BEFORE THE
NEW YORK STATE
PUBLIC SERVICE COMMISSION

In the Matter of the Application of Central Hudson Gas & Electric Corporation For a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII of the Public Service Law for the A and C Line Rebuild Project, Approximately 10.85 miles of 115 Kilovolt Transmission Lines in the Towns of Pleasant Valley, LaGrange, Wappinger, and East Fishkill, in Dutchess County	Case No.: 13-T-_____

CENTRAL HUDSON GAS & ELECTRIC CORPORATION
A AND C LINE REBUILD PROJECT

EXHIBIT 5

DESIGN DRAWINGS

EXHIBIT 5 – DESIGN DRAWINGS

This section addresses the requirements of 16 NYCRR §86.6.

5.1 General Description of the Proposed Transmission Line

The proposed Project includes the rebuild of 10.85 miles of existing transmission line along existing rights-of-way; minor substation modifications also are included. The existing A and C transmission lines (A and C Lines) lines connect the Pleasant Valley Substation in the Town of Pleasant Valley to the Todd Hill Substation in the Town of Lagrange, and the Todd Hill Substation to the Fishkill Plains Substation in the Town of East Fishkill. In addition to being the sole transmission supply for the 23.5 MWs of peak distribution load currently served from the Todd Hill Substation, the A and C Lines provide the major transmission path between the Pleasant Valley and East Fishkill Substations. The 345/115 kV transformers located at Pleasant Valley and East Fishkill provide the bulk power system inputs to Central Hudson Gas and Electric Company's (CHG&E) Dutchess County transmission system. Both the A and C Lines currently operate at 115,000 volts (115 kV), and the rebuild design voltage remains 115 kV. The length of the new line is equal to the length of the existing line. The total distance of the A and C Lines is approximately 11 miles (10.85 miles). The individual lengths of the A and C Lines are 5.25 and 5.60 miles, respectively.

Preliminary plan and profile drawings of the ROW and proposed project centerline are included as Attachment B of the Environmental Management and Construction Plan found in Appendix A. These plans include a profile of the centerline at an exaggerated vertical scale, in compliance with 16 NYCRR §86.6.

5.2 Electric Transmission Line and Poles

The proposed new 115 kV lines will generally be single-circuit facilities on single-pole structures. The type of material will be principally self-weathering Corten steel. Design of structures will be in accordance with applicable national and state codes and regulations. The most significant regulation is the National Electrical Safety Code (NESC). This code specifies both the minimum structural loads to determine the required structural capacity, and the clearances required to energize parts and wires. There will be a variety of different structure types used for the Project, due to different constraints and problems encountered at different locations. The predominant structure type that will be used for this Project is the single-pole structure. Structures will typically be 60 to 75 feet above the ground, with a direct embedded foundation. The direct embedded structure is economical, and involves burying a part of the pole directly into the ground then backfilling with suitable material (e.g., crushed stone).

The existing 115 kV A and C Lines were installed in 1948 using 397.5 ACSR "Ibis" conductor. Conductor samples tested by the National Electric Energy Testing, Research and Applications Center showed evidence of aluminum annealing, which can cause the conductor to lose strength and sag lower than expected, potentially resulting in NESC clearance violations. The replacements will be 1033.5 MCM ACSR "Ortolan" conductors. The new deadend structures will use ceramic bell suspension insulators. The A and C 115 kV single-pole structures will support one aerial ground wire. This optical ground wire (OPGW) will be approximately 0.7-inch in diameter, and contain 24 to 48 optical fibers.

5.3 Electric Substations

There are no new substations or modifications to existing substations proposed as part of the A and C Lines Project. There are three existing substations associated with the existing and proposed rebuild of the A and C Lines:

- Pleasant Valley Substation located at the North end of Project connecting the C-Line,
- Todd Hill Road Substation centrally located connecting both the A and C lines, and
- Fishkill Plains Substation located at the South end of Project connecting the A-Line.

There is no work proposed at any of these substations associated with the A and C Lines Project other than terminations of the new conductors to the substation infrastructure.

5.4 Right-of-Way Width

The Project's ROW width and location are designed to reduce impacts to the maximum extent practicable. The preferred route for the rebuilt A and C Lines will be located primarily within a previously disturbed 150-foot wide ROW. CHG&E has held the A and C Lines' ROW easement since 1948. The total area of the ROW is approximately 247 acres. This area is largely maintained in early successional vegetation currently, and will continue to be maintained in a similar manner upon completion of the Project. No new permanent access roads are proposed, as the Applicant will access the ROW from existing access roads or intersections with public roadways.