issued for this work.*

7.0 General Public Interest Review (33 CFR 320.4 and RGL 84-09)

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest as stated at 33 CFR 320.4(a). To the extent appropriate, the public interest review below also includes consideration of additional policies as described in 33 CFR 320.4(b) through (r). The benefits which reasonably may be expected to accrue from the proposal are balanced against its reasonably foreseeable detriments.

In addition to the USACE permit, the Applicant must obtain a Presidential permit from DOE. DOE evaluates each Presidential permit application for an international border crossing of electric transmission facilities individually in accordance with the regulations implementing Executive Order (EO) 10485. DOE determines whether issuing a Presidential permit would be consistent with the public interest by assessing the environmental impacts of the proposed Project, the effect of the proposed Project on electric reliability (including whether

the proposed Project would adversely affect the operating reliability of the U.S. electric power system under normal and contingency conditions), and other factors that DOE considers to be relevant to the public interest. DOE must obtain the concurrences of the Secretary of State and the Secretary of Defense before taking final action on a Presidential permit application. DOE's issuance of a Presidential permit indicates a finding of consistency with the public interest, but does not mandate that the project be undertaken. DOE's public interest determination for a Presidential permit is independent from the USACE public interest determination under 33 CFR Part 320.

- 7.1 All public interest factors have been reviewed and those that are relevant to the proposal are considered and discussed in additional detail. See Table 9 and any discussion that follows.

Table 9: Public Interest Factors	Effects					
	None	Detrimental	Neutral (mitigated)	Negligible	Beneficial	Not Applicable
<p>1. Conservation: The applicant sited the Project to avoid and minimize impacts to natural and human environments, has agreed to various conservation measures for the protection of waters and wildlife, and has created a robust Compensation Plan combining large areas of land preservation, monetary contributions, and other measures, and other regionally beneficial conservation measures. To address USACE and Maine DEP requirements for compensatory mitigation, the applicant will preserve in perpetuity approximately 1022.4 acres of land containing 510.75 acres of wetland, preserve 1053.5 acres of land containing 12.02 linear miles of stream, and preserve 717 acres of land in the upper Kennebec deer wintering area in addition to making sizeable in lieu fee (ILF) contributions. In addition, CMP will also conserve 40,000 acres of land in the vicinity of Segment 1 to address the Project's impacts to habitat fragmentation and wildlife movement. In lieu fee contributions for wetland impacts are commonly awarded to large preservation projects throughout affected bio-physical regions. Contributions the Maine Natural Areas Conservation Fund and Maine Endangered and Nongame Wildlife Fund are used by the Maine Natural Areas Program and Maine Dept. of Inland Fisheries & Wildlife respectively to conserve and manage native plants, natural communities, ecosystems or other significant features, and to conserve and manage nongame wildlife throughout the state. The compensation plan as a whole will be a benefit to aquatic and other natural resources and to regional conservation efforts within the state.</p>					X	

Table 9: Public Interest Factors	Effects					
	None	Detrimental	Neutral (mitigated)	Negligible	Beneficial	Not Applicable
<p>2. Economics: CMP projects that the NECEC project will provide the following economic benefits to the State of Maine:</p> <ul style="list-style-type: none"> • \$14-44 MILLION per year in lower future electricity costs in Maine • \$573 MILLION increase in the state’s Gross Domestic Product during construction (5 yrs.) • 1,600 JOBS per year average increase during construction • \$440 MILLION in total worker compensation during construction • \$18 MILLION per year increase in host community tax revenues • \$200 MILLION in grid investments and upgrades • \$140M for consumer rate relief (40yrs.) • \$50M for low-income consumer rate relief (40 yrs.) • \$1M for securitization (an option to accelerate the receipt of benefits) • \$15M for fiber optic and broadband expansion (5 yrs.) • \$10.5M for economic development and promotion of regional tourism (10 yrs.) • \$6M for education funding, UMF, UMO, Franklin and Somerset Counties (10 yrs.) • \$3M in benefits to the Passamaquoddy Tribe (40 yrs.) • More than 50 miles of expanded snowmobile and recreational trail opportunities • 2,800 acres of conserved land; \$6M for land conservation • \$15M for electric vehicle infrastructure (5 yrs.) • \$15M for heat pump support (8 yrs.) • \$2.5M for decarbonization & Maine energy resource planning studies (by 2022) <p>Overall these benefits are expected to result in positive direct and indirect effects on Maine citizens.</p>					X	

Table 9: Public Interest Factors	Effects					
	None	Detrimental	Neutral (mitigated)	Negligible	Beneficial	Not Applicable
<p>3. Aesthetics: Maine DEP regulations have standards pertaining to scenic impacts that must be satisfied in order to obtain a permit. CMP submitted a detailed Visual Impact Assessment that examined the potential scenic impacts of the transmission line and related substation upgrades and included photo-simulations from multiple key observation points. The DEP concluded that the project will not have an unreasonable adverse effect on scenic uses or character of the surrounding area after considering available and practicable mitigation measures such as site specific clearing restrictions, shorter pole heights, and non-reflective cables. The USACE finds the DEP's evaluation and conclusions to be reasonable and reflective of the detailed analysis of these effects in the administrative record.</p>			X			
<p>4. General Environmental Concerns: Temporary minor increases in air emissions may occur during construction. This effect will rapidly diminish upon completion. No long-term impact to local air quality is expected. Similarly, noise levels are expected to increase during these operations. This effect will not exceed local and state limitations and will cease upon completion, returning rapidly to existing baseline conditions.</p> <p>The applicant projects substantial regional Green House Gas (GHG) emissions reductions as a result of the project, approximately 3.0 to 3.6 million metric tons per year. The Corps finds that the long-term benefits to air quality far outweigh any short-term impacts.</p>				X	X	
<p>5. Wetlands: The project will result in numerous direct and indirect, permanent and temporary impacts to aquatic resources including impacts to freshwater wetlands and vernal pools. All but 4.87 acres of these impacts will be temporary and indirect or secondary. The project will also result in approximately 111.55 acres of forested wetland conversion. These impacts will be fully compensated for in the applicant's compensatory mitigation plan.</p>			X			

Table 9: Public Interest Factors	Effects					
	None	Detrimental	Neutral (mitigated)	Negligible	Beneficial	Not Applicable
<p>6. Historic Properties: Refer to Section 10.3 of this document. Through consultation with the Maine SHPO, the USACE determined that the undertaking will have an adverse effect on four historic properties - (Appalachian National Scenic Trail, Rural Agricultural Historic District: E. Gray Farm and B.F. Hilton Farm, Turmel Road Barn, and Bowman Airfield) that are eligible for listing in the National Register of Historic Places (NRHP). The USACE has prepared and executed a Memorandum of Agreement (MOA) in consultation with the DOE, the National Park Service, Maine SHPO, the applicant, and invited partner groups to mitigate effects to these resources. Implementation of the stipulations of the MOA is a condition of and attached to the permit. In a letter dated June 28, 2017, the THPO for the Penobscot Nation made a no effect determination. None of the other THPOs responded.</p>			X			

Table 9: Public Interest Factors	Effects					
	None	Detrimental	Neutral (mitigated)	Negligible	Beneficial	Not Applicable
<p>7. Fish and Wildlife Values: The project corridor crosses 471 rivers, streams, or brooks that contain brook trout habitat. The aerial crossings do not include a discharge of fill material. Portions of each segment affect waterways within the mapped Distinct Population Segment (DPS) or Critical Habitat for Atlantic salmon. Many of these waterbodies will be subject to clearing impacts to one degree or another. Avoidance and minimization measures minimize potential direct and indirect impacts. In addition, culvert replacements required to be funded by the applicant as a condition of their state permit will improve regional fish passage and habitat connectivity and should therefore enhance fishing opportunities. Existing fishing access and opportunities will not be impeded by the project.</p> <p>The project corridor supports a myriad of wildlife species including small and large mammals, many bird species, reptiles and amphibians. Habitat conversion along transmission line corridors results in a loss of habitat types which, in turn, may adversely impact species that are reliant on the original habitat types. Conversely, such alteration can also benefit some species. Throughout the corridor, but in particular on Segment 1, wildlife distribution and travel patterns and general behaviors are expected to be temporarily altered during construction. CMP will implement a number of best management practices and mitigation measures to minimize the potential for long-term impact and habitat and forest fragmentation to include cutting restrictions, enhanced buffers, time-of-year restrictions, habitat preservation, herbicide prohibitions, speed restrictions, and future maintenance restrictions and preservation of large contiguous parcels.</p>			X			

Table 9: Public Interest Factors	Effects					
	None	Detrimental	Neutral (mitigated)	Negligible	Beneficial	Not Applicable
<p>8. Flood Hazards: The transmission line portion of the proposed project will have 30 structures located within mapped 100-year flood plains, three in Segment 3, 22 in Segment 4, and five in Segment 5. The placement of these structures is not expected to result in any increase in flooding. Portions of the Surowiec Substation and the Fickett Road Substation are also located in the 100-year flood plain. The substations will be designed and constructed at a final elevation such that the equipment will not be inundated during a 100-year flood event. These encroachments are not expected to cause or increase flooding or cause an unreasonable flood hazard to any structure. Should it be required, the applicant will obtain Flood Hazard Development Permits from affected municipalities. Relative to the flooding standard of its regulations, the state determined that the post-development peak flow from the substations will not exceed the pre-development peak flow from the sites.</p>	X					
<p>9. Floodplain Values: See 8 above</p>	X					
<p>10. Land Use: Land uses in the vicinity of the NECEC project generally include forestry, agriculture, residential, commercial, industrial, transportation, recreation, conservation, historical, and natural features such as rivers, streams, lakes, wetlands, and wildlife habitat areas. These uses may continue uninterrupted during the construction, operation, and maintenance of the transmission lines and the associated facilities.</p>	X					
<p>11. Navigation: The directional drill beneath the upper Kennebec River will not affect local navigation which is limited to recreational canoes, kayaks and whitewater rafting operators. No Section 408 Permission is required as the installation, high in the watershed, will not affect the Kennebec River Federal Navigation Project.</p>	X					
<p>12. Shoreline Erosion and Accretion: Any unavoidable stream crossings will be spanned using mats or other means placed on the upland, bank to bank. Erosion controls will be utilized during the crossing and any disturbed banks will be stabilized post construction to prevent secondary impacts. 75' – 100' wide will be maintained on all streams.</p>	X					

Table 9: Public Interest Factors	Effects					
	None	Detrimental	Neutral (mitigated)	Negligible	Beneficial	Not Applicable
<p>13. Recreation: In rural and undeveloped sections of the transmission corridor, particularly in Segment 1, recreation activities in the area include hunting, fishing, hiking, and snowmobiling. Construction could temporarily affect use patterns, hunted species' behavior or travel patterns, or the public's desire to recreate in certain areas due to noise and general human activity, however in the long-term, the project will not impose limitations on these activities. Outdoor recreationalists will be able to freely cross the corridor, utilize existing road networks, and access the same areas they have traditionally used. Snowmobilers could benefit from having new and improved corridors. Hiking along the Appalachian Trail (AT) or other local trail networks will not be impeded and the existing AT experience will be improved in the long-term through mitigation measure in the vicinity of Moxie Pond at Bald Mountain Township. White water rafting and other recreational boating on the Kennebec River will not be affected.</p>				X	X	
<p>14. Water Supply and Conservation: The applicant does not propose any withdrawal from, or discharge to, the groundwater. No new wells are proposed for the substations nor will common wells or public water supply wells be used. Any water necessary during construction for dust control will consist of municipal water or publicly available surface water sources, accessible from stable locations, such as bridges, roads or boat ramps.</p>	X					

Table 9: Public Interest Factors	Effects					
	None	Detrimental	Neutral (mitigated)	Negligible	Beneficial	Not Applicable
<p>15. Water Quality: Temporary, minor impacts to surface water quality may occur during clearing, grading, and construction. To minimize these impacts, the applicant will implement its Erosion Control Plan, which is consistent with the Maine DEP’s March 2003, “<i>Maine Erosion and Sediment Control Best Management Practices</i>.” CMP has committed to not using pesticides or herbicides in Segment 1, in the vicinity of the small whorled pogonia occurrence, or in the vicinity of the Appalachian Trail crossings during NECEC construction and for the life of the NECEC Project. CMP further avoids herbicide use in site-specific locations through restrictions associated with surface waters (i.e., 25-foot setback), water supplies, rare species, and through no-spray agreements with various parties throughout its transmission system. No long-term impacts to water quality have been identified by Maine DEP or the US EPA. State WQC has been issued for the work.</p>			X			
<p>16. Energy Needs: The project provides MA consumers with a source of clean energy to help achieve their goals of reducing GHG emissions by 2050. These reductions will benefit the entire New England region. The NECEC includes network upgrade facilities in the form of transmission line upgrades and substation upgrades to the New England transmission system. The entirety of the NECEC, including the network upgrade facilities, ensures reliability and improves grid stability in the ISO-NE region. Both the MA DPU and the MEPUC found that the NECEC, including the network upgrade facilities, will improve the reliability of the transmission system in Maine and New England and enhance the fuel security for the ISO-New England region.</p>					X	

Table 9: Public Interest Factors	Effects					
	None	Detrimental	Neutral (mitigated)	Negligible	Beneficial	Not Applicable
<p>17. Safety: CMP has a well-established safety record in the construction and maintenance of its transmission corridors and must comply with all state and federal safety and health regulations for its employees and contractors. Within Segment 1, the risk to public safety during construction is no greater than from active commercial logging operations that are prevalent and year-round in the region. Within the other segments and at the substation sites the risk to the public is similarly low.</p> <p>The post-construction risk of wildfires, a concern expressed in public comments, is no different than on other transmission lines statewide. All required code clearances are met on each of CMP's lines. Vegetation management plans and other initiatives provide for regular ROW inspections and the removal of hazard vegetation including fire risks. The greater risk of fire in the ROW results from individuals using the corridor for recreational purposes and from fires started outside the ROW. This risk already exists, it is not exacerbated by the NECEC project.</p>	X					
18. Food and Fiber Production: NA						X
<p>19. Mineral Needs: Construction of the project will necessitate the use of various local mineral (fill) resources. The project will have a positive economic effect on the suppliers of those resources, but will not result in a substantial depletion of any mineral resources.</p>			X			

Table 9: Public Interest Factors	Effects					
	None	Detrimental	Neutral (mitigated)	Negligible	Beneficial	Not Applicable
<p>20. Consideration of Property Ownership: The applicant has sufficiently demonstrated to the State of Maine that he has full title, right, or interest in all lands directly affected by construction. Landowners and outdoor recreationalists adjacent to active areas of construction will experience clearing and construction related disturbance. These effects will generally be limited to the hours between 7AM and 7PM or daylight hours. Once construction is complete these impacts will cease. Some nearby landowners may experience alterations of views resulting from changes in vegetation or lighting. Noise and visual impacts will be controlled to ensure compliance with Maine DEP and municipal standards. These impacts have been mitigated to the extent practicable.</p> <p>A DA permit does not convey any property rights, either in real estate or material, or any exclusive privileges. Furthermore, a DA permit does not authorize any injury to property or invasion of rights or any infringement of Federal, state or local laws or regulations. The applicant's signature on an application is an affirmation that the applicant possesses or will possess the requisite property interest to undertake the activity proposed in the application. The district engineer will not enter into disputes but will remind the applicant of the above. The dispute over property ownership will not be a factor in the Corps public interest decision (33 CFR § 320.4).</p>			X			
<p>21. Needs and Welfare of the People: CMP indicates that the general public and regional commerce will benefit from the supply of clean energy and the reduction of GHG. Also, this Project is expected to contribute to Maine's economy and, in so doing, will help meet the needs and welfare of Maine residents (refer to 2-Economics). Additionally, CMP signed a Memorandum of Understanding (MOU) with regional non-profit organization, which should provide substantial economic development, tourism, and recreational opportunities, to help meet the needs and enhance the welfare of people in the region.</p>					X	

7.1.1 Climate Change. The proposed activities within the Corps federal control and responsibility likely will result in a negligible release of greenhouse gases into the atmosphere when compared to global greenhouse gas emissions. Greenhouse gas emissions have been shown to contribute to climate change. Aquatic

resources can be sources and/or sinks of greenhouse gases. For instance, some aquatic resources sequester carbon dioxide whereas others release methane; therefore, authorized impacts to aquatic resources can result in either an increase or decrease in atmospheric greenhouse gas. These impacts are considered de minimis and are negated through compensatory mitigation. Greenhouse gas emissions associated with the USACE federal action may also occur from the combustion of fossil fuels associated with the operation of construction equipment, increases in traffic, etc. The USACE has no authority to regulate emissions that result from the combustion of fossil fuels. These are subject to federal regulations under the Clean Air Act and/or Corporate Average Fuel Economy (CAFÉ) Program. Greenhouse gas emissions from the USACE action have been weighed against national goals of energy independence, national security, and economic development and determined not contrary to the public interest.

CMP has consistently noted that a key benefit of the project is its potential to reduce regional greenhouse gases (GHG). Their application and the administrative record contains a great deal of analysis that is meant to support their assertion that the GHG emission reductions in the region resulting from the NECEC would be in the range of approximately 3.0 to 3.6 million metric tons per year, which they note is equivalent to removing approximately 700,000 passenger vehicles from the road. They maintain that these positive effects outweigh the predominantly minor and localized impacts associated with the construction, operation, and maintenance of the Project.

The administrative record, inclusive of state/federal hearings, written comments and oral testimony, reflects a high level of debate of this issue. Some members of the public believe the project is urgently needed to reduce regional GHG emissions, while others challenged whether such emission reductions would even occur and argued any such reductions have not been adequately proven. The applicant indicates that the purpose of the NECEC Project is to deliver up to 1,200 MW of Clean Energy Generation from Québec to the New England Control Area at the lowest cost to ratepayers. The clean energy delivered by the Project will provide firm, guaranteed, and tracked year-round energy deliveries that will reduce winter electricity price spikes, improve system reliability, and provide renewable energy to help Massachusetts meet its GHG emissions reduction goals. In that GHG emissions and climate change are at the core of the project purpose and that the project purpose drives the analysis of alternatives, the subject will be discussed briefly in this section. As noted above however, the USACE has no authority to regulate or evaluate emissions per se, there are state and federal agencies such as the Maine DEP, Maine PUC, Department of Energy, and the U.S. Environmental Protection Agency that have far greater authority to regulate this matter.

CMP has submitted extensive information into the records of the PUC, DEP, and USACE proceedings to bolster their position that the NECEC would result in

GHG emissions reductions throughout the Northeast region and to rebut the contrary claims of project opponents that the NECEC will not result in overall GHG emissions reductions. Based on this evidence, and after considering voluminous expert testimony and record evidence over an 18-month adjudicatory proceeding, the PUC concluded that the NECEC will provide GHG emissions reduction benefits in the region. The Maine PUC concluded that, “the NECEC will result in significant incremental hydroelectric generation from existing and new sources in Quebec and, therefore, will result in reductions in overall GHG emissions through corresponding reductions of fossil fuel generation (primarily natural gas) in the region.” Reference – Maine PUC Docket No. 2017-00232, Public Utilities Commission Examiner’s Report (March 29, 2019). A copy of the PUC decision is contained in the administrative record.

In its May 11, 2020 Final Permit, the DEP cited the findings of the PUC and found: “Climate change, however, is the single greatest threat to Maine’s natural environment. It is already negatively affecting brook trout habitat, and those impacts are projected to worsen. It also threatens forest habitat for iconic species such as moose, and for pine marten, an indicator species much discussed in the evidentiary hearing. Failure to take immediate action to mitigate the GHG emissions that are causing climate change will exacerbate these impacts. The Maine Public Utilities Commission (PUC), which has jurisdiction necessary to assess GHG emissions from the project in light of its impact on the electricity grid, concluded that, ‘the NECEC [project] will result in significant incremental hydroelectric generation from existing and new sources in Quebec and, therefore, will result in reductions in overall GHG emissions through corresponding reductions of fossil fuel generation (primarily natural gas) in the region.’ The Department reviewed documents in the PUC’s proceeding, including the London Economics International, LLC report. The Department also reviewed the Examiner’s Report and finds its conclusions to be credible. The Department accepts the PUC’s finding on this issue and weighs the NECEC project’s reductions in GHG emissions against the project’s other impacts in its reasonableness determination. In doing so, the Department finds the adverse effects to be reasonable in light of the project purpose and its GHG benefits, provided the project is constructed in accordance with the terms and conditions of this permit.” Reference – Maine DEP Permit & Water Quality Certification (May 11, 2020). A copy of the DEP permit/WQC is contained in the administrative record and is attached to this permit.

The USACE has reviewed the large amount of detailed and often conflicting information submitted by both sides in this matter. The applicant has furnished additional information to include information from Hydro-Québec. We have coordinated with DOE on this issue, and they in turn directed a peer review of all of the various analyses performed by an agency contractor with special expertise in this area. The independent review concluded that the expected operation of NECEC would likely result in a reduction in greenhouse gas (GHG) emissions, specifically carbon dioxide emissions, in New England and neighboring markets.

This aligns with the applicant's stated purpose. Furthermore, the DOE contractor concluded that it is likely that Hydro-Québec would be able to meet the energy delivery requirements for NECEC with its current and planned incremental supply without diverting hydropower from other areas that it would otherwise serve. Various stakeholders had expressed concern that such a diversion would establish the risk for increased fossil generation to serve these customers with potentially increased GHG emissions.

In this matter and as reflected in the record, the USACE finds:

- The applicant and Hydro-Québec have sufficiently demonstrated that Hydro-Québec will not have to divert existing energy exports from other markets to supply the NECEC. The record indicates that Hydro-Québec appears to have surplus capacity and that NECEC will provide a means to sell that surplus capacity into New England.
- Development of the Project will not cause the development of additional hydroelectric facilities. Any capacity upgrades (such as the replacement of aging turbines with more efficient, new equipment) constitute minor improvements with limited environmental consequences anticipated. The applicant has sufficiently demonstrated that the power purchased by Massachusetts and supplied to New England will be sourced from existing, not new, hydroelectric generation resources.
- It is reasonable to expect the project will result in an annual reduction in GHG emissions in New England.
- The claim that the NECEC will result in additional GHG emissions because Hydro-Québec would have to reduce existing export levels to other markets in order to supply the NECEC and those other markets would then have to resort to burning dirtier fuels appears to be unfounded as there appears to be sufficient capacity for Hydro-Québec to fulfill all of its obligations.
- CMP has sufficiently demonstrated that while all forms of electricity generation emit greenhouse gases over the course of their lifespan, emissions for hydropower are lower than electricity generation from natural gas and coal and on par with wind. The NECEC will not require the construction of new dams in Canada and are thus, not expected to result in any incremental GHG emissions.
- The Corps of Engineers has no authority over the siting, permitting, operation, or regulating of hydro-electric facilities in Canada. This is the sole province of Canadian provincial and federal regulatory agencies who presumably give full consideration of environmental and other public interest factors. The USACE will not judge a sovereign nation's regulatory process.

7.2 The relative extent of the public and private need for the proposed structure or work: The clean energy delivered by the Project will provide firm, guaranteed, and tracked year-round energy deliveries that will reduce winter electricity price

spikes, improve system reliability and resiliency, and provide renewable energy certificates and other environmental attributes to help Massachusetts meet its GHG emissions reduction goals. The NECEC is projected to reduce greenhouse gas emissions from fossil-fuel fired thermal generation in *New England*, enhance electric reliability (particularly during winter months when natural gas supply constraints have occurred in recent years), and reduce the wholesale cost of electricity for the benefit of retail customers across the *region*. GHG emissions reduction benefits in the *region* in the range of approximately 3.0 to 3.6 million metric tons per year.

- 7.3 If there are unresolved conflicts as to resource use, explain how the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed structure or work was considered.

Discussion: There were no unresolved conflicts identified as to resource use.

- 7.4 The extent and permanence of the beneficial and/or detrimental effects that the proposed work is likely to have on the public and private use to which the area is suited: The permit has been conditioned to minimize potential detrimental impacts to the public interest.

8.0 Mitigation (33 CFR 320.4(r), 33 CFR Part 332, 40 CFR 230.70-77, 40 CFR 1508.20 and 40 CFR 1502.14)

- 8.1 Avoidance and Minimization: When evaluating a proposal including regulated activities in waters of the United States, consideration must be given to avoiding and minimizing effects to those waters. Avoidance and minimization measures are described above in Sections 1 and 3.

Were any other mitigative actions including project modifications discussed with the applicant implemented to minimize adverse project impacts? (see 33 CFR 320.4(r)(1)(i)) Yes

- 8.2 Is compensatory mitigation required to offset environmental losses resulting from proposed unavoidable impacts to waters of the United States? Yes

Provide rationale: As described in Sections 1 and 3, avoidance and minimization measures have been proposed for the NECEC Project, consistent with 40 CFR part 230. Under the Section 404(b)(1) Guidelines, compensatory mitigation is required for unavoidable impacts to wetlands, streams, and other aquatic resources authorized by USACE permits, with a goal of achieving a “no net loss” of wetland acreage, functions and values.

After considering all appropriate and practicable avoidance and minimization measures, the activity will result in the unavoidable placement of 47.64 acres of temporary wetland fill, 4.87 acres of permanent wetland fill, and the conversion of 111.55 acres of forested wetlands to scrub-shrub or emergent wetlands in

numerous wetlands throughout the Project area (broken down to 105.25 (wetlands), 3.678 acres (wetlands vernal pool habitat), and 2.622 acres (wetlands in IWWH)). The Project avoids in-stream work and proposed temporary access ways will completely span all waterbodies.

The Applicant has proposed a multi-faceted Compensation Plan to satisfy the compensation requirements of the USACE and Maine DEP discussed in 8.3. The Maine DEP's final permit requires the applicant to implement wildlife travel corridors and tapered vegetation management practices in Segment 1, thereby maintaining forested conditions in wetlands and reducing the impact of wetland conversion by about 40% over time, from 111.55 to 63.62 acres, after regrowth occurs. Nonetheless, CMP's Compensation Plan still includes compensation for the full 111.55 acres of forested wetland conversion.

8.3 Type and location of compensatory mitigation

To compensate for the Project's projected natural resource impacts, including unavoidable impacts to waterways and wetlands, the applicant has proposed a multi-faceted Compensation Plan. This plan addresses both federal and state requirements for compensatory mitigation. The applicant has proposed to compensate for the Project's unavoidable wetland impacts by contributing to Maine's Natural Resources Conservation Program (Maine In Lieu Fee program or ILF) and through development of a permittee responsible mitigation plan to preserve three parcels containing high value wetlands and other natural resources. In addition, the applicant has also proposed to implement enhancement measures to restore stream habitat connectivity (i.e., a Culvert Replacement Program).

To specifically address USACE requirements as they relate to unavoidable direct and indirect impacts to aquatic resources, the applicant shall contribute \$3,046,648.37 to Maine's In Lieu Fee Program (ILF), the Maine Natural Resources Conservation Program. This will generate 13.361 wetland credits.

The applicant also proposes a permittee responsible mitigation plan to preserve approximately 1022.4 acres of land on three parcels containing a total of 510.75 acres of wetland and 511.65 acres of upland buffer. These parcels include the Flagstaff Lake Tract; Little Jimmie Pond-Harwood Tract; and the Pooler Pond Tract. This preservation will generate a cumulative total of 60.307 credits.

- The Flag Staff Lake Tract is located in the Central and Western Mountains Maine Service Area. Located at Latitude 45°12'37.57"N, and Longitude 071°10'34.52"W.
- The Pooler Pond Track is located in the Central and Western Mountains Service Area. Located at Latitude 45°17'25.16"N, and Longitude 069°59'28.86"W.

- The Little Jimmie Pond-Harwood Tract is located in the Central Interior and Midcoast Service area. Located at Latitude 44°16'18.21"N, and Longitude 069°52'23.75".

To specifically address supplemental requirements of the Maine DEP, the permittee shall also preserve approximately 1053.5 acres of land, on three additional parcels containing over 90.85 acres of wetland, 14 vernal pools, and 12.02 linear miles of stream; preserve 717 acres of land in the upper Kennebec state mapped Deer Wintering Area (DWA); contribute a total of \$3,757,298.76 resulting from consultation with various state resources agencies; and preserve an additional 40,000 acres of land, yet to be formally identified, in the vicinity of Segment 1 to address habitat and forest fragmentation impacts. This latter preservation will be identified in a Conservation Plan, which will be provided to the Maine DEP for review and approval and implemented prior to commercial operation of the Project unless an extension granted.

8.3.1 Is the impact in the service area of an approved mitigation bank? No
The State of Maine has one mitigation bank, but it is only available to for use by the Maine Dept. of Transportation.

8.3.2 Is the impact in the service area of an approved in-lieu fee program? Yes – the Maine Natural Resources Conservation Program (MNRCP).

If yes, does the in-lieu fee program have the appropriate number and resource type of credits available? The MNRCP is a long established program and is well positioned to accept and process the applicant’s ILF contributions. For impacts in the Central and Western Mountains service area, there are currently 43.594 “Advanced” wetland credits available.

For impacts in the Central Interior and Mid-coast service area, there are 174.454 “Available” wetland credits available.

For impacts in the Southern Maine service area, there are 60.398 “Available” wetland credits available.

8.3.3 Selected compensatory mitigation type/location(s). See Table 10:

Table 10 – Mitigation Type and Location	
Mitigation bank credits	
In-lieu fee program credits	X
Permittee-responsible mitigation under a watershed approach	X
Permittee-responsible mitigation, on-site and in-kind	
Permittee-responsible mitigation, off-site and/or out of kind	

8.3.4 Does the selected compensatory mitigation option deviate from the order of the options presented in §332.3(b)(2)-(6)? Yes

The applicant has proposed purchasing 13.361 In-Lieu Fee wetland credits from the Maine Natural Resource Conservation Program for impacts in the three service areas. The purchase of ILF wetland credits is consistent with the hierarchy when no mitigation banks are available, 332.3(b)(2)-(6).

The applicant has also proposed permittee responsible mitigation (PRM) for impacts in the three service areas.

In the the Central and Western Mountains (CWM) Service Area there are currently 43.594 "Advanced" wetland credits available. Advanced credit are credits of an approved ILF program that are available for sale prior to being constructed/replaced. The applicant has proposed to generate PRM from two separate sites in this service area; the Flag Staff Lake Site and the Pooler Pond Track Site. Preference to ILF program credits over PRM is generally appropriate, because sites are generally larger, they are under scrutiny of an Interagency Review Team, they are protected, and there is an opportunity for advanced mitigation, prior to impacts. However, in this scenario, the proposed PRM is expected to be executed prior to impacts and there is no risk of failure because the proposal is entirely preservation of high quality resources and associated upland buffers. These PRM sites would meet the performance standards before advanced credits are fulfilled through the ILF. Therefore, in this scenario, PRM would be preferred over the ILF. Both PRM sites are located within the same 8 digit HUC of the impacts that take place in the in the CWM. Due to timing of the proposed PRM mitigation implementation, there will not be a temporal lag between resources impacted and mitigation occurring, therefore additional mitigation will not be required.

In the Central Interior and Midcoast (CIM) Service Area there are currently 174.454 Available Credits. Available credit or released credit are mitigation credits where the mitigation has already been achieved in advance of impacts. These types of credits are equivalent to mitigation banking credits, the first preference for compensatory mitigation. The proposed Little Jimmie Pond-Harwood PRM site is located within this Service Area. This PRM site deviates from the order of options in §332.3(b)(2)-(6). This site was chosen due to its proximity to the Corridor Expansion Site (~14 Miles), the advanced threat of development due to its proximity to Augusta, the high quality aquatic resources it will preserve and the significance of the site. The proposed PRM is expected to be executed prior to impacts and there is no risk of failure because the proposal is entirely preservation of high quality resources and associated upland buffers. Due to timing of the proposed PRM mitigation implementation, there will not be a temporal lag between resources impacted and mitigation occurring, therefore additional mitigation will not be required.

For impacts in the Southern Maine service area, there are 60.398 "Available" wetland credits available. The applicant has proposed to mitigate for these

impacts by means of permittee responsible mitigation in the Central Interior and Midcoast Service Area. The Little Jimmie Pond-Harwood Tract located in the Central Interior and Mid-coast Service Area and will be utilized to offset impacts in the Southern Maine Service Area. Of the total proposed impacts, impacts in this service area are 1.33 acres of fill. The applicant has proposed to generate 6.177 wetland credits from this site. The credits generated will be in-kind offsite, and will offset impacts in the Southern Maine Service Area. This deviates from the order of options but because of the same reasons noted above, the Little Jimmie Pond-Harwood Tract is capable of offsetting the permitted impacts and is environmentally preferable to on-site mitigation in the Southern Maine service area. The Southern Maine service area operates under Available wetland credits therefore mitigation has already been achieved in advance of impacts, therefore additional mitigation will not be required.

The Corps acknowledges that the applicant has deviated from the order of options presented in 332(b)(2)-(6), however rationale for deviation has been provided, and the combination of ILF and PRM is appropriate to compensate for aquatic resource functional loss.

8.4 Amount of compensatory mitigation: Refer to Sections 1.3 and 8.3.

Effective June 9, 2008, the USACE issued its Compensatory Mitigation Rule, 33 CFR Part 332. There are three ways compensatory mitigation can be provided: mitigation banks, in-lieu fee programs (ILF), and permittee-responsible mitigation. Mitigation banks and in-lieu fee programs are generally the preferred options for compensatory mitigation, because they consolidate resources and involve more financial planning and scientific expertise. These factors help reduce the risk of failure of mitigation projects. Permittee-responsible mitigation generally takes the form of wetland restoration, establishment, enhancement, or preservation.

The total amount of wetland credit required by the Corps is 38.933 wetland credits.

The applicant proposes to generate approximately 60.307 wetland credits by means of preservation and to purchase 13.361 wetland credits through the ILF program for a total of 73.668. This exceeds the USACE required generation of 38.933 wetland credits. The applicant understands this and recognizes that his compensation plan addresses multiple agencies' needs.

Rationale for required compensatory mitigation amount:

The 2016 New England District Mitigation Guidance (Guidance) established and set ratio's for compensatory mitigation. In addition, the 2008 Mitigation Rule states that the district engineer must require a mitigation ratio greater then one-to-one where necessary to account for the method of compensatory mitigation, in

this case the method is a combination of preservation and ILF credit purchase. Additionally when a functional assessment or other suitable metric is not used to assess the impact area, a minimum of one-to-one acreage or linear foot compensation ratio must be used.

APPENDIX C – MULTIPLIER TABLES

TABLE C1 – RECOMMENDED COMPENSATORY MITIGATION MULTIPLIERS FOR DIRECT PERMANENT IMPACTS TO WETLANDS¹²

Mitigation Impacts	Restoration ¹³ (re-establishment)	Creation (establishment)	Rehabilitation ¹⁴	Preservation (protection/ management)
Emergent Wetlands	2	3	5 if hydrology 10 if vegetation	20
Scrub-shrub Wetlands	2	3	5 if hydrology 10 if vegetation	20
Forested Wetlands	3	4	5 if hydrology 10 if vegetation	20
<i>Upland</i>¹⁵	≥10 ¹⁶	N/A	project specific	15 ¹⁷

Appendix C, pictured above, explains how much mitigation is expected when there are impacts to these resources. This table is for utilization of PRM. For example, if impacts are to 1 acre of emergent wetland then the following compensatory mitigation could be proposed: 2 acres of emergent wetland would need to be restored; 3 acres of emergent wetland would need to be created; 5 acres of hydrology of emergent wetland would need to be rehabilitated, 10 acres of vegetation rehabilitated; 20 acres of wetland would be preserved.

TABLE C2 – RECOMMENDED COMPENSATORY MITIGATION FOR TEMPORARY AND/OR SECONDARY IMPACTS TO WETLANDS

IMPACT	% OF STANDARD¹⁸ AMOUNT¹⁹
Temporary fill (e.g., swamp mats, fill over membrane) in forested wetlands; area to revegetate to forest.	15%
Temporary fill in emergent wetlands; area to revert to previous condition.	5%
Temporary fill in scrub-shrub wetlands; area to revert to previous condition.	10%
Permanent conversion of forested wetlands to emergent wetlands (with or without temporary fill)	30%
Permanent conversion of forested wetlands to scrub-shrub wetlands (with or without temporary fill)	15%
Permanent conversion of scrub-shrub to emergent	15%
Removal of forested wetland cover for new corridor	Project specific ²⁰
Secondary impact edge effects ²¹ : High level impact zone Remainder of impact zone	25% 10%

TABLE C2 – RECOMMENDED COMPENSATORY MITIGATION FOR TEMPORARY AND/OR SECONDARY IMPACTS TO WETLANDS

IMPACT	% OF STANDARD¹⁸ AMOUNT¹⁹
Temporary fill (e.g., swamp mats, fill over membrane) in forested wetlands; area to revegetate to forest.	15%
Temporary fill in emergent wetlands; area to revert to previous condition.	5%
Temporary fill in scrub-shrub wetlands; area to revert to previous condition.	10%
Permanent conversion of forested wetlands to emergent wetlands (with or without temporary fill)	30%
Permanent conversion of forested wetlands to scrub-shrub wetlands (with or without temporary fill)	15%
Permanent conversion of scrub-shrub to emergent	15%
Removal of forested wetland cover for new corridor	Project specific ²⁰
Secondary impact edge effects ²¹ : High level impact zone	25%
Remainder of impact zone	10%

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Table C2 discusses multiplier rates when there is temporary and/or secondary impacts to wetlands. This table can also be applied when proposing wetland ILF credit purchasing.

The rationale behind the total amount of compensatory mitigation for direct and indirect impacts to Vernal Pools Appendix G – Vernal Pool Module must be utilized.

The Vernal Pool Module utilizes the Corps Vernal Pool Characterization Form. The Vernal Pool Characterization form documents the quality of the vernal pool and its surrounding landscape to determine overall level function of the pool. The following values can be given to vernal pools: low, medium, and high.

Utilizing the previous tables the following mitigation has been proposed to offset unavoidable impacts.

47.64 acres of temporary wetland fill

- The 2016 New England Mitigation Guidance (Guidance) offers ratios that may be utilized to mitigate for impacts associated with temporary fills of various wetland cover types. For simplicity, recognizing that in this case

state requirements for compensatory mitigation exceed those of the USACE, the higher of the ratio of 1:6 or 15% has been applied.

- Therefore, a minimum of 7.146 wetland credits will be required

2.652 acres of permanent fill in forested, emergent and scrub-shrub wetlands – Does not include 2.218 acres of permanent fill of vernal pools (see below)

- The Guidance states that a minimum of 1:1 wetland credit required for permanent loss; therefore 2.652 wetland credits are required

2.218 acres of permanent fill of vernal pool

- The Guidance states that vernal pool impacts are mitigated at minimum of 1:1
- Therefore 2.218 wetland credits have been proposed
- The applicant has proposed a multiplying factor for secondary and indirect impacts to the vernal pools utilizing the Guidance Vernal Pool Characterization Form. These secondary impacts are given a ratio of 1:20 then multiplied (13,000 x Value of Vernal Pool x # of Vernal Pools) to calculate the total credits to be required.
 - For impacts to 49 High Value Vernal Pools, approximately 3.664 (13,000 x 5 x 49 x .05) wetland credits have been proposed
 - Impacts to 122 Medium Value Vernal Pools, approximately 5.461 (13,000 x 3 x 122 x .05) wetland credits have been proposed
 - Impacts to 71 Low Value Vernal Pools, approximately 1.059 (13,000 x 1 x 71 x .05) wetland credits have been proposed

111.55 acres of forested wetland conversion

- The Guidance states that a ratio of 1:6.67(15%) may be utilized to mitigate for impacts associated with permanent conversion of forested wetland
- Therefore, a minimum of 16.733 wetland credits will be required

The cumulative total wetland credit required by the USACE is 38.933 credits

Since 2008 Maine has had an in-lieu fee program, the Maine Natural Resources Conservation Program (MNRCP). The MNRCP is a cooperative program between Maine DEP and the USACE and is administered by The Nature Conservancy in Maine. Fees collected by either or both agencies through the ILF Program are allocated through the MNRCP. The MNRCP helps compensate for unavoidable impacts to protected natural resources in Maine by funding the restoration, enhancement, preservation, and creation of similar resources to maintain ecological benefits. Public agencies, non-profit conservation organizations and municipalities can apply, through a competitive process, for funding to complete appropriate projects in these biophysical regions. Preference is given to projects that restore, enhance, preserve, or create resources that best match the natural characteristics and values that were impacted. The focus of the program is to maximize the ecological benefits of compensatory mitigation. Projects that benefit habitat areas of statewide conservation significance, or other

natural resource priority areas, are generally preferred. Since its inception, the MNRCP has received \$22,744,672 in contributions, most of which has been awarded to projects throughout the state. Using these funds, the MNRCP has generated 103 projects and have resulted in the restoration or enhancement of approximately 157 acres of aquatic resources, significant wildlife habitat and the preservation of 7,561 acres of aquatic resources (MNRCP 2018 Annual Report). In addition, 56 miles of stream habitat have been enhanced or restored as a result of dam and barrier removals (MNRCP 2018 Annual Report).

The applicant will contribute \$3,046,648.37 to the MNRCP. The calculation of this contribution is reflective of current USACE and DEP guidance and is proposed to specifically address unavoidable direct and indirect impacts to vernal pools and wetlands along the NECEC corridor. Funds must be contributed before construction is initiated. Allocations will generally be awarded within a year of contribution. For administrative purposes, Maine has been broken down into bio-physical regions and sub-regions. The NECEC project affects the Central & Western Mountains, Central Interior & Mid-coast, and Southern Maine regions. CMP's contribution will be proportionately divided among each region commensurate with the level of impact in each. The funds, once available, will be awarded to Interagency Review Team-approved projects in each region. The USACE has determined that use of the MNRCP is an appropriate means of compensation in this case.

The applicant will also preserve three parcels of land totaling 1,022.4 acres, ranging in size from 81.24 to 831.39 acres. These lands shall be protected in perpetuity through a conservation easement or deed restriction. The applicant did not identify any wetland restoration, establishment or enhancement opportunities. This is common in more remote parts of the state and in general in Maine, where development pressure is historically low and adverse alterations of aquatic and natural environment landscapes are limited. This is also reflected in the 11 year administration of the MNRCP, where preservation proposals, sometimes coupled with relatively minor restoration components, prevail.

The USACE generally notes that preservation as mitigation can reduce the threat of future impacts and may stem future aquatic resource degradation. Furthermore, we encourage a combination of upland and aquatic resource preservation over aquatic resources-only preservation to offer better protection of aquatic functions, as state laws may not protect non-wetlands whose degradation would affect aquatic resources. Pursuant to the above referenced Compensatory Mitigation Rule, 33 C.F.R. § 332.3(h), preservation may be used to provide compensatory mitigation when:

- (i) The resources to be preserved provide important physical, chemical, or biological functions for the watershed;

- (ii) The resources to be preserved contribute significantly to the ecological sustainability of the watershed. In determining the contribution of those resources to the ecological sustainability of the watershed, the district engineer must use appropriate quantitative assessment tools, where available;
- (iii) Preservation is determined by the district engineer to be appropriate and practicable;
- (iv) The resources are under threat of destruction or adverse modifications; and
- (v) The preserved site will be permanently protected through an appropriate real estate or other legal instrument (e.g., easement, title transfer to state resource agency or land trust).

Each of the proposed Corps-specific preservation tracts (Flagstaff Lake Tract, Little Jimmie Pond-Harwood Tract, and Pooler Pond Tract) included in this plan meets all of these criteria and provides important physical, chemical, or biological functions for the watershed in which it is located. A detailed description of each parcel is included in the administrative record. Analyzing the screening criteria above, the Corps notes:

- (i) Functions. The functions and values of the three preservation tracts are similar to the functions and benefits associated with Project impacts to wetlands. These three tracts will be used to offset permanent cover type conversion of forested wetlands and to a lesser degree, permanent fill in wetlands and temporary wetland fill in scrub-shrub wetlands. According to the applicant's natural resource inventory, contained in the administrative file, the three tracts contain approximately 510.75 acres of wetlands, 16 vernal pools, 75 acres of state mapped Inland Waterfowl & Wading Bird habitat, 3.95 miles of streams, and 511.65 acres of upland buffer. Each of the sites' aquatic resources generally provide the functions and benefits of groundwater recharge/discharge, floodflow attenuation, fish habitat, production export, sediment/toxicant retention, nutrient removal, shoreline stabilization, wildlife habitat, recreation, wildlife habitat.
- (ii) Contribution. The administrative record reflects that each of the preservation sites contributes to the sustainability of the watershed. Palustrine wetlands along named and unnamed streams crossing help to stabilize adjoining upland, thereby limiting and protecting river, lake and stream degradation and associated water quality. Each tract consists of a variety of vegetative communities that provide different cover types, habitat characteristics, and ecological functions. The Flagstaff Lake Tract is within Maine's Western Mountain area, which is known for its natural resources and recreational opportunities. Multiple recreational trails,

including the Appalachian Trail and the Northern Forest Canoe Trail, can be accessed from the parcel. The property lies between, and therefore links, the Maine Bureau of Parks and Land (MBPL) Dead River Peninsula property and the 36,000 acres of Public Land making up the Bigelow Preserve. Bigelow Mountain, with a highest elevation of 4,150 feet, and the view focal point from the property, is designated as a National Natural Landmark by the U.S. Department of the Interior. The Little Jimmie Pond Tract is within the Kennebec River watershed and is connected hydrologically via the outlet of Hutchinson Pond, which drains into Cobbosseecontee Stream and ultimately connects with the Kennebec River approximately 10.5 downstream from the Tract. Immediately to the east of the tract is Beginning with Habitat's Cobbossee-Annabessacook Focus Area comprised of extensive areas of wetlands that provide habitat for wintering deer, rare species, and outstanding habitat for wading birds and waterfowl. The property is positioned between a state managed Wildlife Management Area to the north and conserved lands to the south. At the Pooler Pond parcel, riverine and palustrine along the Kennebec River and Pooler Ponds buffer and protect the adjoining upland shoreline from scour and erosion, thereby maintaining high water quality in the waterbodies. The Tract contains a mix of wetland types and provides high quality habitat for a wide variety of wildlife including large mammals, raptors, waterfowl, passerines songbirds, amphibians, reptiles and insects. Its preservation protects a section shoreline along the upper Kennebec River, known for its high recreational values, and lands adjacent to the Route 201 corridor, part of the Canada Scenic Byway and recognized for its recreational and scenic character and historic setting (Benedict Arnold's Trail).

- (iii) Appropriate and practicable. These parcels are available and it is practicable for the applicant to convey them to local conservation groups for long-term management. They are appropriate in that preservation of these parcels will allow for permanent protection from development and will preserve the existing wildlife habitat, water quality benefits, vernal pool habitat, and recreational/educational opportunities that are an integral component of the watershed.
- (iv) Threat. An analysis provided by the applicant and contained in the administrative record shows that each of these three tracts is open to development in ways that could damage these important functions and thereby threaten to adversely modify the ecological sustainability of the watershed.
- (v) Legal instrument. Documentation of CMP's present title, right, or interest in each of the preservation tracts is contained in the administrative record. For each property, CMP proposes to convey fee ownership to either a non-profit land trust/nongovernmental organization or a state resource

agency and the transfer document between the parties will contain deed covenants and restrictions to preserve the compensation tract and its ecological values in perpetuity.

The applicant understands that his proposed Compensation Plan contains additional elements beyond those required by the USACE for unavoidable impacts to aquatic resources within the limited scope of our jurisdiction. These other elements are intended to address supplemental state requirements for natural resource impacts within their broader authority. The USACE acknowledges that several of these elements provide additional long-term benefits to aquatic resources. The preservation of approximately 1053.5 acres of land on three additional parcels will permanently protect over 90.85 acres of wetland, 14 vernal pools, and 12.02 linear miles of stream within the same landscape as those being proposed to compensate for resources under the authority of the Corps. The preservation of approximately 717 acres of land in the upper Kennebec state mapped Deer Wintering Area will undoubtedly contain a mosaic of upland, wetland and streams. Contribution of \$1,875,000 toward the culvert replacement program will result in extensive benefits to fisheries, particularly high value native brook trout, general habitat connectivity, and passage of high flows. The additional preservation of 40,000 acres of land, yet to be formally identified, in the vicinity of Segment 1 will undoubtedly contain a similar mosaic of upland, wetland, and streams, much like the lands being altered by the Project.

- 8.5 For permittee responsible mitigation identified in 9.3.3 above, the final mitigation plan must include the items described in 33 CFR 332.4(c)(2) through (c)(14) at a level of detail commensurate with the scale and scope of the impacts. As an alternative, the district engineer may determine that it would be more appropriate to address any of the items described in (c)(2) through (c)(14) as permit conditions, instead of components of a compensatory mitigation plan. Presence of sufficient information related to each of these requirements in the applicant’s mitigation plan is indicated by “Yes” in Table 11. “No” indicates absence or insufficient information in the plan, in which case, additional rationale must be provided below on how these requirements will be addressed through special conditions or why a special condition is not required: Yes

Flagstaff Lake Site/ Little Jimmie Pond-Harwood Tract/ Pooler Pond Tract

Table 11 – Permittee-Responsible Mitigation Plan Requirements		
Requirement	Yes	No
Objectives	X	
Site selection	X	
Site protection instrument		X
Baseline information	X	
Determination of credits	X	

Table 11 – Permittee-Responsible Mitigation Plan Requirements		
Requirement	Yes	No
Mitigation work plan		X
Maintenance plan		X
Performance standards	X	
Monitoring requirements		X
Long-term management plan		X
Adaptive management plan		X
Financial assurances		X
Other		

For any “No”, provide rationale on how the subject component(s) of the compensatory mitigation plan will be addressed as special conditions or why no special conditions are required:

Site Protection Instrument: The applicant has proposed protective instruments for all three sites, however has not finalized the exact instrument. A special condition will convey that each site must have a Corps approved site protection instrument prior to any work being commencing.

Mitigation Work Plan: The mitigation work plan will be addressed in each site’s specific long-term management plan. The long-term management plan will address any potential work that may need to occur.

Maintenance Plan: Any maintenance plan will be specifically addressed in the long-term management plan.

Performance Standards: Performance standards are generally not required for preservation sites. However, the success of this mitigation plan hinges on its ability to identify a long-term steward; finalize a site protection instrument; and finalize a long-term management plan.

Monitoring Requirements: This component will be satisfied in the long-term management plan.

Long-term management plan: Prior to work commencing the applicant will supply the Corps with a long-term management plan. This will be addressed in the special conditions.

Adaptive management plan: Any adaptive management will be specifically addressed in the long-term management plan.

Financial assurances: Any financial assurances required by the long-term steward will be addressed in the long-term management plan.

9.0 Consideration of Cumulative Impacts

(40 CFR 230.11(g) and 40 CFR 1508.7, RGL 84-9) Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor direct and indirect but collectively significant actions taking place over a period of time. A cumulative effects assessment should consider how the direct and indirect environmental effects caused by the proposed activity requiring DA authorization (i.e., the incremental impact of the action) contribute to cumulative effects, and whether that incremental contribution is significant or not.

Under the Council on Environmental Quality (“CEQ”) regulations, the cumulative impact analysis is meant to ensure that a project is assessed as a whole and not sliced into small component parts. 40 C.F.R. § 1508.27(b)(7)). Direct effects are caused by the action and occur at the same time and place, indirect effects are those effects “caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable.” 40 CFR § 1508.08. Under the Section 404 (b)(1) Guidelines, secondary effects are effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredge or fill material. 40 CFR § 230.11(h).

- 9.1 Identify/describe the direct and indirect effects caused by the proposed activity: The direct and indirect effects of the project are described in Sections 1.3 and 6.0.

The USACE authority in this matter is limited to impacts to waters of the U.S. Large areas of the project constitute upland over which the Corps has no authority. This includes but is not limited to at least 120 miles of the proposed 144.9 mile HVDC transmission line and six of the eight converter or substation projects (Refer also to Section 1.3). The direct and indirect impacts of activities assessed in this document are generally confined to a relatively small footprint, due in a large part to project specific avoidance and minimization measures, application of general and additional conditions, and the activity specific restrictions.

- 9.1.1 Direct impacts. Direct permanent impacts will result from the placement of new and relocated pole structures, their associated foundations, caissons, and guy wire anchors. Direct impacts will also be associated with fill for work at the Merrill Road Converter Station, the Fickett Road Substation, and one HDD terminal station. Total permanent impacts include 4.87 acres of waters of the US.

Direct impacts also result from the conversion of forested wetlands to scrub-shrub or emergent wetlands through tree clearing, approximately 111.55 acres.

These impacts extend over the entire length of the Project, although they are primarily located in Segment 1.

Direct temporary impacts will result from the placement of temporary construction/swamp mats for access and construction activities, temporary bridges for stream crossings, and temporary work pads for installing structures. Total temporary impacts are 47.64 acres.

- 9.1.2 Indirect impacts. Indirect impacts include the effect of future maintenance once the transmission line is installed, in and around waters of the US. The effects of the initial tree clearing are already discussed in this document. Periodically, the cleared areas will have to be maintained as trees and saplings threaten the safety zone of the transmission lines. Encroaching vegetation is typically cut by hand or mechanical equipment or in some cases, treated with herbicides. The applicant's Vegetation Management Plan details all management activities. Increases in noise and human activity will cause a periodic temporary disturbance to wildlife, including to federally listed Canada lynx and Northern Long-Eared bats, but a rapid return to baseline conditions is expected upon completion of the maintenance. According to the applicant there will be a need to perform an initial round of maintenance within one year of NECEC completion since some species' grow rapidly in freshly cleared areas. Following that effort the applicant will generally adopt a 4-year maintenance cycle.

Corridor clearing has the potential to introduce invasive plant species. In order to determine whether any of the 83 state/federal listed invasive species were introduced or spread as a result of NECEC project construction, a Post-Construction Survey will be conducted during June through September of the fourth year after stabilization of all areas where soil disturbance occurred (pole and structure sites, access and construction roads, material lay-down areas, substation sites, etc.). These specific locations will be monitored using the same survey method employed for the pre-construction survey. The data from the two survey periods will be compared to determine whether any of the 83 listed invasive plant species observed during the pre-construction survey were introduced or have increased in abundance within disturbed areas as a result of NECEC construction. This information will be evaluated so that locations in or proximate to impacted waters of the U.S. requiring treatment may be addressed during the next cycle of vegetation management for capable species described above.

To minimize the potential for indirect impacts from clearing, fueling operations or erosion during clearing operations proximate to streams, CMP has expanded the riparian buffers for vegetation management and maintenance activities. CMP will apply a 100-foot buffer to coldwater fishery habitats, outstanding river segments, waterbodies supporting rare, threatened or endangered species (including Atlantic salmon), and all perennial streams in the new corridor portion of the Project (Segment 1). CMP will apply an expanded buffer of 75 feet to all other

streams that do not meet these criteria. These same buffers reduce potential indirect impacts of loss of overhead cover to streams, increased water temperature, and loss of woody debris contribution, all of which affect fisheries.

No effects of the authorized discharge of fill material are expected to occur downstream of the project, with the possible exception of very minor and temporary sedimentation or turbidity. Relative to fisheries, in particular Atlantic salmon, these effects may extend up to 1000' downstream, depending on stream flow, substrate type, time of year, and erosion containment. These minor, temporary impacts are not expected to adversely affect off-site resources. The Applicant has proposed to implement its Environmental Guidelines to avoid and minimize impact of potential erosion and sedimentation to off-site resources and, for the HDD site at the Upper Kennebec River, has provided its Requirements for Inadvertent Fluid Release Prevention, Monitoring, and Contingency Plan for HDD Operations, which outlines the details of the HDD process, the monitoring and prevention procedures, and the measures that would be in place to respond to an inadvertent release of drilling fluids.

9.1.3 Other Direct effects.

The USACE received comments on its Public Notice from the National Park Service (NPS) recommending that cumulative impacts on the ANST be analyzed in the USACE environmental documents. Approximately 895 feet of the ANST footpath is within an existing CMP transmission line corridor, crossing the trail in three separate locations in the vicinity of Moxie Pond at Bald Mountain Township. Two of the locations cross the trail perpendicularly and one location aligns with or parallels the trail for approximately 540 feet. The easement for the trail crossings post-dates the installation of the existing utility. The NECEC will require widening of the existing corridor by approximately 75 feet to accommodate the new transmission line. This action will have a cumulative effect because the density and height of vegetation will be reduced.

Because the existing land use is a transmission line corridor, there would be no incremental increase in the number of transmission line corridor crossings of the ANST. There would be a change in visual setting for hikers using the trail and hikers will be temporarily affected by construction activities, however hiking access will not be impeded by construction and the overall effect of hikers transiting an existing transmission line corridor (three times) is essentially unchanged. The USACE, DOE, NPS, Maine SHPO and invited signatories established a Memorandum of Agreement, executed on June 19, 2020, that requires the following treatments, summarized below, to mitigate potential cumulative direct impacts and minimize adverse effects to the ANST:

- Installation of shorter transmission line structures (i.e., reduced in height from the typical 30m);

- Use of non-specular (non-reflective) conductor within the viewshed of the ANST;
- Restrict the use of herbicides;
- Implementation of vegetation tapering on both sides of the ROW in areas adjacent to the ANST;
- Install and maintain vegetative screening between the relocated ANST and the ROW west of Troutdale Road and east of Baker Stream; and
- Partial relocation of the trail reducing the number of crossings of the corridor from three to one.

Additionally, specific to the NPS comments on the ANST, no on-site indirect or secondary effects are expected to occur beyond the specific clearing and structure locations adjacent to the ANST crossings. CMP currently has no future plans beyond the proposed NECEC Project, nor any specific plans that would result in impacts to ANST scenic vistas or additional development of the portion of the corridor near Joe's Hole (South of Moxie Pond) that would remain forested following construction of the Project. There are no known future federal or non-federal actions proposed in the Project area in the vicinity of the ANST.

9.2 The geographic scope for the cumulative effects assessment: The NECEC Project traverses western Maine from the Canadian border at Beattie Township south to Lewiston, Maine. There are also upgrades to existing transmission infrastructure between Lewiston and Pownal, and Windsor to Wiscasset, Maine. The geographical scope of the cumulative impacts analysis is at a watershed scale and located in the following HUC8 river watersheds:

- Upper Kennebec,
- Dead,
- St. George-Sheepscot,
- Presumpscot,
- Lower Kennebec, and
- Lower Androscoggin.

Evaluating the geographic scope of cumulative impacts at a watershed scale considers the broader potential of any action taken and the potential of the cumulative impacts on that watershed.

9.3 The temporal scope of this assessment covers: The scope of analysis includes proposed project but also includes other present, past, and future actions that ultimately result in the baseline condition of aquatic resources throughout the project. Construction of the NECEC Project is expected to begin in 2020 with a commercial operation date of late 2022.

9.4 Describe the affected environment: Refer to Section 1.4. For the purposes of this EA, the affected environment includes wetlands, streams, or other aquatic resources located within the geographic scope (as defined in Section 9.2 above) of the analysis. The cumulative impact analysis considers past, present and reasonably foreseeable future actions resulting in direct and indirect impacts to the affected environment, regardless of what agency (Federal or non-Federal) or person undertakes such other actions.

9.5 Past, Present, and Reasonably Foreseeable Future Projects.

9.5.1 Past Actions (Refer to Table 9-1). Past actions are those that have shaped the current environmental conditions within the geographic scope of the Project. This includes existing utility ROWs, wind power infrastructure, existing roadways and other landscape activities, such as commercial timber harvesting. For purposes of this EA, actions that occurred in the past and their impacts are now part of the existing environment and are included in the affected environment.

Six wind power projects have been constructed in the geographic scope of the NECEC project between 2009 and 2017 and all are commercially active. These projects included tree clearing, access road construction, site development and generator lead lines, all requiring USACE and Maine DEP permits. CMP's MPRP and Section 241 were completed in 2015 and 2018, respectively. These two projects both required federal and state permits and were primarily sited in existing transmission line corridors with minimal additional tree clearing and minimal permanent aquatic resource impacts. The cumulative impacts of NECEC on the affected environment in the context of these wind power and electrical transmission upgrade projects are not considered significant because they have all been completed and permanently stabilized such that there are no ongoing influences on the aquatic resources in the geographical scope of the NECEC, each had independent purpose and need, and each have otherwise been mitigated or compensated for, as required by their permits.

Cumulative impacts generally result from other development projects in the MPRP area that may result in a cumulative loss of aquatic resources. For most cumulative impact assessments, the USACE reviews available databases for past permit actions in the geographic scope of the project. In this case that does not appear to be practical or reasonable due to the length and number of municipalities that would be crossed by the Project. Surrounding development ranges from undeveloped or heavily managed forest and other lands to rural/suburban/urban residential and commercial. In all segments but Segment 1, no substantial change in transmission line structures, function, or purpose will occur. Widening existing corridors, where necessary could reduce the vegetated buffer to some properties but the overall character of the existing transmission line corridor will not change. The Project is not expected to stimulate secondary development. From a broad perspective, USACE permit actions in the geographic area have been for a variety of projects, of varying scales, and in numerous municipalities with no relationship to the proposed Project. From a

broad perspective, these actions authorized a variety of projects including piers, floats, shoreline stabilizations, utilities, and similar work in navigable waters and small to moderate sized commercial or residential fills, culvert and bridge replacements, linear transportation improvements, utilities, shoreline stabilization, and boat ramps within inland waters. The USACE has determined that the cumulative effect of these projects to aquatic resources when added to the NECEC project is minimal due to their small individual size, their widely distributed locations throughout the municipalities and state, the length of time between actions, and case-by-case avoidance, minimization, and mitigation measures. Future development proposals will be evaluated on a case-by-case basis by the USACE and the interagency review team in order to assess their individual and cumulative impact relative to the NECEC and any mitigation requirements.

Table 9-1: Summary of Past, Present, and Reasonably Foreseeable Future Projects

Project	Project Type	Project Location	HUC8 Watershed	Project Description	Project Status
Kibby Mountain Wind Phase I and II ¹	Wind Energy	Kibby Township, Maine	Dead	Forty-four wind turbines with a top rated capacity of 132 MW.	Completed in 2009
Bingham Wind Power ¹	Wind Energy	Bingham, Maine	Lower Kennebec	Fifty-six wind turbines with a top rated capacity of 184.8 MW.	Completed in 2016
Canton Mountain Wind Power ¹	Wind Energy	Canton, Maine	Lower Androscoggin	Eight wind turbines with a top rated capacity of 22.8 MW.	Completed in 2017
Saddleback Ridge Wind Power ¹	Wind Energy	Carthage, Maine	Lower Androscoggin	Nine wind turbines with a top rated capacity of 25.6 MW.	Completed in 2014
Spruce Mountain Wind ¹	Wind Energy	Bryant Pond, Maine	Lower Androscoggin	Ten wind turbines with a generation capacity of 20 MW.	Completed in 2011
Record Hill Wind ¹	Wind Energy	Roxbury Maine, Maine	Lower Androscoggin	Twenty-two wind turbines with a generating capacity of 50.6 MW.	Completed 2011
Moscow Radar Site	Decommissioned radar site	Moscow and Caratunk, Maine	Lower Kennebec	Former radar site operated by the U.S. Air Force purchased by developers to potentially serve as a renewable energy generation site.	Future Plans Unknown
CMP's Maine Power Reliability Program ("MPRP")	Electric Transmission	Maine; multiple locations	Lower Kennebec, Lower Androscoggin, Presumpscot, St. George-Sheepscot	The MPRP included 184 miles of new 345kV transmission lines, 100 miles of new 115kV transmission lines, 156 miles of rebuilt transmission lines, six new substations, and major expansions to six existing substations. Co-location is proposed for Segments 2, 3, 4, and 5 of	Completed in 2015

Table 9-1: Summary of Past, Present, and Reasonably Foreseeable Future Projects

Project	Project Type	Project Location	HUC8 Watershed	Project Description	Project Status
				the NECEC in the same corridors as the MPRP.	
CMP Brightline Bulk Energy System (“BES”)	Electric Transmission	Maine; multiple locations	Lower Kennebec, Lower Androscoggin, St. George-Sheepscoot	BES is a 5 region, multi-year portfolio of separate projects, including new and expanded substations as well as new and rebuilt transmission lines. BES is intended to comply with new federal and state electric supply reliability standards.	On hold pending resolution of MPUC decisions
CMP Waterville/Winslow Area Reinforcement Project (Section 241)	Electric Transmission	Waterville and Winslow, Maine	Lower Kennebec	New 7-mile 115 kV transmission line, re-rate of the existing Section 241A (renamed 281) and replacing of the new Rice Rips 115/34 V substation with the new 115/34 kV County Road substation.	Completed in 2018.
CMP Substation Modernization	Electric Transmission	Maine; multiple locations	Lower Kennebec, St. George and Sheepscoot, Lower Androscoggin	A portfolio of CMP upgrades to existing substation and new substation construction to modernize grid transmission.	Currently in design and permitting.

¹Information on Wind Power projects obtained from: https://openei.org/wiki/Main_Page

9.5.2 Present or Reasonably Foreseeable Future Identified Actions.

In reviewing the cumulative impact of reasonably foreseeable future actions, the USACE need not speculate about the possible effects of future actions that may or may not ensue. When no such project is pending, such action is too speculative or its impacts too indefinite such that there is little to no use in analyzing its cumulative impact. Here, the Project has independent justification, *i.e.* it is not dependent on any future action. Nevertheless, the Project was not analyzed in isolation. The USACE conducted a web search for both federal and non-federal past, present, or reasonably foreseeable future actions related to energy, transportation projects, municipal projects, and other projects, that may contribute to cumulative impacts to the affected environment within the geographic scope of the NECEC, when considering the action of the Project. The USACE regularly coordinates with the Maine DEP on known or anticipated work in the region. Maine Dept. of Transportation work is discussed below as is the potential for municipal projects.

As noted above, present or reasonably foreseeable future identified actions are those actions that are in progress or are reasonably foreseeable. The Moscow Radar Site and CMP's Brightline Bulk Energy System (BES) and Substation Modernization Projects, included in Table 9-1, are reasonably foreseeable identified actions. The Moscow Radar Site was deactivated in 2002 and sold as recently as 2011 to a real estate investor. While no plans for the site are known at this time, it has been discussed as a potential site for renewable energy generation (solar) given its proximity to CMP's existing transmission line infrastructure. CMP's BES project is conceptual and has not yet begun the environmental permitting process, while CMP's Substation Modernization projects have begun the environmental permitting process. As proposed, they are primarily located in existing transmission corridors or on CMP's existing lands, minimizing impacts to aquatic and other resources. These potential actions do not constitute a significant impact when considering the cumulative impact assessment because the improvements are proposed primarily in areas that are already developed.

A review of the Maine DOT Projects Under Construction (publicly available at <https://www.maine.gov/mdot/projects/>) was performed. Currently there are 392 Maine DOT projects under construction in Maine, many of which are outside the geographic scope of NECEC. The Maine DOT regularly performs road maintenance, including road resurfacing and paving, bridge maintenance, and shoulder widening. These activities do not constitute a significant impact for consideration for the cumulative impact assessment because the improvements are typically performed in existing developed roadways already managed by the Maine DOT and do not always impact aquatic resources. Some of the projects involve culvert replacements and slope stabilization, which in many cases may enhance passage and flow conditions and contribute positively to the cumulative impacts on the watershed. They are standalone projects that are individually reviewed and permitted by federal and state regulatory agencies and in no way related to the NECEC project. Any of these projects that are within the area of a given NECEC segment that impact waters of the U.S. would add to the cumulative total impacts, albeit insignificantly as they are generally very minimal, eligible for the Maine General Permit, and fully compensated for as necessary.

The Maine DEP permit and water quality certification requires CMP to contribute \$1,875,000 in order to fund culvert replacement projects within affected watersheds. Culverts must be replaced in the vicinity of Segments 1 and 2, must completely or partially block fish passage currently, must be replaced with crossings consistent with Maine Audubon's Stream Smart principles, and must be elected to provide the greatest possible habitat benefit. Any short-term impacts are expected to be off-set by substantial long-term benefits. They are related to the NECEC project relative to funding, but will be independently evaluated and permitted. Some of these activities may be exempt from USACE permitting pursuant to 33 CFR 323.4. Any of these projects that are within the area of a given NECEC segment that impact waters of the U.S. would add to the cumulative total impacts, albeit insignificantly as they are generally very minimal, eligible for the Maine General Permit, and fully compensated for as necessary.

Existing land uses in the watersheds are expected to continue irrespective of the NECEC project. Ongoing forestry and agricultural activities have the potential to contribute to sedimentation in the area streams unless BMPs are implemented. These activities are for the most part exempt from the federal and state permit requirements. Slow growth in residential development may occur, leading to potential stream or wetland crossing or other wetland fills, however for at least Segment 1, this is a sparsely developed portion of the state with low residential, commercial or industrial growth pressures.

Municipal projects may include but are not limited to improvements to local road networks, culvert or bridge replacements, boat ramp improvements, school expansions or replacements, or other municipal infrastructure improvements. Many of these are driven by annual municipal budget processes or are dependent on state or federal grants. For example, the Maine DEP provides grant money to assist eligible municipalities in the replacement of poorly installed, undersized and otherwise deficient roadway culverts. The availability of local, state or federal money for municipal improvement projects varies from year to year and cannot be predicted. The USACE is unaware of any specific municipal projects proposed in the project area at this time.

Public comment identified concerns for cumulative impact should CMP wish to build out the 300' wide Segment 1 corridor from the 150' proposed for the NECEC project. CMP indicates that acquiring additional corridor width when acquiring land is a prudent, common, and cost-effective land acquisition process for CMP. However, CMP has repeatedly stated that it has no plans for another transmission line within the NECEC corridor. CMP maintains that speculation that the ownership of a 300-foot-wide corridor virtually guarantees a full build-out is not supported by their history of transmission line ownership. CMP has traditionally acquired more width on its arterial transmission line corridors than it needs, starting with the acquisition of transmission lines in 1929-1930, simply because the expense of acquiring the additional width is relatively nominal. Some of these corridors, such as the 500-foot-wide corridor between Moscow and Starks, still contain only one transmission line. Acquiring additional width is cost effective and facilitates additional transmission lines if the need arises, but the additional width is in no way a guarantee of additional lines, and certainly not within any currently foreseeable time period.

With respect to other activities, the Applicant does not expect alterations or other transmission line tie-ins to the NECEC transmission line or to the associated corridor. Because the NECEC line is DC, there is limited opportunity for tie in and limited potential for spin off development. The demand for clean energy is increasing in Maine and the New England region, which may include additional hydropower, wind, and solar projects; however, at this time CMP indicates there are no future off-site projects proposed that involve the NECEC transmission line or corridor. Existing electric transmission in Maine will not change as a result of the NECEC Project with the exception of improved overall reliability.

While there is no reasonably foreseeable causal connection between the Project and the upstream generation of hydropower by Hydro-Québec (and any impact on GHG emissions of hydropower), the USACE nevertheless considered the evidence on the impact of the Project on Canadian hydropower and GHG emissions, as described in Section 7.1.1.

9.6 Determine the environmental consequences:

Refer to Sections 1.3, 6, and 7. The USACE has determined that the cumulative impact of the past, present, and future federal and non-federal impacts plus the impacts associated with the NECEC Project, do not constitute an unacceptable loss of resource functions and values.

9.7 Discuss any mitigation to avoid, minimize or compensate for cumulative effects:

Refer to Section 8. Section 1.3.1 discusses the avoidance and minimization measures and Section 8.0 discusses the Applicant's compensatory mitigation measures. The following discussion is specific to elements of the Project that pertain directly to minimization and compensation of cumulative effects.

9.8 Conclusions regarding cumulative impacts:

When considering the overall impacts that will result from the proposed activity in relation to the overall impacts from past, present, and reasonably foreseeable future activities, the incremental contribution of the proposed activity to cumulative impacts in the area described in section 9.2 are not considered to be significant. Compensatory mitigation will be required and has been proposed to offset the impacts to eliminate or minimize the proposed activity's incremental contribution to cumulative effects within the geographic area described in Section 9.2. Mitigation required for the proposed activity is discussed in Section 8.0.

10.0 Compliance with Other Laws, Policies, and Requirements

10.1 **Section 7(a)(2) of the Endangered Species Act (ESA):** Refer to Section 2.2 for description of the USACE action area for Section 7.

10.1.1 Has another federal agency been identified as the lead agency for complying with Section 7 of the ESA with the Corps designated as a cooperating agency and has that consultation been completed? No

On June 23, 2020 the USACE initiated informal consultation with the U.S. Fish & Wildlife Service (USFWS) pursuant to Section 7 of the Endangered Species Act.

10.1.2 Are there listed species or designated critical habitat present or in the vicinity of the Corps' action area? Yes. The following listed species and critical habitats are known to occur within the Action Area of the NECEC project: Atlantic salmon (*Salmo salar*), Atlantic salmon critical habitat, small whorled pogonia (*Isotria medeoloides*), Canada lynx (*Lynx canadensis*), Canada lynx critical habitat, and the northern long-eared bat (*Myotis septentrionalis*).

Effect determination(s), including no effect, for all known species/habitat, and basis for determination(s):

Atlantic salmon – May affect, but not likely to adversely affect. There is no proposed instream activity related to the clearing and installation of transmission line structures and substation site development. Access across streams will be entirely spanned with temporary stream crossings constructed and maintained in a manner to minimize the potential for sedimentation and turbidity. Environmental controls will be implemented to avoid and minimize the potential for water quality degradation associated with soil erosion and sedimentation and other pollutants. Replacements of culverts, either in support of construction or as part of DEP mandated compensation will not occur within the designated critical habitat. Post construction operations and maintenance will avoid and minimize fording and other actions to the maximum extent practicable.

Small whorled pogonia (SWP) – No Effect. An engineering solution proposed by the applicant has eliminated the need for tree clearing and associated impacts in the vicinity of the SWP occurrence. The proposed shifting of the transmission line and elimination of tree clearing in the vicinity of the occurrence, and prohibition on herbicide application adjacent to (i.e., within 100 feet of) the 174-acre tract containing the occurrence, will avoid any direct or indirect impact to the species. Proposed activities are all located downgradient of the occurrence; therefore, habitat degradation associated with potential soil erosion and sedimentation will not occur.

Canada lynx – May affect, but not likely to adversely affect. Habitat loss, habitat fragmentation, and reductions in habitat connectivity have been avoided and minimized through the proposed maintenance of early successional vegetation within the corridor. Modification of habitat associated with the maintenance of the corridor in early successional cover will not degrade habitat for snowshoe hare, the Canada lynx's primary food source. Increases in traffic volume will be minimal and temporary and project personnel will be instructed to obey posted speed limits, as well as the 30 MPH restrictions on logging roads, to minimize potential impacts to Canada lynx.

Northern Long-Eared Bat - May affect. The NECEC Project will involve approximately 1,500 acres of forest conversion associated with tree clearing, only approximately 111.55 acres of which is within the authority of the USACE. The majority of tree clearing will occur within Segment 1. Trees greater than 3 inches in diameter at breast height offer potential habitat for the species. While tree clearing in areas not near known hibernacula or known maternity roost trees is generally not

a major contributor to the species decline, it does constitute potential loss of habitat, albeit less concerning in heavily forested states such as Maine. Known hibernacula occur from approximately 21 to 64 miles away from the Project area and will not be affected by the project. Tree clearing will be avoided during the maternity roost season of June 1 to July 31. Although the Project may affect the northern long-eared bat, any resulting incidental take is not prohibited by the final 4(d) rule.

Atlantic salmon Critical Habitat – May affect, but not likely to adversely affect.

No in-stream construction is proposed within any stream located within Atlantic salmon critical habitat. The removal of forest cover within the riparian areas of streams located in designated critical habitat has been minimized through the maintenance of early successional vegetation, which will reduce the impact of increased insolation. Effects on water quality within critical habitat will be avoided and minimized through the implementation of environmental control requirements and erosion and sedimentation control by the applicant. Post construction operations and maintenance will be restricted to avoid and minimize fording to the maximum extent practicable.

Canada lynx Critical Habitat – May affect, but not likely to adversely affect.

The quantity and quality of habitat, within the designated critical habitat, available for Canada lynx and its primary food source, the snowshoe hare, will not be adversely modified by the project.

10.1.3 Consultation with either the National Marine Fisheries Service and/or the U.S. Fish and Wildlife Service was initiated and completed as required, for any determinations other than “no effect” (see the attached ORM2 Summary sheet for begin date, end date and closure method of the consultation). Based on a review of the above information, the Corps has determined that it has fulfilled its responsibilities under Section 7(a)(2) of the ESA. The documentation of the consultation is incorporated by reference.

In a letter dated July 6, 2020 the USFWS concurred with the USACE determination of effects – Not Likely to adversely affect determinations for the bats, salmon, lynx, and their critical habitats. No concurrence was warranted for small whorled pogonia as there was no effect to the species.

10.2 Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), Essential Fish Habitat (EFH).

10.2.1 Has another federal agency been identified as the lead agency for complying with the EFH provisions of the Magnuson-Stevens Act with the Corps designated as a cooperating agency and has that consultation been completed? No

10.2.2 Did the proposed project require review under the Magnuson-Stevens Act? Yes

10.2.3 If yes, EFH species or complexes considered: The only EFH species in this instance is Atlantic salmon. The special conditions derived from Section 7 consultation with the USFWS for Atlantic salmon and its listed critical habitat equally address potential effects to EFH. The proposed scope of work meets the eligibility requirements of the February 28, 2017 Corps of Engineers/NMFS “Essential Fish

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Habitat Programmatic Consultation for General Permits, Standard Permits and Letters of Permission, for the States of Connecticut, Maine, Massachusetts, New Hampshire and Rhode Island”, specifically Activity 9, Utility Line Activities. The proposed work will have no more than minimal adverse effects to EFH and will meet all applicable conservation recommendations and does not warrant individual consultation.

10.2.4 Based on a review of the above information, the Corps has determined that it has fulfilled its responsibilities under EFH provisions of the Magnuson-Stevens Act.

10.3 **Section 106 of the National Historic Preservation Act (Section 106):** Refer to Section 2.3 for permit area determination.

10.3.1 Has another federal agency been identified as the lead federal agency for complying with Section 106 of the National Historic Preservation Act with the Corps designated as a cooperating agency and has that consultation been completed? No, however the applicant notified the Maine Historic Preservation Commission (MHPC or Maine SHPO) and Tribal Historic Preservation Officers (THPO) of the project in advance of the Corps’ initiation of the Section 106 of the Historic Preservation Act process. These same entities were provided a copy of the USACE public notice.

The SHPO deferred to a series of correspondence with the applicant’s historic resources consultant in which they coordinated an Area of Potential Effect (APE) and made a series of no effect and effect determinations concerning archeological resources, architectural properties, and cultural resources. Of the five federally recognized Indian tribes in Maine, only the Penobscot Nation responded to the notification. In a letter dated June 28, 2017, the tribe’s THPO made a no effect determination. None of the other THPOs responded.

10.3.2 Known historic properties present? Yes. The USACE has determined that the undertaking will have an adverse effect on four historic properties (Appalachian National Scenic Trail, Rural Agricultural Historic District: E. Gray Farm and B.F. Hilton Farm, Turmel Road Barn, and Bowman Airfield) that are eligible for listing in the National Register of Historic Places (NRHP).

The USACE has consulted with the Maine SHPO pursuant to 36 CFR Part 800 and 33 CFR Part 325, Appendix C (the regulations implementing Section 106 of the National Historic Preservation Act). We have prepared and executed a Memorandum of Agreement (MOA) in consultation with the DOE, the National Park Service, Maine SHPO, the applicant, and invited partner groups to mitigate effects to these resources. Implementation of the stipulations of the MOA is a condition of and attached to the permit.

On May 4, 2020, the USACE notified the Advisory Council on Historic Preservation (ACHP) of our intent to prepare a MOA and invited them to participate in consultation pursuant to 36 CFR Part 800.6(a)(1). No response was received following the requisite 15-day review period. A copy of the signed MOA and its Appendix was furnished to the ACHP on June 19, 2020.

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10.3.3 Consultation was initiated and completed with the appropriate agencies, tribes and/or other parties for any determinations other than “no potential to cause effects” (see the attached ORM2 Summary sheet for consultation type, begin date, end date and closure method of the consultation). Based on a review of the information above, the Corps has determined that it has fulfilled its responsibilities under Section 106 of the NHPA. Compliance documentation incorporated by reference.

10.4 **Tribal Trust Responsibilities**

10.4.1 Was government-to-government consultation conducted with Federally-recognized Tribe(s)? No

10.4.2 Other Tribal including any discussion of Tribal Treaty rights? The initial transmission corridor included a non-adversarial lease of tribal lands in the vicinity of Lowell Township, Maine. This lease no longer became necessary with the applicant’s adoption of a minor realignment known as the Merrill Strip alternative that removed the corridor’s encroachment upon tribal land.

10.5 **Section 401 of the Clean Water Act – Water Quality Certification (WQC)**

10.5.1 Is a Section 401 WQC required, and if so, has the certification been issued, waived or presumed? An individual water quality certification is required and has been issued by the certifying agency.

10.6 **Coastal Zone Management Act (CZMA)**

10.6.1 Is a CZMA consistency concurrence required, and if so, has the concurrence been issued, waived or presumed? N/A, a CZMA consistency concurrence is not required.

10.7 **Wild and Scenic Rivers Act**

10.7.1 Is the project located in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system? No

10.8 **Effects on Corps Civil Works Projects (33 USC 408)**

10.8.1 Does the applicant also require permission under Section 14 of the Rivers and Harbors Act (33 USC 408) because the activity, in whole or in part, would alter, occupy or use a Corps Civil Works project? No, the appropriate non-Regulatory office has determined that there will be no effects to federal projects that require permission from the Corps.

Pursuant to Section 10 of the Rivers and Harbors Act, the USACE considered the project’s potential navigational impact, despite the fact that the only work subject to Section 10 jurisdiction is the HDD installation beneath the upper Kennebec River. The Kennebec River is subject to the ebb & flow of the tide to just upstream of the former Edwards dam at Augusta. The maintained federal project in the river terminates at Augusta, but the river is a congressionally designated navigable waterway to Moosehead Lake, inclusive of the proposed transmission line’s

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horizontal directional drill crossing site. The river has a long history of interstate commerce (transport of fish, lumber, ice, furs, mast trees, petroleum products, agricultural products, etc.), commercial and recreational fishing, ship building, whitewater rafting, recreational canoeing & kayaking, paper and other mill operations, and the production of hydro-power. The USACE has determined that the project will not affect the course, condition or capacity of the navigable waterway. Refer to Section 7.

10.9 Corps Wetland Policy (33 CFR 320.4(b))

10.9.1 Does the project propose to impact wetlands? Yes

10.9.2 Clean Water Act Section 404(b)(1) Compliance Determination: Refer to Section 12.4

11.0 Special Conditions

11.1 Are special conditions required to protect the public interest, ensure effects are not significant and/or ensure compliance of the activity with any of the laws above? Yes

11.2 Summary of Required special condition(s):

1. The permittee shall ensure that a copy of this permit is at the work site (and the project office) authorized by this permit whenever work is being performed, and that all personnel with operational control of the site ensure that all appropriate personnel performing work are fully aware of its terms and conditions. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be obligated by contract to comply with all environmental protection provisions contained within the entire permit, and no contract or sub-contract shall require or allow unauthorized work in areas of USACE jurisdiction.

If the permit is issued after the construction specifications but before receipt of bids or quotes, the entire permit shall be included as an addendum to the specifications. If the permit is issued after receipt of bids or quotes, the entire permit shall be included in the contract or sub-contract as a change order. The term "entire permit" includes permit amendments. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be obligated by contract to comply with all environmental protection provisions of the entire permit, and no contract or sub-contract shall require or allow unauthorized work in areas of Corps jurisdiction.

2. This authorization requires you to 1) notify us before beginning work so we may inspect the project, and 2) submit a Compliance Certification Form. You must complete and return the enclosed Work Start Notification Form(s) to this office at least two weeks before the anticipated starting date. You must complete and return the enclosed Compliance Certification Form within one month following the completion of the authorized work and any required mitigation (but not mitigation monitoring, which requires separate submittals).

3. Prior to initiating work authorized by this permit, the permittee must obtain a Presidential Permit from the U.S. Department of Energy (DOE). A copy of the Presidential permit shall be furnished to the Corps of Engineers Maine Project Office, Attn: Jay Clement; jay.l.clement@usace.army.mil

4. The permittee shall implement all terms and conditions contained in the attached water quality certification from the Maine Dept. of Environmental Protection dated "May 11, 2020" and the Maine Land Use Regulation Commission Final Development Plan Permit dated "January 8, 2020". Copies of all required submittals shall also be provided to the USACE.

5. *In order to fulfill the requirements of Section 106 of the National Historic Preservation Act of 1966, the permittee shall implement the stipulations contained in the attached Memorandum of Agreement signed "June 19, 2020".*

6. *The permittee shall generate 25.572 wetland credits by means of preservation in accordance with the attached mitigation plan entitled, "Compensation Plan" and updated "July 2020". Prior to any work commencing, for each Corps mitigation site, the permittee shall provide a Corps approved: site protective instrument; and long-term management plan. The long-term management plan will identify the long-term steward and provide evidence that an escrow has been established or a letter from the long-term steward stating that stewardship fund is not required to provide the long-term management as outlined in the long-term management agreement.*

7. *In addition to the permittee responsible mitigation the permittee shall purchase 13.361 In-Lieu Fee credits from the Maine Natural Resource Conservation Fund. As of the date of this permit, the current cost to purchase these credits is \$ \$3,046,648.37. The permittee must send a cashier's check or bank draft for this amount to: ME DEP, Attn: ILF Program Administrator, State House Station 17, Augusta, ME 04333. The check must include the USACE file number "NAE-2017-01342" and the statement: "For ILF account only". **No impacts authorized by this permit shall begin until the USACE receives a copy of the letter from the Maine Department of Environmental Protection (ME DEP) to the permittee stating that the ME DEP has received the check and accepts responsibility for mitigation.** The in-lieu fee amount is valid for one year from the date of this permit and is subject to change.*

8. *Prior to being onsite, the contractor(s) shall thoroughly inspect and remove seeds, plant material, soil, mud, insects, and other invertebrates on all equipment, including construction mats, to be used on the project site to prohibit introduction of invasive organisms. At a minimum, the following shall be inspected and cleaned on terrestrial vehicles where applicable:*

Rubber Tired Vehicles - *Crevices in upper surface and panels, tires, rims, and fender wells, spare tire mounting area, bumpers, front and rear quarter panels, around and behind grills, bottom of radiator vent openings, brake mechanisms, transmission, stabilizer bar, shock absorbers, front and rear axles, beds, suspension units, exhaust systems, light casings, and mirrors.*

Tracked Land Vehicles - *Crevices in upper surface and panels, top of axles and tensioners, support rollers, between rubber or gridded areas, beneath fenders, hatches, under casings, and grills.*

Interiors of All Vehicles - *Beneath seats, beneath floor mats, upholstery, beneath foot pedals, inside folds of gear shift cover.*

9. *Except where stated otherwise, reports, drawings, correspondence and any other submittals required by this permit shall be marked with the words "Permit No. (NAE-2017-01342)" and submitted via: a) MAIL: PATS Branch - Regulatory Division, Corps of Engineers, New England District, 696 Virginia Road, Concord, MA 01742-2751; b) EMAIL: jay.l.clement@usace.army.mil and cenae-r@usace.army.mil; or c) FAX: (978) 318-8303. Documents which are not marked and addressed in this manner may not reach their intended destination and do not comply with the requirements of this permit. Requirements for immediate notification to the Corps shall be done by telephone to (978) 318-8338.*

Provided below are the conditions based on informal consultation with the US Fish & Wildlife Service to minimize effects to threatened and endangered species and their critical habitat, applicable within the Action Area as defined by the USACE. (Reference USACE Biological Assessment (BA) dated "June 23, 2020")

1. *Adequate sedimentation and erosion control devices, such as geo-textile silt fences or other devices capable of filtering the fines involved, shall be installed and properly maintained to minimize impacts during construction. These devices must be removed upon completion of work but not before stabilization of disturbed areas. The sediment collected by these devices must also be removed and placed upland, in a manner that will prevent its later erosion and transport to a waterway or wetland. Erosion controls, temporary access ways, and crane mats will be installed in accordance with CMP's*

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Environmental Guidelines for Construction and Maintenance Activities on Transmission Line and Substation Projects ("Environmental Guidelines"), included in Exhibit B entitled "Environmental Guidelines For Construction and Maintenance Activities on Transmission Line And Substation Projects" last revised "June 29, 2018" which is contained in the administrative record.

- 2. Prior to any tree clearing or construction activities, the NECEC team shall walk the length of the transmission line with the construction contractors to identify critical areas where construction and construction access may be difficult due to terrain, wetlands, and water course conditions, or the location of protected or sensitive natural resources. Erosion control placement, access road layout, wetlands, and stream crossing locations shall be addressed with the construction contractors, with avoidance and minimization of wetland and waterbody impacts a priority. The type and location of erosion controls as well as the approach to wetlands, stream crossings and other protected or sensitive natural resources, shall be communicated to the construction contractors during the initial walk-through. Access areas and environmental resources shall be flagged with a specified color of surveyor tape as identified in Table 2-4 of the BA, and "no-access or special restriction" areas (such as certain stream buffers) will also be marked using appropriate color-coded tape. Flagging and any special management or protection requirements associated with federally-listed species shall be highlighted during the pre-construction walk through.*
- 3. The permittee shall implement all terms and conditions contained in the water quality certification from the Maine Dept. of Environmental Protection dated "May 11, 2020" and subsequent revisions. Copies of all required submittals shall also be provided to the Corps and DOE.*
- 4. For unavoidable stream crossings, crane mats or other means shall be used to span the streams. (See Section 4.0 Installation of Crossings within Exhibit B). Appropriate erosion controls will be installed at each stream crossing including water bars used in conjunction with sediment traps in addition to sediment barriers located upstream and downstream on both sides of the crossing. (See Figure 2-5 of the BA) Where necessary, construction mats will be placed on the upland, parallel to the ordinary high water line as abutments to further protect stream banks and to establish stability. Streams that are too wide to cross by spanning with crane mats will be avoided. Under no circumstances (including in all intermittent and perennial streams within the Atlantic salmon GOM DPS and those that provide critical habitat for Atlantic salmon), will any stream crossing technique be used that involves in-stream work or the discharge of temporary or permanent fills.*
- 5. All wetland and waterbody crossings will be restored to preconstruction conditions; any material or structure used at temporary crossings will be removed; and the banks will be stabilized and revegetated consistent with the NECEC Environmental Guidelines. Stream crossings shall be removed as soon as they are no longer needed for construction activities. All restored stream crossings will be inspected, either as part of the final project inspection or earlier, with particular attention paid to erosion and sedimentation issues and regrowth of riparian vegetation.*
- 6. No in-water construction work is authorized within any stream, either intermittent or perennial. This includes both temporary and permanent work. Furthermore, the permittee shall implement protections within a 100-foot riparian buffer of all intermittent and perennial streams within the GOM DPS. This is further discussed in Section 5.1, page 82 of the BA.*
- 7. Any span structures on all intermittent and perennial streams shall be installed and maintained to prevent soil and other material from washing into the stream. This shall include cleaning the travel surface of the span to prevent accumulated material from washing into the stream. At each of these crossings, clearing of non-capable woody vegetation shall be minimized to the maximum extent practicable and the roots allowed to remain in order to reduce indirect impacts and to promote natural re-vegetation.*
- 8. For all transmission line poles located within the 100-foot buffer of all streams within the GOM DPS, a site specific erosion and sediment control plan, designed to minimize the potential for secondary impacts to the stream, shall be submitted to the Corps for review and approval prior to installation of poles.*
- 9. To minimize the spread of invasive plant species within the Project, all off-road equipment and vehicles (operating off of existing open and maintained roads) must be cleaned prior to entering the*

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construction site to remove all soil, seeds, vegetation, or other debris that could contain seeds or reproductive portions of plants. All equipment will be inspected prior to off-loading to ensure that they are clean.

10. All areas of wetlands which are disturbed during construction shall be restored to their approximate preconstruction elevation (but not higher) and condition by careful protection, and/or removal and replacement, of existing soil and vegetation. In addition, if upland clearing, grubbing, or other construction activity results in, or may result in, soil erosion with transport and deposition into wetlands or waterways, devices such as geotextile silt fences, sediment trenches, etc., shall be installed and properly maintained to minimize such impacts during construction. These devices, with the exception of erosion control mix, must be removed upon completion of work but not before stabilization of disturbed areas. The sediment collected by these devices must also be removed and placed upland, in a manner that will prevent its later erosion and transport to waterway or wetland.

11. No temporary fill (e.g., access roads, cofferdams) may be placed in waters or wetlands unless specifically authorized by this permit. If temporary fill is used, it shall be disposed of at an upland site and suitably contained to prevent its subsequent erosion into a water of the U.S., and the area shall be restored to its preconstruction contours (but not higher) and character upon completion of the project. During use, such temporary fill must be stabilized to prevent erosion.

12. Pull-pads for conductor installation shall only be located in Atlantic salmon 100-foot stream buffer zones when there is no practicable alternative. Grubbing and grading within the stream buffer will be kept to the minimum necessary and will only occur after installation of an additional row of erosion and sedimentation controls between the area of disturbance and the stream. After removal of the pull-pad, the stream buffer will be restored to its original grade and stabilized to prevent erosion while the riparian zone becomes revegetated. Plantings will be installed as necessary to ensure the riparian zone vegetation is adequately restored.

13. All construction areas shall be open for inspection by the permitting agency(ies) as well as federal resource agency personnel during working hours.

14. The permittee shall take all reasonable and prudent measures to minimize the risk of accidental spills of petroleum or other hazardous contaminants from construction equipment at waterway and wetland crossings. Minimum specific spill management measures are contained in Exhibit B.

15. Initial tree clearing and long-term vegetation maintenance, which will be performed in accordance with the NECEC Construction Vegetation Clearing Plan (VCP) and Post-Construction Vegetation Maintenance Plan (VMP) provided in Exhibit C and D of the BA, respectively and updated on June 25, 2020.

16. Clearing and maintenance of Segment 1 shall include a 39.02-mile-long, 54-foot-wide, cleared, scrub-shrub maintained portion of the ROW, with tapered vegetation beyond at 16-foot intervals. The forested intervals shall have height steps of 15 feet, 25 feet and 35 feet as one moves from the edge of the 54-foot-wide area to the edge of the 150-foot corridor, except in specific areas where the Project will maintain either full height canopy vegetation, vegetation with a minimum height of 35 feet, or taller vegetation managed for deer travel corridors. The Maine DEP has established several Wildlife Areas where vegetation will be maintained in a forest condition for the full width of the Right of Way (ROW) over the 14.08 miles of the 53.1-mile Segment 1. The identified areas with a required minimum vegetation height of 35 feet are listed in Exhibit C.

17. The permittee shall conduct all tree cutting between October 16 and April 19 of any year to the maximum extent practicable and **no tree cutting shall occur between June 1 and July 31 of any year** to minimize potential impacts to federally threatened northern long-eared bats.

18. For each successive year of construction beyond 2020 until project completion, the permittee shall submit to the Corps and the US Fish & Wildlife Service an updated Official Species List from the IPaC website: <https://ecos.fws.gov/ipac/> The updated species list shall be obtained and submitted between January 1 and January 31 of each year. Concurrently, the permittee shall update and resubmit the streamlined consultation form for NLEB to the Corps and the Fish and Wildlife Service. If any new species are federally listed before the NECEC project is completed, the Corps shall re-

initiate Section 7 consultation with the Service as necessary to evaluate, avoid, and minimize effects from any construction not completed.

19. In accordance with Exhibit B entitled "Environmental Guidelines For Construction and Maintenance Activities on Transmission Line And Substation Projects" last revised "June 29, 2018", application of herbicides within 75' of any waterbody is prohibited. In all intermittent or perennial streams within the GOM DPS, herbicide application is prohibited within 100'. No herbicides shall be applied within Section 1 as a whole.

20. To minimize the potential for impacts to federally threatened small whorled pogonia, the permittee is prohibited from herbicide application within 100 feet of the 174-acre tract containing the occurrence of the plant at Greene, Maine. (The No Herbicide Zone is depicted in Figure 3-3, p. 69 of the BA).

21. Prior to the start of construction, the permittee shall conduct environmental training for all contractors, sub-contractors, and inspectors. Federal and state resource and regulatory staff shall be invited to attend and/or assist in the presentations. At a minimum, this training shall include actions to be taken to avoid and minimize direct and indirect impacts to aquatic resources such as wetlands, streams, Atlantic salmon streams, and vernal pools; small whorled pogonia habitat; and actions to be taken relative to interactions with Canada lynx.

22. Construction equipment that needs to access the transmission line during operations for repair or maintenance activities will follow the same procedures regarding stream crossings as employed during construction. No instream work is allowed in any intermittent or perennial stream within the GOM DPS. Temporary stream crossings may only use crane mats or bridges that completely span the waterway.

23. ATV usage for operations and maintenance activities by CMP, will be limited to the maximum extent practicable and potential ground or resource disturbance will be minimized by utilizing existing upland access ways and snowmobile trail bridges. To avoid or minimize effects to Atlantic salmon and its listed Critical Habitat from ATV usage for operations and maintenance activities, CMP will adopt the following procedures:

a. No fording of streams within the Sheepscot River and Sandy River watersheds or within 1,000 feet upstream of these watersheds will occur unless under frozen conditions. Within these watersheds, ATVs may only cross unfrozen streams using mats or bridges that completely span the waterway.

b. Within mapped Critical Habitat but outside the Sheepscot River and Sandy River watersheds, fording of unfrozen streams may only occur under the following conditions:

1) To the maximum extent practicable, the crossing is dry, shallow, or exhibits low flows (note - low flows typically occur from July 15 to September 30 of any year). To the maximum extent practicable, the substrate at the crossing consists exclusively of coarse grained gravel, cobbles, rocks or ledge.

2) Destruction of riparian vegetation is avoided to the maximum extent practicable.

3) The stream is crossed at the narrowest practicable location.

4) The crossing frequency is limited to one to two transits per maintenance cycle, or to the minimum number required.

5) Erosion and sedimentation controls will be installed in areas of soil disturbance and any disturbed banks are promptly stabilized and revegetated as necessary.

c. Within the GOM DPS but outside mapped Critical Habitat, CMP operations and maintenance personnel shall still make every effort to cross streams under frozen conditions, to avoid the crossing, or to utilize mats or bridges (temporary or permanent) that span the waterway. For crossings that cannot be avoided during unfrozen conditions, CMP will still generally apply the best management practices listed above, but they are no longer prescriptive unless the crossing is within 1,000 feet upstream of mapped Critical Habitat.

d. CMP shall take all available and practicable measures to discourage impacts to sensitive resources from public ATV and snowmobile use during and after construction of the project including:

1) Communication and coordination with landowners, ATV and snowmobile clubs, sporting camps, and others that maintain recreational trails on or near the NECEC ROW, especially forest landowners in segments 1, 2, and 3.

2) *Communication with local organized clubs through the State of Maine Department of Agriculture, Conservation and Forestry's Bureau of Parks and Lands, Off-Road Recreational Vehicle Office.*

3) *Use of signage and deterrents (e.g., boulders, gates, etc.) in areas of ATV activity with noted associated environmental impacts. At a minimum, the permittee shall install advisory signage on all identified trail crossings of perennial and intermittent streams within the ROW in the Sheepscot River and Sandy River watersheds or within 1,000 feet upstream of these watersheds.*

4) *Reporting of unauthorized ATV and snowmobile travel to law enforcement (e.g. Maine Warden Service) as needed to halt excessive disturbance of recently restored and stabilized areas or in instances where environmental impact associated with public use persists following the implementation of deterrents. Excessive disturbance and damage to streams and riparian areas within the GOM DPS must be reported to the USFWS Maine Field Office.*

24. *For any inadvertent release of drilling mud during the directional drill beneath the Kennebec River, the permittee shall comply with "Requirements for Inadvertent Fluid Release Prevention, Monitoring, and Contingency Plan for HDD Operations" (Exhibit F of the BA). In the event that an inadvertent release occurs, the USACE and the MDEP will be notified, as specified in Exhibit F. The USFWS Maine Field Office will also be notified (Wende Mahaney at 207-902-1569 or wende_mahaney@fws.gov)*

25. *To minimize the project's potential impact to the federally threatened Canada lynx and its Critical Habitat between Starks to Beattie Township, the permittee shall implement the following measures:*

26. *Traffic speeds on unimproved access roads during construction shall be kept less than 30 mph (road design speed) to minimize chance of collisions with lynx and other wildlife.*

27. *To the maximum extent practicable, the permittee shall gate access roads under CMP's direct control to vehicle traffic (not foot traffic) with approval from the landowner during the fall trapping and hunting seasons to further reduce the likelihood of incidental take of lynx.*

28. *Any Canada lynx road collisions or mortalities will be reported to the U.S. Fish & Wildlife Service's Ecological Services Maine Field Office and the USACE, Maine Project Office within 48 hours. Points of contact are Mark McCollough at mark_mccollough@fws.gov; 207-902-1570 and Jay Clement at jay.l.clement@usace.army.mil; 207-623-8367 respectively. Carcasses shall be collected, tagged with location and date found and by whom (with contact information), and frozen immediately and transferred to the Service. The Corps will immediately reinstate consultation with the Service if there is any take of Canada lynx.*

29. *Should Canada lynx be observed during construction within the right-of-way during the denning season May1 to July 15, contractors and subcontractors will immediately suspend all activity in the vicinity of the occurrence, immediately leave the area unless it poses a safety concern, and notify project supervisors and environmental inspector(s). Environmental inspector(s) will consult with state wildlife officials, as well as the DOE, USFWS, and the USACE prior to proceeding with construction. The environmental training provided to all project personnel will include a discussion of these measures and any other specific protocols determined necessary for the protection of Canada lynx.*

30. *In the absence of active human activity, for any period of time where drilled or excavated holes for pole installation will remain open pending the sequential installation of the pole(s), the holes shall be completely covered by any means to minimize the risk of entrapment to lynx and other wildlife.*

31. *To avoid entrapment of lynx in fenced areas (e.g., substations in Segments 1, 2, and northern part of 3), fencing mesh size will be less than 2 inches by 2 inches (i.e. standard chain link fencing). Lynx escaping devices consisting of two leaning poles (trees with bark or rough surface greater than 5 inches in diameter) will be placed at a shallow angle (less than 35 degrees) in each corner of the fenced area. Any lynx found alive in fenced areas will be released immediately and reported to the Service within 48 hours. Any lynx found dead will be reported within 48 hours to the U.S. Fish & Wildlife Service's Ecological Services Maine Field Office and the Corps of Engineers, Maine Project Office within 48 hours. Points of contact are Mark McCollough at mark_mccollough@fws.gov; 207-902-1570 and Jay Clement at jay.l.clement@usace.army.mil; 207-623-8367 respectively.*

32. *To the maximum extent practicable, cleared areas beneath the transmission line shall be allowed/encouraged to develop a dense growth of low ground cover, shrub, and conifer tree species.*

33. *Routine vegetation management of the transmission line corridor shall be in accordance with the applicant's post-construction vegetation management plan in Exhibit D, updated June 25, 2020.*

34. *Future commitments by CMP (Maine DEP order, p. 81) to mitigate wildlife and fisheries impacts of the NECEC include a Conservation Plan and management plans for 40,000 acres to be conserved by conservation easement or fee title acquisition in the vicinity of Segment 1. To ensure that these plans do not adversely affect or take federally listed species and to promote the conservation of Canada lynx, northern long-eared bats, and other federally listed species, the permittee shall furnish the USFWS with copies of all submittals required by the Maine DEP to solicit Service review and comment and participation in future interagency discussions.*

35. *To assess impact to the small whorled pogonia, the applicant shall monitor small whorled pogonia on the entire 174-acre tract in Greene each year during construction, for the three consecutive years following completion of the NECEC, and every third year thereafter until such time that the Service and Maine Natural Areas Program deem monitoring no longer necessary.*

36. *The permittee shall permanently record all natural resource buffers, including those related to Atlantic salmon and small whorled pogonia, upon completion of construction (e.g. GPS coordinates) and shall further highlight them with flagging prior to any future maintenance activities.*

12.0 Findings and Determinations

12.1 Section 176(c) of the Clean Air Act General Conformity Rule Review: The proposed permit action has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. It has been determined that the activities proposed under this permit will not exceed de minimis levels of direct or indirect emissions of a criteria pollutant or its precursors and are exempted by 40 CFR Part 93.153. Any later indirect emissions are generally not within the Corps' continuing program responsibility and generally cannot be practicably controlled by the Corps. For these reasons a conformity determination is not required for this permit action.

12.2 Presidential Executive Orders (EO):

12.2.1 EO 13175, Consultation with Indian Tribes, Alaska Natives, and Native Hawaiians: This action has no substantial effect on one or more Indian tribes, Alaska or Hawaiian natives. Of the five federally recognized Indian tribes in Maine, only the Penobscot Nation responded to notifications associated with this project. In a letter dated June 28, 2017, the tribe's THPO made a no effect determination. None of the other THPOs responded.

12.2.2 EO 11988, Floodplain Management: Alternatives to location within the floodplain, minimization and compensatory mitigation of the effects were considered above. The project is not expected to alter base flood elevations such that compensatory mitigation would be required.

12.2.3 EO 12898, Environmental Justice: The USACE has determined that the proposed project would not use methods or practices that discriminate on the basis of race, color or national origin nor would it have a disproportionate effect on minority or low-income communities.

12.2.4 EO 13112, Invasive Species: The evaluation provided above included invasive species concerns in the analysis of impacts at the project area. Any permit will be conditioned to minimize the potential spread of invasive species.

12.2.5 EO 13212 and EO 13302, Energy Supply and Availability: The processing of this application is in full compliance with the provisions of these Executive Orders.

12.3 I find that based on the evaluation of environmental effects discussed in this document, the decision on this application is not a major federal action significantly affecting the quality of the human environment. Under the Council on Environmental Quality (“CEQ”) NEPA regulations, “NEPA significance” is a concept dependent upon context and intensity (40 C.F.R. § 1508.27). When considering impacts to waters of the US on a linear transmission project like the current proposal, significance is measured by the impacts felt at a local scale, as opposed to a regional or nationwide context. The CEQ regulations identify a number of factors to measure the intensity of impact. These factors are discussed below, and none are implicated here to warrant a finding of NEPA significance. A review of these NEPA “intensity” factors reveals that the proposed action would not result in a significant impact—neither beneficial nor detrimental—to the human environment. Hence, an environmental impact statement is not required.

- **Impacts on public health or safety:** The Project will be constructed, operated, and maintained to meet or exceed all applicable safety standards established by the electrical transmission industry, regulators, and the companies. In response to public comments about fire safety, the applicant has sufficiently demonstrated that the risk posed by the Project is no different than any other transmission lines along the Project corridor or throughout the state, and all required code clearances are met on each of CMP’s lines. Fire protection plans for construction and operation of the Project must comply with long established national and state codes and standards and construction best management practices. In its April 20, 2019 authorization, the Maine Public Utilities Commission (Maine PUC) found that with respect to the fire safety, CMP has adequately addressed such concerns throughout other remote areas of its existing transmission system and found that the Project does not pose a threat to public health and safety. Ensuring public safety with respect to public utility operations is a central purpose of the PUC.
- **Unique characteristics:** Approximately 74% of the Project’s transmission line components, inclusive of the 144.9-mile HVDC transmission line, are co-located within an existing transmission line corridor. The 53.1 miles segment of new corridor for the HVDC transmission line will be almost entirely located within heavily managed commercial timberlands. Six of the eight converter or substations projects will be on-site upgrades to existing facilities with no impact to waters of the U.S. The impacts to waters of the U.S. are discussed above, and do not constitute a significant impact. There are no designated parklands, wild and scenic rivers, ecologically critical areas, or prime farmlands impacted. Impacts to the Appalachian National Scenic Trail will be mitigated. The permit has been conditioned to further minimize the project’s short-term, long-term, and cumulative impacts, and there are no unique characteristics that will be impacted by the proposed project.

- **Controversy:** The concept of “controversy” in NEPA significance analysis is not simply whether there is opposition to the proposal, but whether there is a substantial technical or scientific dispute over the degree of the effects on the human environment. Here, there are no outstanding objections from federal or state resource agencies regarding the assessment of the environmental impacts of the project. Similarly, none of the federal and state agencies tasked with reviewing the design, operation, and risk management requirements of the Project indicated any objection regarding the safety of the proposal, nor have the state and local emergency response agencies objected. The Project’s effects on the aquatic environment are clearly understood, fully discussed, generally minimal, and confined to relatively small individual impact areas. Unavoidable impacts to aquatic resources will be fully mitigated. The Project’s other effects on the quality of the human environment are not controversial, as all concerns have been fully discussed in Section 7 above, to the degree that the USACE has authority. The USACE has determined that the project’s effects on the quality of the human environment are not controversial. This project does not represent a NEPA “controversy.”
- **Uncertain impacts:** The impacts of the proposed project are not uncertain. The wetland fill activities and stream crossings, largely temporary, are no different than many past transmission line projects that have occurred and have been reviewed and monitored by the USACE in New England. As noted repeatedly in this document, approximately 74% of the Project’s transmission line components as a whole will be co-located within existing ROW that is subject to regular vegetation maintenance. The portion of the Project in new corridor (Segment 1) will be located almost exclusively in heavily managed commercial timberlands where clear cuts, strip cuts, selective cuts and the construction and maintenance of temporary and permanent access roads is common. In 2010 the USACE and the Maine DEP authorized CMP to In 2010 the USACE and the Maine DEP authorized CMP to upgrade a transmission corridor from Orrington to Eliot, Maine (MPRP). With very minor exceptions, construction was completed in full compliance with permit conditions and with minimal long-term impact to aquatic and other natural resources. Construction techniques and impacts to aquatic and other natural resources are expected to be of a similar nature for the NECEC project. There is no reason to believe that the NECEC project will be constructed any less compliant than MPRP. The applicant and others have prepared a comprehensive visual impact assessment that shows what the line will look like from various sensitive vantage points throughout the corridor. There is very little uncertainty surrounding the impacts of this project.
- **Precedent for future actions:** The decision here is based upon the facts of the proposed project, and does not set precedent for future USACE permit decisions, which, like this decision, will be based upon their own merits and their own facts.
- **Cumulative significance:** As discussed above, to the extent that other actions are expected to be related to project as proposed, these actions will

provide little measurable cumulative impact, certainly not to the level of NEPA significance.

- **Historic resources:** The THPOs have expressed no objections or concerns for the project and the SHPO supports the USACE use of a Memorandum of Agreement to mitigate the project's adverse impacts on properties or resources listed in or eligible for listing in the National Register of Historic Places.
- **Endangered species:** The USACE concluded, and USFWS concurred, that the project may affect but is unlikely to adversely affect listed species or critical habitats pursuant to Section 7 of the Endangered Species Act. Small whorled pogonia will not be affected by the project.
- **Potential violation of state or federal law:** This action, if permitted by the USACE, would not violate federal law, and as evidenced by the issuance of state permits and water quality certification, does not violate state law. The USACE permit does not obviate the need for the permittee to obtain all other Federal, state, or local authorizations required by law to perform the work.

The USACE notes that after due consideration of the nature and extent of the proposed Project, including evaluation of the "Information regarding the Potential Environmental Impacts" section of a Presidential Permit application, DOE determines the appropriate level of NEPA analysis for a project. DOE agreed with USACE's determination that the appropriate level of environmental review under NEPA (42 United States Code [U.S.C.] 4321 et seq.) would be an Environmental Assessment (EA).

12.4 Compliance with 404(b)(1) guidelines. Having completed the evaluation above, I have determined that the proposed discharge complies with the Guidelines, with the inclusion of the appropriate and practicable special conditions to minimize pollution or adverse effects to the affected ecosystem.

12.5 Public Interest Determination: I have considered all factors relevant to this proposal including cumulative effects. Potential factors included conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership and, in general, the needs and welfare of the people. After weighing favorable and unfavorable effects as discussed in this document, I find that this project is not contrary to the public interest and that a Department of the Army permit should be issued.

PREPARED BY:

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Jay L. Clement
Senior Project Manager

Date: _____

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Frank J. Del Giudice
Chief, Permits & Enforcement Branch

Date: _____

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Tammy R. Turley
Chief, Regulatory Division

Date: _____

APPROVED BY:

William M. Conde
Colonel, Corps of Engineers

Date: _____