



Cricket Valley Transmission Line
and Re-conductoring Project

Exhibit 9

Cost

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EXHIBIT 9 COST OF PROPOSED FACILITIES

This exhibit addresses the requirements of 16 NYCRR §86.10(a).

9.1 Introduction

Cricket Valley Energy Center, LLC (“Cricket Valley”) is proposing to: (1) develop a new approximately 14.6-mile 345 kV transmission line parallel to the existing Consolidated Edison Company of New York, Inc.’s (“Con Edison”) 345 kV Transmission Line 398 (“Line 398”) from the planned Cricket Valley switchyard (the “Cricket Valley Switchyard”) in the town of Dover, New York to Con Edison’s Pleasant Valley Substation in the town of Pleasant Valley, New York (the “Transmission Line”); and (2) re-conductor an approximately 3.4-mile segment of the existing 345 kV Transmission Line 398 in the town of Dover between the Cricket Valley Switchyard and the New York-Connecticut state line (the “Re-conductoring Segment”) (collectively the “Project”).

The Project will also include improvements to Consolidated Edison’s Pleasant Valley Substation. New protection and communication system upgrades will be required within the existing control buildings at the Pleasant Valley Substation.

9.2 Capital Costs

No escalation rates are included in the cost estimates. All costs are in 2013 dollars.

9.2.1 General

The general capital cost estimate includes items that apply to all of the segments that comprise the Project, including the following:

- ◆ Surveying.
- ◆ Licensing and Permitting Including Fees for Legal.
- ◆ Vegetation Management.
- ◆ Access Roads Including Matting.
- ◆ Environmental Controls and Restoration.
- ◆ Field Offices and Staging Yards.
- ◆ Construction Support using Helicopter.
- ◆ Construction Inspection Services.
- ◆ Security.

- ◆ Project Management and Support.
- ◆ Owner's Engineer.

9.2.2 *Transmission Capital Costs*

The capital cost estimate for the transmission facilities includes all items required to construct the proposed Transmission Line and the Reconductoring Segment, including their connection to the new Cricket Valley Switchyard and the Pleasant Valley Substation. Specifically, the capital cost estimate includes the construction of the following major transmission facilities:

- ◆ New 14.6 mile transmission line from Con Edison Pleasant Valley Substation to CVEC Substation, utilizing an existing 250 foot Con Edison right-of-way, including sixty two (62) steel monopole structures, conductors, shield wire, insulators, communication systems and all required ancillaries.
- ◆ Approximately 3.4 miles of re-conductoring of an existing single circuit 345kV transmission line with high temperature conductor between the Cricket Valley Switchyard and the Connecticut border, including conductor costs and structural reinforcements (as necessary).
- ◆ Connection of the Transmission Line and Re-conductoring Segment to the Cricket Valley Switchyard.
- ◆ Connection of the Transmission Line to the Pleasant Valley Substation.

The capital cost estimate for the overhead transmission lines includes materials and supplies, equipment purchases, engineering, contractor construction labor for installation of foundations, structures, hardware, conductor and shield wire, contingencies, and other indirect charges. A more detailed description of the improvements is provided in Exhibits E-1 and E-3.

9.2.3 *Substation Capital Costs*

Modifications to the existing Pleasant Valley Substation are required to accommodate termination of the Transmission Line. The cost estimate for the associated substation work at Pleasant Valley includes structure modifications, modifications to existing bay #2 take-off structure to support new switches, a new 345kV circuit breaker, and associated relays, relay protection, ductbanks and foundation restoration. A more detailed description of the work at the substation is provided in Exhibit E-2.

9.3 Sources of Information

The capital cost estimates presented in Table 9-1 are based on the assumptions and details provided below. Actual costs for the construction of the Project will be predicated on the final design and prices in effect at the time of construction.

9.3.1 *General*

The following general assumptions and details formed the basis of the cost estimate.

- ◆ Direct labor & material costs were developed through a task-based analysis with consideration for the number of work units, crew type, crew specific labor rates, and material costs. Over sixty (60) discreet tasks were identified and used as the basis for the cost estimate.
- ◆ Crew-related details were developed with consideration for the type of worker (e.g. linemen), skill level of worker, and quantity of workers required for a discreet task. Twenty-eight (28) crew types were identified and used as the basis for the cost estimate.
- ◆ Equipment costs were based upon rental costs on a monthly basis.
- ◆ Foundation costs were based upon rock anchor and/or rock micropile type foundations for all structure locations for conservatism (some foundations will be drilled piers if the local geology allows) and in recognition of the anticipated shallow depth of rock throughout much of the right-of-way. Guidance on the foundation cost estimates were provided by Crux Construction of Spokane Valley, Washington.
- ◆ Labor costs based upon local union labor.
 - Local #60 for general laborers.
 - Local #137 for equipment operators.
 - Local #457 for teamsters.
 - Local #361 (NYC) for linemen, substations, structure erection and stringing.
 - Local #29 Blasters for foundation construction and blasting (if required).
 - Cost estimate based upon five, eight-hour days per week.
 - 10% overhead.
 - 10% profit.

- ◆ Air-Crane cost based upon guidance provided by Erickson air-crane of Portland, Oregon.
- ◆ Helicopter cost based upon guidance provided by Haverfield Aviation of Gettysburg, Pennsylvania.
- ◆ Cost for major substation equipment at Pleasant Valley (circuit breaker, switches and capacitance voltage transformers) provided by manufacturers or from similar jobs.
- ◆ Fees and costs for crossing The Taconic State Parkway were assumed as standard permit fees and traffic control.

9.3.2 Access, Environmental, Staging Areas & Site Prep

- ◆ Best access route for each structure determined.
- ◆ Access routes > 15% slope requires equipment assistance for large equipment and line trucks.
- ◆ Access routes > 25% slope deemed inaccessible with large equipment and line trucks – requires helicopter erection of poles.
- ◆ Access routes < 2% slope are in wet soft areas requiring filter fabric under 18" crushed rock.
- ◆ Access road width of 12'-16' in upland areas where space is available. In sensitive areas such as wetlands and potential threatened and endangered species habitat, access road widths will be significantly reduced, as described in Exhibit 4.
- ◆ Existing access roads to be used unless unsuitable. Minimal clearing and grading is specified.
- ◆ Protective matting assumed for access through wetland areas.
- ◆ Limited blasting to remove localized areas with steep slopes. Blast mats required for all blast operations. Note: use of rock anchor/rock micropile foundations together with use of helicopter and air-crane should eliminate need for blasting except for unforeseen circumstances.
- ◆ Clearing of trees in the southern 125' of the right-of-way. Erosion & Sedimentation controls around areas that are graded.

9.3.3 *Overhead Construction - Poles, Wires*

- ◆ Excludes overtime except during pole erection by air-crane helicopter.
- ◆ Proposed Transmission Line construction based upon use of air-crane type helicopters for the erection of 90% of the steel poles in lieu of erection by crane.
- ◆ Proposed Transmission Line construction based upon extensive use of helicopter support for wire stringing, transportation of personnel, for installation of insulators, shield wire hardware and OPWG hardware, dampers, spacers and marker balls.
- ◆ Re-conductoring Segment construction based upon use of ground crews for stringing, installation of insulators, shield wire hardware and OPWG hardware. Helicopter support for installation of dampers, spacers and marker balls (contingent upon electrical clearance requirements for helicopter work).

9.3.4 *Foundations & Grounding*

- ◆ Foundation cost assumes inaccessibility by large equipment and very hard rock.
- ◆ Estimate based upon rock micropile foundations which are suitable for all foundations. Drilled pier foundations and rock anchor foundations may be less costly than that estimated at some locations.
- ◆ Grounding is based upon 5-50' radial counterpoise at each site with grounding backfill to reduce resistance.

9.3.5 *Design, Engineering and Procurement*

- ◆ Approximately 5% of construction & equipment costs.

9.3.6 *Surveying and Test Borings*

- ◆ Includes test borings combined with geophysical methods to ascertain top of rock at all new sites.
- ◆ Lidar for ground contours, and identification of clearing.
- ◆ Ground surveys for construction control (e.g. sagging) and location of structures.

9.3.7 *Communications*

- ◆ Includes cost for a secondary fiber route to the switchyard.

9.3.8 Security

- ◆ Security 16 hrs/weekday, 24 hrs/weekend day, 2 roving personnel.
- ◆ Fenced-in and secured materials.

9.3.9 Environmental Studies and Construction Services

- ◆ Delineation of wetlands and streams.
- ◆ [Threatened and Endangered species monitoring during construction.
- ◆ Installation of best management practices to demarcate and protect sensitive areas.

9.3.10 Transmission Line Cost Exclusions

The following items have been excluded from the cost estimate for the Transmission Line:

- ◆ Property leases for field offices and staging yards.
- ◆ Structure lighting for structures less than 200 feet tall.

Table 9-1 Cost of Proposed Facilities (in \$1,000)

<u>New Transmission Line (Pleasant Valley - Cricket Valley)</u>	
Access, Environmental, Staging Areas & Site Prep	4,722
Overhead Construction - Poles, Wires	16,984
Foundations & Grounding	10,547
Design & Engineering	1,616
Surveying, Test Borings	315
<u>Re-conductoring of L-398 (Cricket Valley - CT Border)</u>	
Access, Environmental, Staging Areas & Site Prep	780
Overhead Construction - Poles, Wires	3,335
Foundations & Grounding	1,538
Design & Engineering	422
Surveying, Test Borings	129
<u>Pleasant Valley Substation</u>	
Equipment	918
Construction	960
Protection & Control	109
Design, Engineering & Procurement	375
<u>Communications</u>	
LAN/Communications/Network/Sys Perf	1,673
Additional Fiber on Parallel Towers	1,076
<u>Other Direct Costs</u>	
Construction Supervision/Inspection	4,222
Traffic Control/Security	794
Environmental Studies & Constr Services	675
SUBTOTAL	51,190
Owner's Costs (Permitting, Management)	3,000
Contingency (5%)	2,560
TOTAL PROJECT COST	56,750