



Concord Municipal Light Plant

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David G. Wood, Director

ANNUAL SMART GRID REPORT

August, 2011

At the time the 2010 Annual Smart Grid Report was published, fiber network construction for the Smart Grid project had not started. Because of materials delivery problems, project construction could not be started until October, 2010. Despite this delay and severe winter weather, “substantial” completion of the fiber network will still occur by the end of July, 2011, as planned. The construction contractor will continue to perform clean-up work and fiber optic terminal installations for the Smart Grid network components through the end of September.

As mentioned in last year’s report the Smart Grid deployment was divided into four phases. This was done to allow early deployment of the Smart Grid wireless controllers in each phase as fiber network construction was completed rather than wait until the entire fiber network is complete. As a result of this strategy, the commencement of Smart Grid controllers started in Phase 1 in May and the process of converting existing load management customers to the new Smart Grid equipment started in July. The installation of Phase 2 Smart Grid wireless infrastructure will begin in the last week of July. Smart Grid infrastructure for all remaining phases is expected to be complete by November. Our conversion program for all existing load management customers will continue through December – January, 2012.

The timeline for all 4 Phases of Smart Grid deployment is available for viewing at the following web link:

http://www.concordma.gov/pages/ConcordMA_LightPlant/smart%20grid

Town Meeting voted to install additional street lights will have some influence on the deployment of the later Phases of the Smart Grid infrastructure. Multiple options are being considered for the number of street lights to be added. However, all parties have agreed that the lights added will be equipped to interface with the Smart Grid system so that some or all can be shut off in the early hours of the morning to conserve energy. At the time of this report, the decision on the exact configuration of the street light plan had not been made. We expect that

the additional time required to install the additional Smart Grid control equipment will result in a more robust and efficient Smart Grid network infrastructure.

Since the load management customer conversion process has just begun, the Smart Grid system will not have a measurable impact on the summer peak power usage period this year. The full benefit of Concord's Smart Grid system is expected to be apparent in next year's report. Early indications on interest in the Smart Thermostat pilot are that there could be considerable new customer impact from this new program. It is expected that this will enhance the energy savings measured in future Smart Grid reports.

The Smart Grid Spending Report on the next page provides a view of spending at the time the permanent bond was issued. Included in the reports is a listing of bids and purchase orders issued and a forecast of expected financial requirements through completion of the project. At this point the Light Plant is forecasting that the Smart Grid project will be \$500,000 under the original budget. A final Smart Grid Spending report will be issued in next year's edition of this report.

Smart Grid Spending Report

Updated: 12-Apr-11

Capital Expenditures	Original Budget	RFP/BID Number	Bid Amount	Purchase Order(s)	PO Amount	PO - Spent to Date	PO Balance	Projected Requirement To Project Completion
				15071	57,997	\$ 57,997	\$ -	
FTTx OSP Construction	\$ 1,984,651	1186	\$ 1,267,900	15418	\$ 1,292,133	\$ 568,463	\$ 723,671	\$ 1,500,000
FTTx OSP Materials	\$ 1,213,970	1185	\$ 491,868	15068	\$ 491,868	\$ 491,841	\$ 27	\$ 950,000
		1185	\$ 104,084	15070	\$ 104,084	\$ 104,082	\$ 2	
		1912	\$ 169,883	15065	\$ 169,883	\$ 169,261	\$ 622	
				1039	\$ 787	\$ 787	\$ -	
				15590	\$ 1,111	\$ 1,111	\$ -	
				15591	\$ 3,271	\$ -	\$ 3,271	
				1063	\$ 92	\$ -	\$ 92	
				1064	\$ 470	\$ -	\$ 470	
				15646	\$ 2,192	\$ -	\$ 2,192	
				15193	\$ 3,109	\$ 3,109	\$ -	
				15194	\$ 2,015	\$ 2,015	\$ -	
				15195	\$ 4,972	\$ 4,972	\$ -	
				15360	\$ 3,143	\$ 3,143	\$ 0	
				15420	\$ 6,936	\$ -	\$ 6,936	
				15457	\$ 3,452	\$ -	\$ 3,452	
				15469	\$ 1,620	\$ 1,620	\$ -	
				1032	\$ 597	\$ 597	\$ -	
				15642	\$ 2,175	\$ -	\$ 2,175	
				1045	\$ 495	\$ 495	\$ -	
				1019	\$ 480	\$ 480	\$ -	
				15395	\$ 1,464	\$ 1,464	\$ -	
				15332	\$ 1,384	\$ 1,384	\$ -	
				15145	\$ 8,327	\$ 8,328	\$ (1)	
				997	\$ 420	\$ 420	\$ 0	
				15374	\$ 1,464	\$ 1,457	\$ 7	
				1012	\$ 141	\$ 107	\$ 34	
				1028	\$ 503	\$ 503	\$ -	
				15378	\$ 7,645	\$ 7,645	\$ -	
				15590	\$ 1,111	\$ 1,111	\$ -	
				1008	\$ 885	\$ 878	\$ 7	
				15299	\$ 3,242	\$ 3,242	\$ -	
				15192	\$ 2,395	\$ 1,045	\$ 1,350	
				1033	\$ 161	\$ -	\$ 161	
FTTx OLT Hardware	\$ 130,000	1181	\$ 109,622	15113	\$ 159,107	\$ 155,499	\$ 3,608	\$ 159,107
FTTx OLT Software	\$ 20,000	1181	\$ 18,983	15113		\$ -	\$ -	
FTTx Variable Capital Equipment	\$ 136,290	1181	\$ 34,500	15113		\$ -	\$ -	
NOC Facility Preparation	\$ 100,000			15256	\$ 21,202	\$ 21,202	\$ -	\$ 21,202
Engineering	\$ 306,797			13589	\$ 54,825	\$ 9,547	\$ 45,278	\$ 413,684
				14180	\$ 120,000	\$ 75,000	\$ 45,000	
				13377	\$ 79,200	\$ 75,149	\$ 4,051	
				13875	\$ 120,000	\$ 120,000	\$ -	
				15359	\$ 24,000	\$ 8,341	\$ 15,659	
				15493	\$ 15,659	\$ 10,262	\$ 5,397	
Collector Installation Labor	\$ 28,350				\$ 28,350	\$ 28,350	\$ -	\$ 28,350
Smart Grid Collector Hardware	\$ 51,625	RFP 226	\$ 199,500	13609	\$ 344,975	\$ 107,496	\$ 237,479	\$ 344,975
Smart Grid Software	\$ 12,761	RFP 226	\$ 13,000	13609		\$ -	\$ -	
Smart Relays	\$ 60,000	RFP 226	\$ 54,000	13609		\$ -	\$ -	
Smart Thermostats	\$ 120,000	RFP 226	\$ 120,000	13609		\$ -	\$ -	
Test Equipment	\$ 25,000				\$ 25,000	\$ 25,000	\$ -	\$ 25,000
Vehicles	\$ 75,000				\$ 75,000	\$ 75,000	\$ -	\$ 75,000
Contingency	\$ 235,556			Police Details	\$ 148,000	\$ 148,000	\$ -	\$ 400,000
				Internal Labor	\$ 8,490	\$ 8,490	\$ -	
				Transportation	\$ 3,766	\$ 3,766	\$ -	
				15633	\$ 77,320	\$ -	\$ 77,320	
2-way Meters				1066	\$ 937	\$ -	\$ 937	
Cable Management				1068	\$ 839	\$ -	\$ 839	
Fiber Optic Patch Cords				1048	\$ 856	\$ 856	\$ -	
Ethernet Patch Cords				15651	\$ 1,753	\$ -	\$ 1,753	
Server UPS				15616	\$ 4,999	\$ -	\$ 4,999	
Intelgrid EconOne Mobile				MBTA	\$ 1,500	\$ 1,500	\$ -	
				Maynard	\$ 143	\$ 143	\$ -	
				Concord Lumber	\$ 166	\$ 166	\$ -	
				J G Maclellan	\$ 378	\$ 378	\$ -	
Total	\$ 4,500,000		\$ 2,583,340		\$ 3,498,485	\$ 2,110,055	\$ 1,229,287	\$ 3,917,318

Terms
 FTTx - fiber optic transmission system
 OSP - outside plant
 NOC - network operations center
 OLT - optical line terminal