

**CENTRAL MAINE POWER COMPANY
SUPPLEMENTAL RESPONSE TO ORAL DATA REQUEST NO. 8
DOCKET No. 2008-255**

December 11, 2009

ODR-08-06 (Supplemental)

- Q.** Provide an underground cost estimate from the area near the Fournier's residence to Three Rivers substation. What is the difference in the longevity and are you able to get better security building an underground line?
- A.** The estimated costs to place the existing Section 197, 250 and the proposed Section 3022 underground for 5,300 ft near the Fournier residence are summarized in Attachments 1, 2 and 3, respectively.

The expected operational life of overhead and underground lines is highly dependent upon a number of factors, including but not limited to: maintenance practices, environmental conditions and operational conditions. With these factors being equal, both overhead and underground transmission lines have a similar expected operational life, which can easily exceed 30 years.

While the underground transmission lines are buried and protected with a concrete encasement, the system can be damaged due to an inadvertent dig-in from a third party since the route is across an area that can be accessed by the public. While CMP's easement requires that it be notified of any excavation along the route, this sometimes does not happen. Because of this, there is not a distinct difference in security of overhead and underground lines.

Response Prepared By:

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Attachments:

- 1) Estimated cost to underground 5,300 of Section 197
- 2) Estimated cost to underground 5,300 of Section 250
- 3) Estimated cost to underground 5,300 of Section 3022



ODR 08-06 Follow-up Underground Cost Estimate for S3022 in Elliot, Maine

Section 197 115kV - 5300 ft
(Existing Section 250 Structure 402 to Three River Substation)

Item #	Description	Comments	Qty	Unit	\$/Unit	Total
1	115 kV Cable		5300	FT/CKT	214	1,132,200
2	Spare Cable		1800	FT	60	108,000
3	Cable Terminations		6	EA	22,000	132,000
4	Cable Splices		6	EA	22,000	132,000
5	Arrestors		6	EA	3,250	19,500
6	Grounding		1	LS/CKT	151,925	151,925
7	Cable Testing		1	LS/CKT	22,500	22,500
8	Fiber Optic Communication		1	LS	123,500	123,500
9	Temperature Monitoring		1	LS	148,200	148,200
10	Duct Bank		5300	FT	156	827,700
11	Manholes		2	EA	50,000	100,000
12	Dewatering/Sheeting/Shoring		1	LS	56,900	56,900
13	Pavement Repair		103	FT	102	10,500
14	Rock Excavation	No rock assumed. See Note 4.	0	LS	-	-
16	Transition Structures		1	EA	135,000	135,000
17	Wetland Mats		100	EA	250	25,000
18	Erosion Control		5300	FT	1	5,300
19	Restoration & Seeding		1	LS	16,250	16,250
20	Site Work, including Fencing/Grounding		2	LS	27,038	54,075
21	Mobilize/Demobilize		1	LS	146,076	146,076
	Subtotal					3,346,626
22	Permitting (4%)		1	LS	134,000	134,000
23	Engineering (10%)		1	LS	384,000	384,000
24	Construction Management		1	LS	192,000	192,000
	Subtotal					4,056,626
24	Contingency (15% +/-)					702,994
25	CMP - PM, Support, Overhead (1% +/-)					40,566
Total						4,800,186

Notes:

- Single circuit in four hole duct bank.
- Cable size of 1750 kcmil copper cable based on 1113A summer rating and maximum trench depth of 10 feet.
- Local Roads can be open cut. State Roads will require a jack and bore.
- Cost for rock excavation was not included. If rock exists, an additional cost of up to \$450,000, may be incurred depending on the amount of rock.
- Estimate is based on recent quotes. Cost of the project may go up or down depending on a number of factors.
 - Cost of materials. The cost of copper continues to fluctuate and may result in a significant increase or decrease in the cable cost.
 - Contractor/Manufacturer availability. Currently many of the cable manufacturers have their factories full with orders. Many of the installation contractors are also busy.
- Costs have been added for switches and fenced in transition station.



ODR 08-06 Follow-up Underground Cost Estimate for S3022 in Elliot, Maine

Section 250 115kV - 5300 ft

(Existing Section 250 Structure 402 to Three River Substation)

Item #	Description	Comments	Qty	Unit	\$/Unit	Total
1	115 kV Cable		5300	FT/CKT	214	1,132,200
2	Spare Cable		1800	FT	60	108,000
3	Cable Terminations		6	EA	22,000	132,000
4	Cable Splices		6	EA	22,000	132,000
5	Arrestors		6	EA	3,250	19,500
6	Grounding		1	LS/CKT	151,925	151,925
7	Cable Testing		1	LS/CKT	22,500	22,500
8	Fiber Optic Communication		1	LS	123,500	123,500
9	Temperature Monitoring		1	LS	148,200	148,200
10	Duct Bank		5300	FT	174	922,200
11	Manholes		2	EA	50,000	100,000
12	Dewatering/Sheeting/Shoring		1	LS	56,900	56,900
13	Pavement Repair		103	FT	102	10,500
14	Rock Excavation	No rock assumed. See Note 4.	0	LS	-	-
16	Transition Structures		1	EA	135,000	135,000
17	Wetland Mats		100	EA	250	25,000
18	Erosion Control		5300	FT	1	5,300
19	Restoration & Seeding		1	LS	16,250	16,250
20	Site Work, including Fencing/Grounding		2	LS	27,038	54,075
21	Mobilize/Demobilize		1	LS	100,716	100,716
	Subtotal					3,395,766
22	Permitting (4%)		1	LS	136,000	136,000
23	Engineering (10%)		1	LS	330,000	330,000
24	Construction Management		1	LS	165,000	165,000
	Subtotal					4,026,766
24	Contingency (15% +/-)					604,015
25	CMP - PM, Support, Overhead (1% +/-)					40,268
Total						4,671,049

Notes:

1. Single circuit in four hole duct bank.
2. Cable size of 1750 kcmil copper cable based on 1113A summer rating and maximum trench depth of 10 feet.
3. Local Roads can be open cut. State Roads will require a jack and bore.
4. Cost for rock excavation was not included. If rock exists, an additional cost of up to \$450,000, may be incurred depending on the amount of rock.
5. Estimate is based on recent quotes. Cost of the project may go up or down depending on a number of factors.
 - a. Cost of materials. The cost of copper continues to fluctuate and may result in a significant increase or decrease in the cable cost.
 - b. Contractor/Manufacturer availability. Currently many of the cable manufacturers have their factories full with orders. Many of the installation contractors are also busy.
6. Costs have been added for switches and fenced in transition station.



ODR 08-06 Follow-up Underground Cost Estimate for S3022 in Elliot, Maine

Section 3022 345KV - 5300 ft
(Existing Section 250 Structure 402 to Three River Substation)

Item #	Description	Comments	Qty	Unit	\$/Unit	Total
1	345 kV Cable		5300	FT/CKT	478	5,070,000
2	Spare Cable		1800	FT	135	243,000
3	Cable Terminations		12	EA	38,000	456,000
4	Cable Splices		12	EA	30,000	360,000
5	Arrestors		12	EA	5,000	60,000
6	Grounding		1	LS/CKT	162,700	162,700
7	Cable Testing		1	LS/CKT	45,000	45,000
8	Fiber Optic Communication		1	LS	123,500	123,500
9	Temperature Monitoring		1	LS	148,200	148,200
10	Duct Bank		5300	FT	216	1,142,200
11	Manholes		4	EA	50,000	200,000
12	Dewatering/Sheeting/Shoring		1	LS	56,900	56,900
13	Pavement Repair		103	FT	102	10,500
14	Rock Excavation	No rock assumed. See Note 4.	0	LS	-	-
16	Transition Structures		2	EA	210,000	420,000
17	Wetland Mats		100	EA	250	25,000
18	Erosion Control		5300	FT	1	5,300
19	Restoration & Seeding		1	LS	16,250	16,250
20	Transition Site Work, including Fencing/Grounding		2	LS	34,650	69,300
21	Mobilize/Demobilize		1	LS	249,441	249,441
	Subtotal					8,863,291
22	Permitting (4%)		1	LS	345,000	345,000
23	Engineering (10%)		1	LS	862,000	862,000
24	Construction Management		1	LS	431,000	431,000
	Subtotal					10,501,291
24	Contingency (15% +/-)					1,575,195
25	CMP - PM, Support, Overhead (1% +/-)					105,013
Total						12,181,499

Notes:

- Two cables per phase in a eight hole duct bank with six inch conduits.
- Cable size of 2000 kcmil copper cable based on 1900 summer rating.
- Local Roads can be open cut. State Roads will require a jack and bore.
- Cost for rock excavation was not included. If rock exists, an additional cost of up to \$200,000, may be incurred depending on the amount of rock.
- Estimate is based on recent quotes. Cost of the project may go up or down depending on a number of factors.
 - Cost of materials. The cost of copper continues to fluctuate and may result in a significant increase or decrease in the cable cost.
 - Contractor/Manufacturer availability. Currently many of the cable manufacturers have their factories full with orders. Many of the installation contractors are also busy.
- Costs have been added for switches and fenced in transition station.
- No costs have been added for reactive compensation or special relay and protection.