

RETScreen Financial Summary - Combined heating & power project

Annual fuel cost summary - Epping School - SAU - Epping New Hampshire				
	Peak load kW	Energy demand MWh	End-use energy rate \$/MWh	Fuel cost \$
<b>Base case system</b>				
Power	21	97	150.00	14,569
Heating	100	228	84.12	19,141
Fuel cost - base case				<b>33,711</b>
<b>Proposed case system</b>				
	Capacity kW	Energy delivered MWh	End-use energy rate \$/MWh	Fuel cost \$
Power	30	95	160.42	15,309
Heating	164	221	39.45	8,709
Fuel cost - proposed case				<b>24,018</b>

Yearly cash flows				
Year	Pre-tax \$	After-tax \$	Cumulative \$	
0	(31,508)	(31,508)	(31,508)	(31,508)
1	9,521	9,521	(21,987)	(21,987)
2	9,711	9,711	(12,276)	(12,276)
3	9,905	9,905	(2,371)	(2,371)
4	10,103	10,103	7,732	7,732
5	10,305	10,305	18,038	18,038
6	10,512	10,512	28,549	28,549
7	10,722	10,722	39,271	39,271
8	10,936	10,936	50,207	50,207
9	11,155	11,155	61,362	61,362
10	8,940	8,940	70,302	70,302
11	11,606	11,606	81,908	81,908
12	11,838	11,838	93,746	93,746
13	12,074	12,074	105,820	105,820
14	12,316	12,316	118,136	118,136
15	12,562	12,562	130,698	130,698
16	12,814	12,814	143,512	143,512
17	13,070	13,070	156,582	156,582
18	13,331	13,331	169,913	169,913
19	13,598	13,598	183,511	183,511
20	10,898	10,898	194,409	194,409

Financial parameters			
<b>General</b>			
Fuel cost escalation rate	%		2.0%
Inflation rate	%		2.0%
Discount rate	%		10.0%
Project life	yr		20
<b>Finance</b>			
Incentives and grants	\$		8,000
Debt ratio	%		0.0%
Equity	\$		39,508
<b>Income tax analysis</b>			

Project costs and savings/income summary			
<b>Initial costs</b>			
Feasibility study	5.1%	\$	2,000
Development	5.1%	\$	2,000
Engineering	5.1%	\$	2,000
Power system	69.6%	\$	27,500
Heating system	1.8%	\$	712
Balance of system & misc.	13.4%	\$	5,296
<b>Total initial costs</b>	<b>100.0%</b>	<b>\$</b>	<b>39,508</b>
<b>Incentives and grants</b>			
		\$	8,000
<b>Annual costs and debt payments</b>			
O&M		\$	420
Fuel cost - proposed case		\$	24,018
<b>Total annual costs</b>		<b>\$</b>	<b>24,438</b>
<b>Periodic costs (credits)</b>			
Overhaul - 10 yrs		\$	2,000
<b>Annual savings and income</b>			
Fuel cost - base case		\$	33,711
Electricity export income		\$	61
<b>Total annual savings and income</b>		<b>\$</b>	<b>33,772</b>
<b>Financial viability</b>			
Pre-tax IRR - equity	%		31.9%
Pre-tax IRR - assets	%		31.9%
After-tax IRR - equity	%		31.9%
After-tax IRR - assets	%		31.9%
Simple payback	yr		3.4
Equity payback	yr		3.2
Net Present Value (NPV)	\$		59,832
Annual life cycle savings	\$/yr		7,028
Benefit-Cost (B-C) ratio	-		2.51
GHG reduction cost	\$/tCO2		(125)

Annual income			
<b>Customer premium income (rebate)</b>			
			<input type="checkbox"/>

Electricity export income			
Electricity exported to grid	MWh		1
Electricity export rate	\$/MWh		50.00
Electricity export income	\$		61
Electricity export escalation rate	%		2.0%

Clean Energy (CE) production income			
			<input type="checkbox"/>

GHG reduction income			
<input type="checkbox"/>			
Net GHG reduction	tCO2/yr		56
Net GHG reduction - 20 yrs	tCO2		1,123

