

A. PURPOSE

The purpose of the Greater Springfield Reliability Project (GSRP), which involves a proposed new 345-kilovolt (kV) transmission line and other improvements to the electric transmission systems of The Connecticut Light and Power Company (CL&P) in Connecticut and the Western Massachusetts Electric Company (WMECO) in Massachusetts, is to provide safe, reliable, and economic transmission service throughout the Greater Springfield, Massachusetts geographic area and in north-central Connecticut, and to assure that these portions of the transmission grid will comply with mandatory federal and regional reliability standards. At the same time, the GSRP improvements will advance a comprehensive regional plan for improving electric transmission in New England, through extensive coordinated improvements in Connecticut, Massachusetts, and Rhode Island. This comprehensive plan is known as the New England East – West Solution (NEEWS).

The objective of the separate but related Manchester to Meekville Junction Circuit Separation Project (MMP), which involves the modification of approximately 2.2 miles of existing transmission lines in Manchester, Connecticut, is to accommodate the higher power flows associated with the GSRP on the transmission system in north-central Connecticut.

The Greater Springfield transmission system extends generally through the area from CL&P's North Bloomfield Substation in north-central Connecticut to WMECO's Ludlow Substation, located north of the City of Springfield in the Town of Ludlow. The existing transmission system serving this Greater Springfield geographical area is comprised largely of 115-kV lines originally constructed from the 1940s through the early 1970s¹. This system does not meet current mandatory national and regional reliability criteria. Under conditions existing today, the system can become overloaded during normal conditions with all lines in-service. In the event of the unscheduled outage of a system element, such as a

¹ Many of the towers supporting the 115-kV transmission line between the Agawam Substation in Massachusetts and the North Bloomfield Substation were constructed in the 1920s for a 69-kV line.

transmission line or generator, the system is subject to extensive overload and voltage problems. These problems limit the available power within the Greater Springfield geographical area and the transfers of power over the single existing 345-kV interstate tie line between Massachusetts and Connecticut. These problems become increasingly worse every year as electric usage increases and will be further exacerbated as older generation plants in the area are retired.

Together with the existing 345-kV lines between the North Bloomfield, Barbour Hill and Ludlow Substations, the new North Bloomfield – Agawam – Ludlow 345-kV line, if built as proposed, will complete a 345-kV “loop” through north-central Connecticut and western Massachusetts. This new high-capacity loop will relieve congestion on the 115-kV system that currently both serves the Springfield area and supports interstate transfers between the North Bloomfield, Manchester, and Ludlow Substations. At the same time, the new line will increase the power-transfer capacity between Connecticut and Massachusetts.

The purpose of the MMP, which will involve the separation of circuits between Manchester Substation and Meekville Junction, is to reliably accommodate the higher power flows to CL&P’s north-central Connecticut substations (Barbour Hill, North Bloomfield, and Manchester) that the GSRP will enable. The circuits that must be separated are a 345-kV circuit (#395, Barbour Hill – North Bloomfield – Manchester) and a 115-kV circuit (#1448, Manchester – Rood Ave.). At present, the conductors of these two circuits are supported by common line structures for approximately 2.2-mile on a ROW between Manchester Substation and Meekville Junction. Because both circuits are supported on common transmission structures, planning studies must assume that a contingency that would remove either of these circuits from service would remove them both. This is called a “double-circuit contingency”, and the circuit separation will eliminate this contingency.