

## **5.0 COMPARISON OF PROPOSED 345-kV FACILITIES ALONG PREFERRED NORTHERN AND NOTICED-ALTERNATIVE SOUTHERN ROUTES**

### **5.1 INTRODUCTION**

After identifying the Preferred Northern and Noticed-Alternative Southern Routes for the 345-kV transmission facilities, WMECO and its consultants performed research, conducted field investigations, and coordinated with local, state, and federal agencies to compile baseline information concerning the existing natural and human resource features along and in the vicinity of the alternative transmission line routes and substation/switching station facilities. This existing environmental and human resource information was collated and mapped, and subsequently used to identify and evaluate the potential environmental effects of each alternative route with regard to the substations, switching stations, and the transmission line corridors. WMECO also performed a more detailed analysis of the relative cost and reliability of the Preferred Northern and Noticed-Alternative Southern Routes, including the underground 345-kV route variation for the Noticed-Alternative Southern Route.

The potential environmental impacts associated with the transmission facilities generally can be subdivided into two categories: construction impacts and permanent impacts. Potential construction impacts consist of the short-term and generally localized effects associated with the construction of the Project and its ancillary facilities. Examples of construction-related impacts may include unavoidable traffic congestion, the temporary use of a site to stage construction equipment and supplies, or temporary increases in noise associated with the operation of heavy equipment. Potential permanent impacts consist of those long-term effects that are the result of the siting and operation of the facilities in a particular location. Permanent effects may commence during the construction of the facilities and extend for the life of the Project. An example of a permanent effect would be the removal of forested vegetation along an approved ROW to allow for the installation of a new overhead transmission line; subsequently, for the safe operation of the transmission line, shrub, rather than forested, vegetation would be maintained permanently along the ROW. In this case, the permanent effect would be the replacement of woody with shrub vegetation.

Cross sections showing the existing transmission structures and the new transmission structures on the Preferred Northern Route and Noticed-Alternative Southern Route are provided in Exhibit 5.1. In

addition, Exhibit 5.1 includes photographs for segments of the ROW, along with photo simulations of the same segments with the new transmission structures. Maps have been prepared at a 1 inch = 400 feet scale using USGS Topographic Quads, Massachusetts Geographic Information Service (“MassGIS”) 2007 and aerial imagery as data sources, that show the routes, substations, switching stations, environmental resources (e.g., wetlands, streams, ponds), land uses, public transportation facilities, and other features of the human environment. The aerial imagery for an approximately 1,500-foot wide corridor along the Preferred Northern Route and Noticed-Alternative Southern Route was obtained in 2007 and the remainder of the aerial imagery was obtained in 2005. These are included in Exhibit 5.2.

An analysis of both the construction and permanent impacts for the Preferred Northern Route and Noticed-Alternative Southern Route for the 345-kV facilities is provided in this Section 5.<sup>1</sup> The section is organized as follows:

- Section 5.2 cites the statutory requirements and case law precedents, which require WMECO to show that the proposed site for the facility is superior to the Noticed-Alternative on the basis of balancing cost, environmental impact, and reliability.
- Section 5.3 describes the existing environmental conditions and potential impacts along and in the vicinity of the preferred and alternative 345-kV line routes, as well as the measures that have been identified to mitigate such environmental impacts.
- Section 5.4 describes the existing environmental conditions and potential impacts of the proposed modifications at the Ludlow and Agawam Substations, the two substations which are ancillary facilities with respect to the 345-kV lines.
- Section 5.5 discusses the planned methods and schedule for constructing the GSRP facilities that have been identified by WMECO to date to minimize adverse effects on the human and natural environments.
- Section 5.6 sets forth a comparison of the cost, reliability and impacts between the proposed overhead 345-kV line route and the underground 345-kV line route variation for the Noticed-Alternative Southern Route.
- Section 5.7 identifies the costs of developing the Preferred Northern Route and the Noticed-Alternative Southern Route.

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<sup>1</sup> An impacts/mitigation analysis for the 115-kV facilities that are part of the GSRP is provided in Section 7. Note, however, that because the Preferred Northern Route is aligned along the ROW of certain of the 115-kV facilities that would have to be reconstructed, the impacts/mitigation discussion for the Preferred Northern Route in Section 5.3 includes tables that refer to these 115-kV facilities.

- Section 5.8 presents a discussion of the reliability of the Preferred Northern Route and the Noticed-Alternative Southern Route.
- The final section, Section 5.9, presents a summary and comparison of the Preferred Northern Route and Noticed-Alternative Southern Route.

## 5.2 STANDARD OF REVIEW

In implementing its statutory mandate to ensure a reliable energy supply for the Commonwealth with a minimum impact on the environment at the lowest possible cost, the Siting Board requires a petitioner to show that its proposed facility is sited at a location that minimizes costs and environmental impacts while ensuring a reliable energy supply. To determine whether such a showing is made, the Siting Board requires a petitioner to show that the proposed site for the facility is superior to the Noticed-Alternative on the basis of balancing cost, environmental impact and reliability of supply. NSTAR Electric 2005 at 296; CELCO 2001 at 334; MMWEC 2001 at 127; Berkshire Gas 1999 at 40; BECO 1997 at 287.

An assessment of all impacts of a proposed facility is necessary to determine whether an appropriate balance is achieved both among different environmental concerns and environmental impacts, cost and reliability. A facility that achieves an appropriate balance thereby meets the Siting Board's statutory requirement to minimize environmental impacts at the lowest possible cost. NSTAR Electric 2005 at 297; CELCO 2001 at 335; MMWEC 2001 at 128; Berkshire Gas 1999 at 46; BECO 1997 at 287.

In order to determine if a petitioner has achieved the proper balance among environmental impacts, cost and reliability, the Siting Board determines if the petitioner has provided sufficient information regarding environmental impacts and potential mitigation measures. The Siting Board can then determine whether environmental impacts would be minimized. Similarly, the Siting Board must find that the petitioner has provided sufficient cost information in order to determine if the appropriate balance among environmental impacts, cost and reliability is achieved. NSTAR Electric 2005 at 297; CELCO 2001 at 335; MMWEC 2001 at 128; NEPCO 1998 at 384; Commonwealth Electric Company, 5 DOMSB 273, at 337 (1997).

As shown below, the evidence in this case clearly demonstrates that environmental impacts of the Project for both routes have been minimized, consistent with considerations of cost, and that the Preferred Northern Route is superior to the Noticed-Alternative Southern Route in minimizing such impacts.