Return on Investment Analysis

Property: Marriott Full Service Hotel

Project Title: Boiler Plant Replacement

Project Description: Replacement of heating and potable hot water plant. Comparison of Atmospheric boiler plant with Condensing boiler plant.

Cash Flow Summary:	5%	:NPV Discount	Rate	2%	Inflation F	Rate					8 9 10 11 12 13 14 15								
					Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year
ltem	Description	NPV	Undiscounted Total Cash Flow	Initial Investment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Aerco boiler equipment	5-2,500 btuh Boilers, 3-SmartPlate water heaters, onboard controls, accessories	(308,400)	(308,400)	(308,400)															
2 Boiler Installation	Installation of boiler plant, complete	(275,600)	(275,600)	(275,600)															
3 Ancillary Equipment	Pumps, etc. not related to the boiler plant - Included in installation	0	0	0															
4 Energy Savings	Conservative estimate of annual gas and electric energy savings	211,569	311,282		18,000	18,360	18,727	19,102	19,484	19,873	20,271	20,676	21,090	21,512	21,942	22,381	22,828	23,285	23,751
5 Hot Water Storage Tank	Abandoned in place - Not required	0	0																
6		0	0																
	Cost of temporary boilers required by permitting and contractor delays.	(153,000)	(153,000)	(153,000)															
8		0	0																
9		0	0																
10		0	0																
Totals:		(525,431)	(425,718)	(737,000)	18,000	18,360	18,727	19,102	19,484	19,873	20,271	20,676	21,090	21,512	21,942	22,381	22,828	23,285	23,751

Cash Flow Summary:	t Rate	2%	Inflation R	ate	Note: Costs are negative numbers, Savings or Revenues are positive numb											numbers.			
					Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year
Item	Description	NPV	Undiscounted Total Cash Flow	Initial Investment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Atmospheric Boilers	2 heat boilers, 2 hot water boilers, fully installed	(275,000)	(275,000)	(275,000)															
2 Temporary Boilers	4 weeks of additional temporary boilers due to the increased lead time (\$16K rental, \$2k/day operating).	(153,000)	(153,000)	(153,000)															
3 Ancillary Equipment	Pumps, etc. not related to the boiler plant	(57,000)	(57,000)	(57,000)															
4 Hot Water Storage Tank	Replacement of existing hot water storage tank during chiller replacement to minimize costs.	(161,905)	(170,000)			(170,000)													
5 Mixing Valves	Replacement of inoperable mixing valves with new brand standard electronic valves.	(45,000)	(45,000)	(45,000)															
6 Shorter life	Replacement of water boilers 5 years earlier than Aerco heat exchangers.	(130,952)	(137,500)											(137,500)					
7 Increased maintenance expense	Increased costs of maintaining higher temperature direct fire boilers	(1,175)	(1,729)		(100)	(102)	(104)	(106)	(108)	(110)	(113)	(115)	(117)	(120)	(122)	(124)	(127)	(129)	(132)
8		0	0																
9		0	0																
10		0	0																
	Totals:	(824,033)	(839,229)	(530,000)	(100)	(170,102)	(104)	(106)	(108)	(110)	(113)	(115)	(117)	(137,620)	(122)	(124)	(127)	(129)	(132)

Difference in cash flow:	NPV	Undiscounted	Initial	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	298,601	413,511	(207,000)	18,100	188,462	18,831	19,208	19,592	19,984	20,384	20,791	21,207	159,131	22,064	22,505	22,955	23,414	23,883
	Si	mple Payback:	(207,000)	(188,900)	(438)	18,393	37,601	57,193	77,177	97,561	118,352	139,559	298,690	320,754	343,259	366,214	389,628	413,511