

**CENTRAL MAINE POWER COMPANY  
RESPONSE TO ORAL DATA REQUEST NO. 2  
DOCKET No. 2008-255**

December 19, 2008

**ODR-02-08**

- Q.** Please prepare a cost estimate for undergrounding on the Woodland Hills condo property, as determined by tax maps, and itemize the cost to underground each of the lines.
- A.** For this request, a 1,200 ft length of corridor abutting the Woodland Hills Condo Property was selected for evaluation of the costs to underground existing 115kV Sections 197 and 250 and the proposed 345kV Section 3022. The area studied in this evaluation is shown in Attachment 1.

Attachments 2, 3 and 4 present the detailed breakdown of the estimated costs to underground Sections 3022, 250 and 197, respectively. The estimates are based on each circuit being installed in separate trenches and to follow the same alignment as the proposed overhead lines.

It is important to note that while electric utilities, regulators and interveners often try to use cost per foot estimates from other projects to develop budgetary estimates for other projects, this approach should only be used as the overall basis of an underground cost estimate with caution. No two underground projects are alike and many factors and variables from project to project, state to state and region to region can have an enormous influence on the true cost of an underground cable system. For example, it may not be reasonable to look at the cost of this 1,200 ft underground estimate and apply the same cost per foot for another section of the MPRP, on another circuit, for a different length in a different portion of the CMP system.

Another point to consider is that undergrounding an electric system at voltages above 230kV, or the addition of a significant length of underground to an electric system, can add complexity to the operation and performance of the system. One example of the complexity would be the potential impacts of the addition of capacitive reactance to a system with the addition of significant high voltage underground cable lengths. Many utility systems at the 345kV level cannot absorb a significant amount of capacitive reactance as this capacitive reactance can cause significant over-voltages during certain system operations, such as system switching. To compensate for the added capacitance, shunt reactors are placed on the system to provide the necessary compensation. This reactive

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compensation can result in a significant extra cost to a project. In developing this cost estimate, the proposed 1,200 ft of underground cable would require adding approximately 6 MVAR of capacitive reactance to the system. At this level of capacitive resistance, it was determined that reactive compensation would not be required. However, a complete system study would need to be performed prior to the completion of detail design to verify this preliminary conclusion. Additional costs would be incurred if reactive compensation is determined to be required.

**Response Prepared and Submitted By:**

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**Attachments:**

- Attachment 1: Woodland Hills Vicinity, Plan view sketch
- Attachment 2: Estimated 345kV underground transmission line cost: Section 3022
- Attachment 3: Estimated 115kV underground transmission line cost: Section 250
- Attachment 4: Estimated 115kV underground transmission line cost: Section 197