

without restrictions. Accordingly, while WMECO may disclose the assumptions of its load flow studies, it may not disclose detailed results that identify specific weaknesses or vulnerabilities in the Bulk Power System. WMECO anticipates that the Siting Board, its staff, parties and intervenors to the proceedings on the Petition, and their counsel and expert consultants, will be able to obtain access to these CEII Appendix materials by executing a Non-Disclosure Agreement, pursuant to a Protective Order for which WMECO will apply when this Petition is filed.

1.5 PROJECT APPROACH SELECTION

The Project is designed to upgrade the transmission system in the Greater Springfield and north-central Connecticut area to ensure the reliable delivery of power to WMECO's customers. To meet this objective, WMECO investigated a variety of available alternative approaches which are set forth in Section 3. Due to the specific nature and causes of the reliability violations as described in Section 2, including the need to relieve the line overloads on certain portions of the system, realistic relief by load reduction or extra supply would need to be local. As summarized below and described in detail in Section 3, WMECO evaluated conservation and load management, demand-response (DR) resources, distributed generation (DG), utility-scale generation, and overhead transmission. In Section 3, WMECO demonstrates that on the basis of costs, impacts, reliability and ability to meet the need, the selected approach is superior to potential alternatives.

1.6 ROUTE AND ANCILLARY FACILITY SELECTION

1.6.1 WMECO's Review of Configuration and Siting Alternatives

In accordance with requirements of the Siting Board, WMECO followed a systematic and objective route selection process to identify and assess preferred and alternative routes for both the 345-kV and 115-kV transmission lines based on the Project need. As a consequence of the proposed new and upgraded transmission lines in the Greater Springfield area, WMECO determined that it will also be necessary to modify, expand, build and upgrade certain interconnecting substations and switching stations. Applying the results of electrical system planning studies, WMECO applied an iterative process to identify and evaluate both potential electrical configurations and potential route alternatives for the Project. The iterative process is detailed in Sections 4.2 and 6.2. Underground line alternatives were not considered for the "spur" route between the proposed Cadwell Switching Station and Shawinigan Switching Station where no 345-kV line construction occurs since no right-of-way (ROW) expansion is required to accommodate the replacement of the existing 115-kV overhead lines on this "spur". Underground line alternatives were not considered for the Orchard Substation to Orchard Junction "spur" section of 115-kV

lines either, because the proposed scope is re-conductoring only. In this regard, a majority of the existing line structures between Orchard Substation and Orchard Junction will not be replaced.

1.6.2 WMECO's Route Selection Methodology

For the Project, WMECO applied an established set of route selection objectives for transmission lines, which are detailed in Section 4.4. Due to the availability of existing overhead transmission line corridors and the huge cost differential between overhead and underground line construction, WMECO focused on maximizing the potential use of existing overhead line corridors for the upgrade replacements of overhead lines. WMECO identified potential routes for the Project and evaluated them in accordance with the requirements of the Siting Board, i.e., to demonstrate the examination of a reasonable range of practical alternatives by establishing and applying a reasonable set of criteria for identifying and evaluating alternatives in a manner that ensures that no clearly superior alternative route has been overlooked or eliminated. Criteria used by WMECO are detailed in Sections 4.6 and 6.5 and include environmental, social, engineering, reliability, and economic factors.

1.6.3 North Bloomfield Substation to Ludlow Substation Preferred Northern and Noticed-Alternative Southern Routes

The Massachusetts portion of the GSRP will include new 345-kV lines to be constructed between the Connecticut/Massachusetts border in Agawam, Massachusetts to WMECO's Agawam Substation and from there to WMECO's Ludlow Substation in Ludlow, Massachusetts. As part of the process of identifying a preferred route for this part of the Project, WMECO and CL&P evaluated a number of alternative routes or alignments for the transmission lines. In accordance with EFSB requirements, WMECO has designated one of these routes for the Agawam to Ludlow 345-kV line as the Preferred Northern Route and one as the Noticed-Alternative Southern Route.

1.6.3.1 Preferred Northern Route

Along WMECO's Preferred Northern Route for the Project, a new 345-kV transmission line would traverse from the Connecticut/Massachusetts border along existing routes where an overhead 115-kV double-circuit transmission line now exists, in a northerly direction to the Agawam Substation (approximately 6.0 miles). Upon reaching the Agawam Substation in Agawam, Massachusetts, the 345-kV transmission line would interconnect to the 115-kV transmission system through new transformation and switchyard equipment to be installed at the expanded Agawam Substation. From the Agawam Substation, a second 345-kV transmission line would traverse in a northeasterly direction through