

DG 10 -
Concord Steam
Cost-Benefit Ratio Summary

Schedule CB-1

**Cogen Turbines - Benefit - Cost Analysis
Including Savings from Cogeneration of Electricity**

*Estimated cost to purchase all electricity from Unitil
(If there was no self generation)* \$ 193,123

Cost of electricity with self generation

Purchased power from Unitil \$ 86,657

Cost to generate electricity \$ 119,850

Subtotal all costs \$ 206,507

Revenue from sale of power \$ 75,133

Net cost of electricity for CSC \$ 131,374

Benefits:

Sale of Electricity to ISO \$ 75,133

Savings from generating own electricity in lieu of purchasing from Unitil \$ 106,466

Total Benefits from continuing Cogen \$ 181,599

Costs:

Operating Expenses, Return and Fuel Costs for Self Generation \$ 119,850

\$ 119,850

Benefits in Excess of Costs \$ 61,749

Benefit/Cost Ratio 1.52

DG 10 -
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Benefit Computation

Schedule CB-2

Benefits

Sale of Power to ISO-New England:

<i>Volume of kWh's sold from 8/09 - 7/10</i>		1,495,996
Revenues received	\$	75,133
Rate per kWh	\$	0.050

<i>Estimated Cost if there was no Self Generation:</i>	\$	193,123
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Savings from self-generation of Electricity:

<i>Power purchased from Unitil</i>	\$	86,657
Value of avoided power purchase from Unitil	\$	106,466

Self generated Electricity Consumed (Excl. kWh purchased from Unitil)		1,076,804
Average Unitil cost \$/kWh	\$	0.10

Total Benefits from Sales to ISO and Self-Generation

Turbine Generator
 Operating/Maintenance Costs

Cost of Sales:	7/09-6/10	7/09-12/09	1/10-6/10
5-7051 Consumables/Mech.	\$ 765	433	332
5-7052 Pipe fittings	\$ 350		350
5-7053 Valves	\$ 605		605
5-7055 Misc. small tools	\$ 109	109	
5-7060 Consumables/Elec.	\$ -		
5-7065 Consumables/Structural Repairs	\$ 33	33	
5-7085 Rental Fees/Generator Maint.	\$ -		
5-7095 Repair Parts/Mech.	\$ 1,458	1189	269
5-7100 Repair Parts/Elec.	\$ 58	58	0
5-7110 Contract Maintenance & Repair	\$ -		0
Total Cost of Sales	<u>\$ 3,378</u>		

Expenses:		
Payroll	Maintenance - 40hrs @ \$25/hr	\$ 1,000
Depreciation		\$ 20,485
Amortization		\$ 436
Property Tax		\$ 1,016
Employer FICA		\$ 77
Bank Fees		
Telephone		\$ 600
Other Consultants		
Insurance/Plant		\$ 6,281
Employees Ins. Med.,etc.		\$ 200
Uniforms		
Total		<u>\$ 30,095</u>

Total Revenue Deductions \$ 33,473

Net Operating Income (Loss) Before Taxes
 Federal Income Taxes
 Net Operating Income/(Loss) After Taxes \$ -

Summary of Revenue Requirements:

Rate Base	\$ 144,044
Rate of Return	7.24%
Allowed Return	<u>\$ 10,429</u>
Net Operating Income, per above	\$ -
Revenue Requirements Deficiency/(Surplus)	<u>\$ 10,429</u>
Gross-up for Taxes (x 1.68)	<u><u>\$ 17,531</u></u>

DG 10 -
Concord Steam
Cost

Schedule CB-4

Costs

	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Total
Fuel:													
Total kWh's Generated	532,800	427,200	352,800	182,400	136,800	9,600	50,400	16,800	2,400	14,400	343,200	504,000	2,572,800
Total kWh's Sold	292,687	205,897	161,465	81,438	35,459	1,467	49,805	15,429	3,369	15,155	337,445	296,380	1,495,996
\$ received from sales	\$ 18,997	\$ 11,365	\$ 6,048	\$ 2,902	\$ 1,526	\$ 154	\$ 1,575	\$ 555	\$ 104	\$ 696	\$ 12,386	\$ 18,825	\$ 75,133
Btu's/kWh	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Btu/Lb Steam @ 125 psig. 430 F	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150	1,150
Total M Lbs of Steam	1,853	1,486	1,227	634	476	33	175	58	8	50	1,194	1,753	8,949
Fuel cost \$/MMBtu	4.06	4.17	5.21	5.29	5.76	6.33	5.35	5.71	6.03	5.24	5.06	4.78	
Fuel Cost per MLb	\$ 7.79	\$ 8.00	\$ 9.99	\$ 10.14	\$ 11.05	\$ 12.13	\$ 10.25	\$ 10.94	\$ 11.55	\$ 10.04	\$ 9.71	\$ 9.16	
Total Fuel Cost of Steam	\$ 14,430	\$ 11,883	\$ 12,257	\$ 6,431	\$ 5,256	\$ 405	\$ 1,796	\$ 639	\$ 96	\$ 503	\$ 11,587	\$ 16,052	\$ 81,336
Total Fuel Cost of Steam	\$ 14,430	\$ 11,883	\$ 12,257	\$ 6,431	\$ 5,256	\$ 405	\$ 1,796	\$ 639	\$ 96	\$ 503	\$ 11,587	\$ 16,052	\$ 81,336
Overhead:	\$ 2,789	\$ 2,789	\$ 2,789	\$ 2,789	\$ 2,789	\$ 2,789	\$ 2,789	\$ 2,789	\$ 2,789	\$ 2,789	\$ 2,789	\$ 2,789	\$ 33,473
Total Overhead	\$ 2,789	\$ 2,789	\$ 2,789	\$ 2,789	\$ 2,789	\$ 2,789	\$ 2,789	\$ 2,789	\$ 2,789	\$ 2,789	\$ 2,789	\$ 2,789	\$ 33,473
Return on Investment													
Rate Base													\$ 144,044
Rate of Return													3.50%
Total Return on Investment	\$ 942	\$ 942	\$ 942	\$ 942	\$ 942	\$ 942	\$ 942	\$ 942	\$ 942	\$ 942	\$ 942	\$ 942	\$ 5,042
Grand Total Costs	\$ 18,161	\$ 15,614	\$ 15,988	\$ 10,162	\$ 8,987	\$ 4,136	\$ 5,527	\$ 4,370	\$ 3,827	\$ 4,234	\$ 15,318	\$ 19,783	\$ 119,850
Total Volume kWh's													<u>2,572,800</u>
Rate per kWh													<u>\$ 0.04658</u>

Purchased Power Costs
 Cost Benefit Analysis
 09/15/2008

DG 10 -
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 Purchased Power Costs

Schedule CB-5

	Purchased Power kWh	Demand Charge	Energy Charge	Delivery Charge	Total	Cost \$/kWh
Jan-10	202	\$ 1,839	\$ 19	\$ 4	\$ 1,862	0.11
Feb-10	768	\$ 1,930	\$ 73	\$ 15	\$ 2,018	0.11
Mar-10	4,426	\$ 2,485	\$ 378	\$ 87	\$ 2,950	0.11
Apr-10	39,408	\$ 1,988	\$ 3,305	\$ 771	\$ 6,064	0.10
May-10	22,733	\$ 1,988	\$ 1,653	\$ 445	\$ 4,086	0.09
Jun-10	106,762	\$ 1,988	\$ 7,411	\$ 2,089	\$ 11,488	0.09
Jul-09	71,242	\$ 2,235	\$ 5,603	\$ 1,550	\$ 9,388	0.10
Aug-09	111,053	\$ 1,967	\$ 8,063	\$ 2,198	\$ 12,228	0.09
Sep-09	139,008	\$ 1,938	\$ 9,780	\$ 2,720	\$ 14,438	0.09
Oct-09	112,493	\$ 1,938	\$ 8,301	\$ 2,201	\$ 12,440	0.09
Nov-09	47,059	\$ 2,298	\$ 3,406	\$ 921	\$ 6,625	0.09
Dec-09	12,172	\$ 1,850	\$ 982	\$ 238	\$ 3,070	0.10
Total	667,326	\$ 24,444	\$ 48,974	\$ 13,239	\$ 86,657	

Average Cost/ \$ 0.10