

Maine Power Connection (MPC)

**Central Maine Power
Capital Project Business Case v9.1**

Project Title:	Project Number:
Maine Power Connection (MPC)	CMP-09-26

Project Type:
Infrastructure - Electric

2009 Capital	\$34,999
Capital Needed to Complete Project:	\$435,396
Prior Capital Spent:	\$5,050
Total Project Capital:	\$440,446

Description of Project:

This major 2008-12 project involves 1) building new 345 kV substations with breaker and a half bus designs at Detroit (with 345 kV breakers), Houlton (with 345/69 kV autotransformer and static var compensator), Limestone (with 90 MVAR reactor), Keene S/S (addition to existing S/S), and TD R2 WELS, 2) replacing the existing Mullen 69 kV substation with a new 69 kV Houlton substation (with 20 MVAR capacitor), and 3) constructing approximately 200 miles of new 345 kV transmission line (roughly 62 miles of new R-O-W; the remainder will utilize existing R-O-W).

Summary of Project Justification and Benefits:

The project will 1) close a 25 mile gap between Maine Public Service's system and the MEPCo 345 kV line, thus directly interconnecting northern Maine with the New England grid, and 2) provide sufficient transmission capacity to move at least 800 MW of wind power from northern Maine to the New England grid. The project will 1) improve regional reliability, 2) enhance competitive power markets in northern Maine, 3) help Maine and New England achieve green power / greenhouse gas objectives, 4) lower regional power costs, and 5) allow for future interconnection with eastern Canada. CMP will own roughly 70% of the project (\$440 mil. of \$625 mil. total estimated cost); CMP will need approval for full recovery through Regional Network Service transmission rates to move forward with the project. See the CMP/MPS 7-1-08 CPCN filing with the Maine PUC for more detail.

Budget Year of Expenditures:	2009	Project Life [tax life years]	15
Exit Year [if applicable]		Weighted Average Cost of Capital:	6.58%
Effective Tax Rate:	41%	Salvage Value [if applicable]	

Investment Results:	Total Project
Net Present Value (\$000)	\$145,624
Internal Rate of Return [%]	11.7%
NPV Payback in years	16.0
Cash Payback in years	11.0

Project Approvals:	Name	Contact Information
Project Sponsor:	Steve Robinson	207-626-9594
Capital Allocation Team Chair:	Provide Information	Provide Information
Approved by:	Provide Information	Provide Information
Approved by:	Provide Information	Provide Information

Maine Power Connection (MPC)

CMP-09-26

Financial Summary

[\$000}

Project Year	1	2	3	4	5	6	7	8	9	10
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Project Benefits:										
Increase to Revenues	\$0	\$13,498	\$38,222	\$60,389	\$70,776	\$69,544	\$67,777	\$65,634	\$63,521	\$61,380
Decrease to Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Terminal Value or Salvage Value	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Benefits	\$0	\$13,498	\$38,222	\$60,389	\$70,776	\$69,544	\$67,777	\$65,634	\$63,521	\$61,380
Project Costs:										
Decrease to Revenues	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Increase to Expenses	\$0	\$1,161	\$3,360	\$5,410	\$6,508	\$6,638	\$6,771	\$6,906	\$7,044	\$7,185
Capital Outlay	\$31,980	\$150,190	\$111,270	\$117,950	\$0	\$0	\$0	\$0	\$0	\$0
Cash Increase to Taxes	(\$103)	\$1,681	\$5,350	\$9,106	\$11,587	\$12,492	\$13,030	\$13,093	\$12,722	\$11,959
Total Costs	\$31,877	\$153,032	\$119,980	\$132,466	\$18,095	\$19,130	\$19,801	\$19,999	\$19,766	\$19,144
Net Cash Flow	(\$31,877)	(\$139,534)	(\$81,758)	(\$72,077)	\$52,681	\$50,414	\$47,976	\$45,635	\$43,755	\$42,236

Financial Results:

Infrastructure - Electric

				Total Project
Net Present Value				\$145,624
Internal Rate of Return [%]				11.7%

	No. Years	Year
NPV Payback	16.0	2025
Cash Payback	11.0	2020

Maine Power Connection (MPC)

Revenue Schedule

INCREASES TO REVENUE (\$000):

YEAR	1 2009	2 2010	3 2011	4 2012	5 2013	6 2014	7 2015	8 2016	9 2017	10 2018	11 2019	12 2020	13 2021	14 2022	15 2023	16 2024	17 2025	18 2026	19 2027	20 2028
Delivery, known - Elec.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delivery, unknown - Elec.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delivery, known - Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Revenue Requirement [Do Not Use]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transmission	0	13,498	38,222	60,389	70,776	69,544	67,777	65,634	63,521	61,380	59,200	57,007	54,817	52,630	50,446	48,265	46,387	45,190	44,547	44,028
Customer Contribution [Taxable] ¹	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL REVENUE	0	13,498	38,222	60,389	70,776	69,544	67,777	65,634	63,521	61,380	59,200	57,007	54,817	52,630	50,446	48,265	46,387	45,190	44,547	44,028

Note 1: See "Contributions" tab for instructions.

DECREASES TO REVENUE (\$000):

CASH FLOW #	1 2009	2 2010	3 2011	4 2012	5 2013	6 2014	7 2015	8 2016	9 2017	10 2018	11 2019	12 2020	13 2021	14 2022	15 2023	16 2024	17 2025	18 2026	19 2027	20 2028
Enter REVENUE 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enter REVENUE 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enter REVENUE 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enter REVENUE 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enter REVENUE 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enter REVENUE 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL REVENUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NET INCREASES TO REVENUE (\$000):

Total	0	13,498	38,222	60,389	70,776	69,544	67,777	65,634	63,521	61,380	59,200	57,007	54,817	52,630	50,446	48,265	46,387	45,190	44,547	44,028
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Transmission Revenue: Maine Power Connection (MPC)

Year	Capital Revenue Requirement Rate			Year	Total Revenue Requirement (\$000)				
	RNS,	RNS,	LNS		Capital Cost			O&M	TOTAL
	w/ Incentive	w/o Incentive			RNS, w/ Incent	RNS, w/o Incent	LNS		
					\$ 440,808	\$ -	\$ -		
1	16.4%	16.2%	15.9%	2010	\$ 13,498	\$ -	\$ -		\$ 13,498
2	15.3%	15.2%	15.1%	2011	37,642	-	-	\$ 580	38,222
3	14.7%	14.6%	14.5%	2012	58,129	-	-	2,260	60,389
4	14.2%	14.0%	14.0%	2013	66,391	-	-	4,385	70,776
5	13.6%	13.5%	13.6%	2014	63,586	-	-	5,959	69,544
6	13.2%	13.0%	13.1%	2015	61,204	-	-	6,573	67,777
7	12.6%	12.4%	12.7%	2016	58,930	-	-	6,704	65,634
8	12.1%	11.9%	12.2%	2017	56,683	-	-	6,838	63,521
9	11.6%	11.4%	11.8%	2018	54,405	-	-	6,975	61,380
10	11.1%	10.8%	11.3%	2019	52,086	-	-	7,115	59,200
11	10.5%	10.3%	10.9%	2020	49,760	-	-	7,257	57,007
12	10.0%	9.7%	10.4%	2021	47,415	-	-	7,402	54,817
13	9.5%	9.2%	9.9%	2022	45,080	-	-	7,550	52,630
14	8.9%	8.6%	9.5%	2023	42,745	-	-	7,701	50,446
15	8.4%	8.1%	9.0%	2024	40,410	-	-	7,855	48,265
16	8.2%	7.9%	8.6%	2025	38,375	-	-	8,012	46,387
17	8.2%	7.9%	8.1%	2026	37,018	-	-	8,172	45,190
18	8.0%	7.6%	7.7%	2027	35,211	-	-	8,336	44,547
19	7.8%	7.4%	7.2%	2028	35,526	-	-	8,503	44,028
20	7.5%	7.1%	6.7%	2029	34,643	-	-	8,503	43,146
21	7.3%	6.9%	6.6%						
22	7.1%	6.6%	6.5%						
23	6.8%	6.3%	6.2%						
24	6.6%	6.1%	6.0%						
25	6.4%	5.8%	5.7%						
26	6.1%	5.6%	5.5%						
27	5.9%	5.3%	5.2%						
28	5.7%	5.1%	5.0%						
29	5.4%	4.8%	4.7%						
30	5.2%	4.5%	4.5%						
31	5.0%	4.3%	4.3%						
32	4.7%	4.0%	4.0%						
33	4.5%	3.8%	3.8%						
34	4.3%	3.5%	3.5%						
35	4.0%	3.3%	3.3%						

Abbreviations:

RNS = Regional Network Service
LNS = Local Network Service

Maine Power Connection (MPC)

Capital Schedule

CAPITAL OUTLAY (\$000):	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
YEAR	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Non-Depreciable Outlays (0-Yr Tax Life)	31,880	(4,550)	(21,000)	(11,390)																
Equipment Outlays (5-Yr. Tax Life)	0	0	0	0	0															
Equipment Outlays (7-Yr. Tax Life)	0	0	0	0	0															
Equipment Outlays (15-Yr. Tax Life)	0	154,740	132,380	129,340	0															
Equipment Outlays (20-Yr. Tax Life)	0	0	0	0	0															
Plant Outlays (39-Yr. Tax Life)																				
Total Capital Outlay	31,880	150,190	111,270	117,950	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prior Period Capital Outlays	5,050																			
AFDC Prior Periods	362																			
AFDC Current Period and Beyond	24,006																			

Note: The tax life for this project is 15 years. Make sure the Net Depreciable capital from the Capital Back-up tab is properly captured on the 15 year tax life line. For multi-year projects, it is no longer necessary to enter capital on the Non-Depreciable Outlays line.

Capital Back-up: Maine Power Connection (MPC)

Assumes preliminary estimates of annual cash flows and in-service amounts by year.
Note that land costs have not been separately broken out due to uncertainty regarding ultimate transmission route.

PROJECT COSTS BY YEAR (\$000)	Pre-2009 (CWIP) ⁵	2009	2010	2011	2012	Post-2012	TOTAL
Total project costs by component:							
CMP's estimated share of MPC	\$ 5,412	\$ 34,999	\$ 159,399	\$ 118,000	\$ 122,998		\$ 440,808
							-
							-
							-
							-
Total	\$ 5,412	\$ 34,999	\$ 159,399	\$ 118,000	\$ 122,998	\$ -	\$ 440,808
Depreciable capital costs:							
Total project less transformers, regulators	\$ 5,412	\$ 34,999	\$ 159,399	\$ 118,000	\$ 122,998		\$ 440,808
Transformers, regulators							-
Less: AFUDC	362	3,019	9,209	6,730	5,048		24,368
Real estate							-
General expenses							-
O&M							-
Avoided capital costs							-
Cost of removal							-
Depreciable capital for model	\$ 5,050	\$ 31,980	\$ 150,190	\$ 111,270	\$ 117,950	\$ -	\$ 416,440
Customer contribution [non-taxable] ⁶	-	-	-	-	-	-	-
Net depreciable capital for model	\$ 5,050	\$ 31,980	\$ 150,190	\$ 111,270	\$ 117,950	\$ -	\$ 416,440
In-service amounts:							
Total capital costs	\$ -	\$ -	\$ 165,000	\$ 140,603	\$ 135,205		\$ 440,808
AFUDC			10,260	8,243	5,865		24,368
Total capital cost less AFUDC			\$ 154,740	\$ 132,360	\$ 129,340	\$ -	\$ 416,440

Probability that project costs will be greater than 125% of projected = 20%
Probability that project costs will be less than 90% of projected = 10%
Percentage of total capital costs qualifying for RNS and FERC incentive = 100.0%
Percentage of total capital costs qualifying for RNS but not FERC incentive =
Percentage of total capital costs qualifying for LNS =

¹ Includes right-of-way trim

² Includes Maine DEP 3rd party inspectors

³ Includes survey work and special studies

⁴ Includes site facilities

⁵ Enter only the amount of capital still in CWIP and has yet to be placed in service.

⁶ See "Contributions" tab for instructions

Maine Power Connection (MPC)

O&M Schedule

INCREASES TO EXPENSE (\$000):

YEAR	1 2009	2 2010	3 2011	4 2012	5 2013	6 2014	7 2015	8 2016	9 2017	10 2018	11 2019	12 2020	13 2021	14 2022	15 2023	16 2024	17 2025	18 2026	19 2027	20 2028
Property taxes	0	1,161	3,360	5,410	6,508	6,638	6,771	6,906	7,044	7,185	7,328	7,475	7,625	7,777	7,933	8,091	8,253	8,418	8,587	8,758
Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project O&M & removal costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enter EXPENSE 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enter EXPENSE 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enter EXPENSE 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EXPENSE	0	1,161	3,360	5,410	6,508	6,638	6,771	6,906	7,044	7,185	7,328	7,475	7,625	7,777	7,933	8,091	8,253	8,418	8,587	8,758

DECREASES TO EXPENSE (\$000):

YEAR	1 2009	2 2010	3 2011	4 2012	5 2013	6 2014	7 2015	8 2016	9 2017	10 2018	11 2019	12 2020	13 2021	14 2022	15 2023	16 2024	17 2025	18 2026	19 2027	20 2028
Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Avoided costs - Electric	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Avoided costs - Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enter EXPENSE 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enter EXPENSE 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enter EXPENSE 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EXPENSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NET EXPENSE (\$000):

\$0	\$1,161	\$3,360	\$5,410	\$6,508	\$6,638	\$6,771	\$6,906	\$7,044	\$7,185	\$7,328	\$7,475	\$7,625	\$7,777	\$7,933	\$8,091	\$8,253	\$8,418	\$8,587	\$8,758
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Property Taxes: Maine Power Connection (MPC)

Municipality: Various
Mil rate: 15.0 mills
Annual escalation: 2.0%

Calculation of Property Taxes for projects where capex is placed in-service in the last year of the project.

0

(\$000)		Prior	2009	2010	2011	2012	Post-2012	Total
Capital Outlay		\$0.0	\$0.0	\$154,740.0	\$132,360.0	\$129,340.0	\$0.0	\$416,440.0
Property Taxes	2009	-	-	-	-	-	-	\$0.0
	2010	-	-	-	-	-	-	\$0.0
	2011	-	-	-	-	-	-	\$0.0
	2012	-	-	-	-	3,123.3	-	\$0.0
	2013	-	-	-	-	6,371.5	-	\$0.0
	2014	-	-	-	-	6,499.0	-	\$0.0
	2015	-	-	-	-	6,628.9	-	\$0.0
	2016	-	-	-	-	6,761.5	-	\$0.0
	2017	-	-	-	-	6,896.8	-	\$0.0
	2018	-	-	-	-	7,034.7	-	\$0.0
	2019	-	-	-	-	7,175.4	-	\$0.0
	2020	-	-	-	-	7,318.9	-	\$0.0
	2021	-	-	-	-	7,465.3	-	\$0.0
	2022	-	-	-	-	7,614.6	-	\$0.0
	2023	-	-	-	-	7,766.9	-	\$0.0
	2024	-	-	-	-	7,922.2	-	\$0.0
	2025	-	-	-	-	8,080.6	-	\$0.0
	2026	-	-	-	-	8,242.3	-	\$0.0
	2027	-	-	-	-	8,407.1	-	\$0.0
	2028	-	-	-	-	8,575.2	-	\$0.0

Calculation of Property Taxes for projects where current period capex is placed in-service in each year of the project.

1

(\$000)		Prior	2009	2010	2011	2012	Post-2012	Total
Capital Outlay		\$0.0	\$0.0	\$154,740.0	\$132,360.0	\$129,340.0	\$0.0	\$416,440.0
Property Taxes	2009	-	-	-	-	-	-	\$0.0
	2010	-	-	1,160.6	-	-	-	\$1,160.6
	2011	-	-	2,367.5	992.7	-	-	\$3,360.2
	2012	-	-	2,414.9	2,025.1	970.1	-	\$5,410.0
	2013	-	-	2,463.2	2,065.6	1,978.9	-	\$6,507.7
	2014	-	-	2,512.4	2,106.9	2,018.5	-	\$6,637.8
	2015	-	-	2,562.7	2,149.1	2,058.8	-	\$6,770.6
	2016	-	-	2,613.9	2,192.0	2,100.0	-	\$6,906.0
	2017	-	-	2,666.2	2,235.9	2,142.0	-	\$7,044.1
	2018	-	-	2,719.5	2,280.6	2,184.9	-	\$7,185.0
	2019	-	-	2,773.9	2,326.2	2,228.6	-	\$7,328.7
	2020	-	-	2,829.4	2,372.7	2,273.1	-	\$7,475.3
	2021	-	-	2,886.0	2,420.2	2,318.6	-	\$7,624.8
	2022	-	-	2,943.7	2,468.6	2,365.0	-	\$7,777.3
	2023	-	-	3,002.6	2,518.0	2,412.3	-	\$7,932.8
	2024	-	-	3,062.6	2,568.3	2,460.5	-	\$8,091.5
	2025	-	-	3,123.9	2,619.7	2,509.7	-	\$8,253.3
	2026	-	-	3,186.4	2,672.1	2,559.9	-	\$8,418.4
	2027	-	-	3,250.1	2,725.5	2,611.1	-	\$8,586.7
	2028	-	-	3,315.1	2,780.0	2,663.3	-	\$8,758.5

Maintenance Expense: Maine Power Connection (MPC)

Incremental costs of operating and maintaining the interconnection have not been sufficiently developed. The primary O&M cost would be vegetation management along the transmission R-O-W. O&M costs will be fully recoverable through Regional Network Service transmission rates so there are no material financial impacts other than minor regulatory lag

Annual inflation rate: 3.0%

Maintenance Expense INCREASE

	Maintenance Expense Item 1	Maintenance Expense Item 2	Maintenance Expense Item 3	Maintenance Expense Item 4	Maintenance Expense Item 5
Frequency, yrs					
Labor					
Staff					
Hours					
Per hour rate					
Overhead					
Unplanned					
Vehicle A					
Hours					
Per hour rate					
Overhead					
Vehicle B					
Hours					
Per hour rate					
Overhead					
TOTAL	\$ -	\$ -	\$ -	\$ -	\$ -

Distribution line maintenance = ft x \$0.40/ft/yr = \$ - /yr

	(1)	(2)	(3)	(4)	(5)	(6)	(7)=(1)+(2)+(3)+(4)+(5)+(6)	(8)
	Maintenance Expense Item 1	Maintenance Expense Item 2	Maintenance Expense Item 3	Maintenance Expense Item 4	Maintenance Expense Item 5	Distribution Line Maintenance	TOTAL	TOTAL with Inflation
Year	(in 1st yr \$)	(in 1st yr \$)	(in 1st yr \$)	(in 1st yr \$)	(in 1st yr \$)	(in 1st yr \$)	(in 1st yr \$)	(in actual yr \$)
2009						-	-	-
2010						-	-	-
2011						-	-	-
2012						-	-	-
2013						-	-	-
2014						-	-	-
2015						-	-	-
2016						-	-	-
2017						-	-	-
2018						-	-	-
2019						-	-	-
2020						-	-	-
2021						-	-	-
2022						-	-	-
2023						-	-	-
2024						-	-	-
2025						-	-	-
2026						-	-	-
2027						-	-	-
2028						-	-	-

Maintenance Expense DECREASE

	Maintenance Expense Item 1	Maintenance Expense Item 2	Maintenance Expense Item 3	Maintenance Expense Item 4	Maintenance Expense Item 5
Frequency, yrs					
Labor					
Staff					
Hours					
Per hour rate					
Overhead					
Unplanned					
Vehicle A					
Hours					
Per hour rate					
Overhead					
Vehicle B					
Hours					
Per hour rate					
Overhead					
TOTAL	\$ -	\$ -	\$ -	\$ -	\$ -

Distribution line maintenance = - ft x \$0.40/ft/yr = \$ - /yr

Year	(1) Maintenance Expense Item 1 (in 1st yr \$)	(2) Maintenance Expense Item 2 (in 1st yr \$)	(3) Maintenance Expense Item 3 (in 1st yr \$)	(4) Maintenance Expense Item 4 (in 1st yr \$)	(5) Maintenance Expense Item 5 (in 1st yr \$)	(6) Distribution Line Maintenance (in 1st yr \$)	(7)=(1)+(2)+ (3)+(4)+(5)+(6) TOTAL (in 1st yr \$)	(8) TOTAL with Inflation (in actual yr \$)
2009						-	-	-
2010						-	-	-
2011						-	-	-
2012						-	-	-
2013						-	-	-
2014						-	-	-
2015						-	-	-
2016						-	-	-
2017						-	-	-
2018						-	-	-
2019						-	-	-
2020						-	-	-
2021						-	-	-
2022						-	-	-
2023						-	-	-
2024						-	-	-
2025						-	-	-
2026						-	-	-
2027						-	-	-
2028						-	-	-

Maine Power Connection (MPC)

Best Economic Choice

Listing of Alternatives Considered	Reason for Not Selecting this Alternative	10-Year NPV
Construct 115 or 345 kV line to close 25 mile gap between MPS & New England grid.	Does not provide sufficient transfer capability to allow large amounts of green power to flow from northern Maine to the New England grid, thus substantially reducing the benefits of an interconnection.	No analysis necessary.