CONCEPTUAL OPERATIONAL MONITORING STUDY OF TEMPERATURE CHANGES ASSOCIATED WITH NECPL

1. INTRODUCTION

Champlain VT, LLC, d/b/a TDI-New England (TDI-NE) is proposing the New England Clean Power Link project (Project), a 1,000 megawatt (MW) high-voltage direct current (HVDC) electric transmission line that will provide electricity generated by renewable energy sources in Canada to the New England electric grid. The transmission line will be comprised of two approximately 5-inch diameter cables, with each having a nominal operating voltage of ±320 kilovolts.

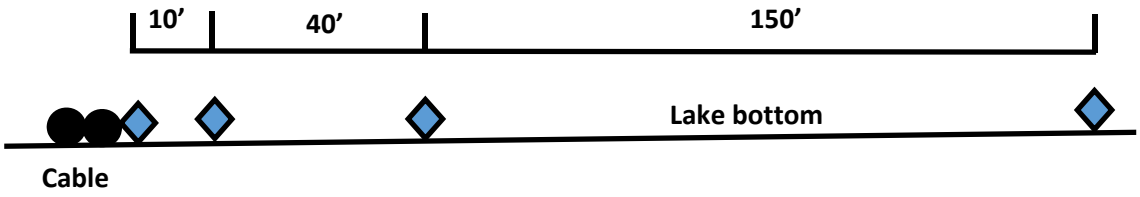
The proposed transmission line will be located in Lake Champlain for a distance of approximately 97 miles. Power cables produce heat through electrical power losses due to the resistance inherent in the conducting material of the cable. Previously completed modeling indicates that the increase in water temperature will be greater than 1° F only for a limited area (less than approximately three feet around the cables) where the cables are laid on the bottom. There are no anticipated water temperature changes in areas where the cables are buried three feet or more. The purpose of this study is to confirm that, once operational, temperature changes will be consistent with applicable temperature criteria of the Vermont Water Quality Standards (VT ANR, 2014).

2. STUDY DESIGN

TDI-NE proposes to have two study sites: one in water depth of approximately 30 feet (where the cables will be buried) and a second in water depth of greater than 150 feet where the cables will be laid on bedrock (the worst-case scenario). TDI-NE will consult with USCG prior to installation to determine what navigation markings, if any, are appropriate given the depths.

Four acoustic transmitters with temperature sensors will be secured in the water using an anchor or concrete block at each study site and at distances of 1, 10, 50 and 200 feet from the cables (see Figure 1; blue diamonds depict proposed sensor locations). Each transmitter will have an accuracy of ±0.5° C and be designed for the expected temperature range at each study site. The transmitter assembly will be situated prior to the operation of the transmission system but after the cables have been installed.

Figure 1: Placement of Transmitters with the cables on bedrock (not to scale)



A receiving unit will record the temperature on a preset interval (e.g. every fifteen minutes). Data collection will be initiated within nine months following commencement of Project operations. The data will be downloaded regularly for a time period sufficient to demonstrate that temperature changes are equal to or less than those modeled, which is anticipated to be six months to one year.

3. REPORTING

As discussed, the heat from the transmission system is a function of power flow losses. TDI-NE will complete an analysis as to whether there is a statistical correlation between electrical current levels and temperature values recorded by the transmitters at the two study sites. If there is no correlation between

the operation of the transmission system and temperatures recorded at the edge of the mixing zone (i.e. 200 feet from the cables), the Project would be considered in compliance with the applicable temperature criteria of the Vermont Water Quality Standards. Under these circumstances, the observed changes in water temperature over time at that location would be understood to be natural temporal variability, as would be expected in the Lake. A final report will be provided within one month after the first year of operation of the transmission system.