Commonwealth of Massachusetts

Executive Office of Environmental Affairs ■ MEPA Office

ENF

Environmental Notification Form

For Office Use Only *Executive Office of Environmental Affairs*
EOEA No.: 13164
MEPA Analyst: Deirdre Buckley
Phone: 617-626- 1044

The information requested on this form must be completed to begin MEPA Review in accordance with the provisions of the Massachusetts Environmental Policy Act, 301 CMR 11.00.

Project Name: NSTAR Electric 345 kV Transmission Reliability Project		
Street: Please see Figure 1 and Appendices B.1 and B.2 for detailed description of routes.		
Municipality: Boston, Milton, Canton and Stoughton; Randolph and Quincy (Noticed Alternative only)	Watershed: Neponset; Boston Harbor; Weymouth/Weir River (Noticed Alternative only)	
Universal Tranverse Mercator Coordinates: 4689321.5 Northing, 332151.94 Easting to 4668092.5 Northing, 329416.22 Easting; and 4689321.5 Northing, 332151.94 Easting to 4667584 Northing, 326211.12 Easting	Latitude/Longitude: 42°20'17.41"N, 71°2'15.18"W to, 42°8'47.03"N, 71°3'52.22" W; and 42°20'17.41"N, 71°2'15.18"W to 42°8'27.66"N, 71°6'10.97"W	
Estimated commencement date: 10/04	Estimated completion date: 06/06 (2 circuits); 11/07(3d circuit)	
Approximate cost: $175-200MM	Status of project design: 5% complete	
Proponent: Boston Edison Company (BECo), doing business as NSTAR Electric (NSTAR Electric)		
Street: One NSTAR Way		
Municipality: Westwood	State: MA	Zip Code: 02090-9230
Name of Contact Person From Whom Copies of this ENF May Be Obtained: Sam Mygatt. Please also access EENF on the Project web site, http://www.nstaronline.com.		
Firm/Agency: Epsilon Associates, Inc.	Street: 150 Main Street	
Municipality: Maynard	State: MA	Zip Code: 01754
Phone: (978) 897-7100	Fax: (978) 897-0099	E-mail: smygatt@epsilonassociates.com

Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)?
☒Yes ☐No

Has this project been filed with MEPA before?
☐Yes (EOEA No._____) ☒No

Has any project on this site been filed with MEPA before?
☐Yes (EOEA No._____) ☒No

EOEA #13130 addresses ongoing activities at the K Street Substation, which are unrelated to the purpose and function of this project.

Is this an Expanded ENF (see 301 CMR 11.05(7)) requesting:

a Single EIR? (see 301 CMR 11.06(8))	☒Yes	☐No
a Special Review Procedure? (see 301CMR 11.09)	☐Yes	☒No
a Waiver of mandatory EIR? (see 301 CMR 11.11)	☐Yes	☒No
a Phase I Waiver? (see 301 CMR 11.11)	☐Yes	☒No

Identify any financial assistance or land transfer from an agency of the Commonwealth, including the agency name and the amount of funding or land area (in acres):

NSTAR Electric plans to expand the Hyde Park substation onto 0.35 acres of adjoining land at 761 Hyde Park Avenue to be obtained from DCAM.

Are you requesting coordinated review with any other federal, state, regional, or local agency?
☐ Yes (Specify _____) ☒ No

List Local or Federal Permits and Approvals: *Local permits required will be determined for the EIR. No federal permits are believed to be required.*

Which ENF or EIR review threshold(s) does the project meet or exceed (see 301 CMR 11.03):

- ☐ Land
- ☐ Water
- ☒ Energy
- ☐ ACEC
- ☐ Rare Species
- ☐ Wastewater
- ☐ Air
- ☐ Regulations
- ☒ Wetlands, Waterways, & Tidelands
- ☐ Transportation
- ☐ Solid & Hazardous Waste
- ☐ Historical & Archaeological Resources

Summary of Project Size & Environmental Impacts	Existing	Change	Total
LAND			
Total site acreage	19*		
New acres of land altered		11**	
Acres of impervious area	10	3.2**	13.2
Square feet of new bordering vegetated wetlands alteration		0	
Square feet of new other wetland alteration		0	
Acres of new non-water dependent use of tidelands or waterways		3.7	
STRUCTURES			
Gross square footage	0	2600**	2600
Number of housing units	0	0	0
Maximum height (in feet)	100	20**	120
TRANSPORTATION			
Vehicle trips per day	0	***	
Parking spaces	0	0	
WATER/WASTEWATER			
Gallons/day (GPD) of water use	0	0	0
GPD water withdrawal	0	0	0
GPD wastewater generation/ treatment	0	0	0
Length of water/sewer mains (in miles)	0	0	0

State Permits & Approvals

- ☒ Order of Conditions
- ☐ Superseding Order of Conditions
- ☒ Chapter 91 License
- ☒ 401 Water Quality Certification
- ☒ MHD or MDC Access Permit
- ☐ Water Management Act Permit
- ☐ New Source Approval
- ☐ DEP or MWRA Sewer Connection/ Extension Permit
- ☒ Other Permits (*including Legislative Approvals*) – Specify: EFSB Approval to Construct. Other permits may be identified during the EIR process.

**8 acres alignment, 11 acres substations.*

***substations*

**** Approximately 1-2 trips per week will be made to the substations.*

CONSERVATION LAND: Will the project involve the conversion of public parkland or other Article 97 public natural resources to any purpose not in accordance with Article 97?

☒Yes (Specify_____) ☐No

Both alternatives cross the Neponset on a DCR-owned bridge on Blue Hill Parkway. One alternative alignment would involve placement of cable under Day Boulevard, South Boston. The cable would be installed under permit from the DCR (former MDC), with a subsequent grant of easement, subject to legislative authorization.

Will it involve the release of any conservation restriction, preservation restriction, agricultural preservation restriction, or watershed preservation restriction?

☐Yes (Specify_____) ☒No

RARE SPECIES: Does the project site include Estimated Habitat of Rare Species, Vernal Pools, Priority Sites of Rare Species, or Exemplary Natural Communities?

☒Yes (Specify_____) ☐No

Two potential substation sites – the Route 138 site and the Canton Industrial Park site - are within polygons mapped by NHESP as Estimated Habitat.

HISTORICAL /ARCHAEOLOGICAL RESOURCES: Does the project site include any structure, site or district listed in the State Register of Historic Place or the inventory of Historic and Archaeological Assets of the Commonwealth?

☐Yes (Specify___ _____) ☒No

The Preferred alignment, located entirely within existing transportation rights-of-way, passes adjacent to several historic properties and districts included in the Inventory of Historic and Archaeological Assets of the Commonwealth and the National Register of Historic Places. The Noticed Alternative also runs adjacent to several historic properties and districts included in the Inventory of Historic and Archaeological Assets of the Commonwealth and the National Register of Historic Places. Both routes are located within existing disturbed rights-of-way, therefore, no archaeological resources are present. Please see Appendix B.2 for details.

If yes, does the project involve any demolition or destruction of any listed or inventoried historic or archaeological resources?

☐Yes (Specify:) ☒No

AREAS OF CRITICAL ENVIRONMENTAL CONCERN: Is the project in or adjacent to an Area of Critical Environmental Concern?

☒Yes (Specify___ _____) ☐No

The "Route 138" route passes adjacent to the Fowl Meadow/Ponkapoag Bog Area of Critical Environmental Concern (ACEC.) It remains on the existing roadway.

PROJECT DESCRIPTION: The project description should include **(a)** a description of the project site, **(b)** a description of both on-site and off-site alternatives and the impacts associated with each alternative, and **(c)** potential on-site and off-site mitigation measures for each alternative (*You may attach one additional page, if necessary.*)

The proposed project is the construction of three new underground transmission lines to reinforce the regional transmission system. These new lines will connect the existing 345 kilovolt (kV) system south of Route 128 with two key substations in the City of Boston. The primary purpose of the Project is to maintain the reliability of the regional electric transmission system serving the City of Boston and adjoining communities (collectively referred to as "Greater Boston"). Without the Project, load growth is projected to exceed available capacity, causing the area to experience potential overload conditions under single contingency situations by 2006. Further, NSTAR Electric anticipates that, without the Project, additional transmission system inadequacies will emerge through 2013. NSTAR Electric has conducted extensive system evaluations to determine the optimal approach to mitigate transmission system reliability concerns. To that end, the Project will provide high-capacity transmission capability from the area south of Greater Boston, interconnecting with an existing 345 kV transmission line that runs between Walpole and Holbrook, Massachusetts. When constructed, the Project will relieve anticipated overloads on the existing

transmission system within the City of Boston and adjoining areas and will make available additional import capacity of approximately 800 MW in the initial phase, with a potential maximum capability of up to 2,000 MW.

More specifically, the new transmission lines will begin at a substation to be constructed adjacent to the existing NSTAR Electric 345 kV overhead transmission line that extends from the existing West Walpole substation to the existing Holbrook substation. From the new substation, the transmission lines will proceed underground in a common trench, primarily beneath existing highways and streets, approximately 9 miles to the Milton/Boston line. Two circuits will extend from that point 7 miles into Boston. They will terminate at the existing K Street substation in South Boston. The third circuit will extend westerly approximately 2 miles beneath city streets to the existing substation in Hyde Park.

NSTAR Electric has conducted a detailed and systematic study of project and routing alternatives. These include (i) alternatives such as conservation and energy management, distributed generation, and additional central station generation, (ii) alternative configurations for the power flow, including the number of circuits and the destinations for the power, (iii) alternative transmission technologies, namely the preferred pipe-type cable (PTC), compared with cross-link polyethylene (XLPE) solid dielectric cable, and (iv) alternative originating substation locations and routes. Technological alternatives are discussed in Appendix A.2 of this ENF, and Appendix A.3 describes the route selection process.

Based on the alternatives analyses, installation of new 345 kV transmission capability is the optimal means of meeting the project objectives. The preferred transmission technology is the use of pipe-type cable, which is a proven technology and is extensively used in Greater Boston for 345 kV and 115 kV transmission.

NSTAR Electric's Preferred Route is shown on Figure 1. It originates at one of two substation sites. The *Route 138 Substation Site* is adjacent to the existing 345 kV line at the intersection of Route 138 and York Street in the Town of Stoughton. From this site, the route proceeds north on Route 138, through several miles of commercial/industrial development to Route 128 (I-93). The *Canton Industrial Park Substation Site* is on a six acre disturbed parcel in the Canton Industrial Park. From this site, the route heads northeasterly on North Street/Pleasant Street/Lincolnshire, crosses a parcel of Town owned conservation land via an existing NSTAR Electric easement, then follows Dan Road through the Canton Commerce Center to Route 138, where it merges with the route from the Route 138 Substation Site. From there, it proceeds north to Route 128. The Preferred Route crosses Route 128 within the existing bridge, and continues on Blue Hill Avenue through Milton. The route crosses the Neponset River via an existing bridge and continues on Blue Hill Avenue through Mattapan to Columbia Road. The route then turns to the northeast, following Columbia Road for approximately 2½ miles through parts of Roxbury and Dorchester to Everett Square. From Everett Square, one of three alternative routes will follow surface streets for another 2 miles, terminating at the K Street substation. The 2-mile single circuit branch line leaves the route in Mattapan Square, following Cummins Highway and a short stretch of American Legion Highway, to the existing NSTAR Electric substation on Hyde Park Avenue.

NSTAR Electric has also selected a geographically distinct route as a Noticed Alternative, also shown on Figure 1. While NSTAR Electric believes that the Preferred Route is advantageous, the Noticed Alternative would also be feasible. The alternative route originates at a new substation to be constructed on a site in Stoughton south of Reebok Drive. The alternative route proceeds north on Technology Center Drive and Kay Way in Stoughton, thence along West St./Lafayette St. to High Street in Randolph. The route then continues north on High St., east on Scanlon Drive, and north on Route 28 (North Main Street). The route crosses under the Rt. 128 bridge, continues north on Route 28 through the Blue Hills Reservation in Quincy, and then follows Route 28/Randolph Avenue through Milton. The route turns to the northwest on Reedsdale Road and then north again on Central Avenue. The route crosses the Neponset River on the Central Avenue bridge, then turns east on River Street, and continues north along Washington, Bowdoin, Hancock, and Pleasant Streets and Columbia Road in Dorchester to Everett Square. The final segment of this route is the same as the Preferred Route from Everett Square to the K Street Station. The single circuit branch line for this route is approximately 3½ miles in length. It begins at the intersection of Central Ave. and Reedsdale Road in Milton; the route heads northwesterly on Brook Road to Blue Hill Parkway to Blue Hill Ave., and then follows Cummins/American Legion Highway to the Hyde Park substation.

At all times, NSTAR Electric will work closely with municipal officials and neighborhood representatives, to ensure that the construction process is carried out with full sensitivity to neighborhood concerns. Locations and lengths of route segments are provided in Table I. Appendix A.4 describes the substation facilities that are required.

Impacts and mitigation of the proposed project are detailed in Appendix B of this ENF. Both routes are almost entirely confined to existing paved roads, and the routes have been laid out to avoid or minimize any impacts to wetland resources or sensitive species habitats. All stream and river crossings are proposed to be on existing bridges; existing culverts will be maintained. Appendix B.1 is a more detailed discussion of the natural environment through which the routes pass. Appendix B.2 describes the built environment, including historic resources, through which the routes pass. Appendix B.3 is a discussion of electric and magnetic field (EMF) issues. The pipe in which the cables are installed confines electric field to the interior of the pipes, and magnetic fields are reduced to less than 1.1 milligauss, a very low level. A critical issue in routing, planning and installation is the minimization of construction impacts, particularly disruption of traffic flows. Appendix B.4 discusses the construction methodology, sequence and timing, and describes how traffic management during the construction process will be carried out to minimize inconvenience to drivers and pedestrians during the installation of this critically important new component of the electric grid. Appendix B.5 addresses issues of consistency with local and state planning.

Typical trench details are shown on Figures 2 and 3 of Appendix C. The trench will contain the three steel pipes for the cables, plus a fourth pipe for a dielectric fluid circulation path. Two 2" PVC conduits will also be placed for fiber-optic communications to support grid operation.

Project Schedule: For a variety of reasons relating to investment in new facilities regionwide, it is vital that new transmission capability be in place by the summer of 2006. Hence, NSTAR Electric plans to complete necessary regulatory review and permitting by the third quarter of 2004, so that orders may be placed for cable and equipment, and construction may commence in late 2004. The construction of the underground pipes will be completed during 2005. Installation of cables in the pipe to Hyde Park and one of the two pipes to K Street would begin in 2005 and be completed by June 2006. The cable for the second pipe to K Street would be installed in 2007.

The power transmission grid serving Boston and Eastern Massachusetts is a complex and interrelated system, in which generating capacity, user demand and transmission resources are constantly adjusted and balanced by a variety of public and private entities. When the grid operates smoothly and efficiently, all users receive a constant flow of electricity to meet their needs. When the grid experiences abnormal events or equipment problems, resultant imbalances in supply, transmission and demand can lead to disruptions in power supply, with great attendant costs. Power suppliers are regularly upgrading their transmission capabilities, and the grid that supplies Boston was strengthened in 1989 and 2000 by the installation of 345 kV underground circuits from Charlestown in the north to Kingston Street in downtown Boston. The 345 kV circuits feed 115 kV transmission and local distribution circuits that distribute power across the City. From the south, there has been no similar reinforcement, and power supplies into key load centers in South Boston and Hyde Park are limited to 115 kV circuits that are incapable of bringing in sufficient additional power from the south.

Regionally, efficient electric generation capacity is available to the south, while generation to the north and in central Boston is decades old and nearing or past its useful life. As the situation progresses, the continued availability of this power supply, redundancy, reliability, and ability to adjust to maintenance outages or unplanned outages are increasingly in doubt. For all of the above reasons, the strengthening of the grid from the south has assumed a high priority.

LAND SECTION – all proponents must fill out this section

I. Thresholds / Permits

A. Does the project meet or exceed any review thresholds related to **land** (see 301 CMR 11.03(1)
___ Yes _**X**_ No; if yes, specify each threshold:

II. Impacts and Permits