

Project Finance Report

Property:	Office - Energy Efficiency	Report Date:	December 29, 2015
		Prepared By:	Ken Gallagher
Property Type:	Office - Large (>50,000 SF)	Company:	Colorado C-PACE Program
Property Size:	112,000 SF		
Baseline Period:	Jan 2012 to Dec 2012		
Scenario:	100% C-PACE Financed \$2,042,500 6% 20 Yrs		



Financial Summary

The table below displays a financial summary of the recommended Energy Conservation Measures (ECMs).

100% Financed Scenario: 20 Year Term at 6% Interest Rate			
	Projected	'Worst' Case	'Best' Case
Financing			
Borrower Equity Contribution (100% financed):	\$0	\$0	\$0
Project Amount Financed:	\$1,992,683	\$2,238,883	\$1,746,483
Program Administration Cost Financed:	\$49,817	\$55,972	\$43,662
Total Amount Financed:	\$2,042,500	\$2,294,855	\$1,790,145
Project Cash Flows			
Projected Savings Over Finance Term:	\$5,284,291	\$4,755,862	\$5,812,720
Projected Debt Service:	\$3,511,945	\$3,945,853	\$3,078,037
Net Cash Flows Over Finance Term:	\$1,772,346	\$810,009	\$2,734,683
Projected Annual Debt Service:	\$175,597	\$197,293	\$153,902
Projected Average Annual Savings (net of debt service):	\$88,617	\$40,500	\$136,734
Key Financial Metrics			
Savings to Investment Ratio (SIR):	1.50	1.20	1.88
Net Present Value (NPV at 6% discount rate):	\$1,070,267	\$512,987	\$1,627,547
Time to Positive Cash Flow:	Immediate	Immediate	Immediate
Asset Value Increase at 7.50% CAP Rate:	\$3,295,021	\$2,965,519	\$3,624,524

Projections include annual utility price escalation factors of 3.0% for electricity and 3.0% for fuels, as well as an annual savings degradation factor of 1.0%. Estimated 'Best' and 'Worst' cases are calculated using uncertainty levels of $\pm 10\%$ for projected costs (applied to total installation cost, excluding incentives) and $\pm 10\%$ for projected savings. One-time incentives applied to Projected, 'Worst' and 'Best' cases are unaffected by uncertainty assumptions. The 'Worst' case is comprised of the upper range of costs and the lower range of savings. The 'Best' case is comprised of the lower range of costs and the upper range of savings. The Asset Value Increase calculation assumes debt service payments are treated as loan payments that do not impact the building's net operating income.

Projected Cash Flows

The table below displays the projected annual cash flows relating to implementing the ECMs. The number of years displayed is consistent with the financing term defined in the Key Assumptions section.

100% Financed Scenario: 20 Year Term at 6% Interest Rate

Year	Project Savings	Financing Costs	Net Cash Flows		
			Projected	'Worst' Case	'Best' Case
Borrower Equity Contribution			(\$0)	(\$0)	(\$0)
1	\$256,807	\$175,597	\$81,210	\$33,834	\$128,586
2	\$259,564	\$175,597	\$83,967	\$36,315	\$131,619
3	\$264,724	\$175,597	\$89,127	\$40,959	\$137,295
4	\$269,987	\$175,597	\$94,389	\$45,695	\$143,083
5	\$275,354	\$175,597	\$99,756	\$50,526	\$148,987
6	\$278,203	\$175,597	\$102,606	\$53,090	\$152,121
7	\$283,733	\$175,597	\$108,136	\$58,067	\$158,205
8	\$289,373	\$175,597	\$113,776	\$63,143	\$164,409
9	\$295,126	\$175,597	\$119,529	\$68,321	\$170,737
10	\$300,993	\$175,597	\$125,395	\$73,601	\$177,190
11	\$306,976	\$175,597	\$131,379	\$78,986	\$183,772
12	\$291,979	\$175,597	\$116,382	\$65,489	\$167,276
13	\$297,784	\$175,597	\$122,186	\$70,713	\$173,660
14	\$294,479	\$175,597	\$118,882	\$67,739	\$170,025
15	\$300,333	\$175,597	\$124,736	\$73,007	\$176,465
16	\$202,611	\$175,597	\$27,014	(\$14,942)	\$68,971
17	\$206,639	\$175,597	\$31,042	(\$11,318)	\$73,401
18	\$199,222	\$175,597	\$23,624	(\$17,993)	\$65,242
19	\$203,182	\$175,597	\$27,585	(\$14,429)	\$69,598
20	\$207,221	\$175,597	\$31,624	(\$10,794)	\$74,041
Totals:	\$5,284,291	\$3,511,945	\$1,772,346	\$810,009	\$2,734,683

Projections include ECM Life Cycle Savings Over Finance Term as defined in the ECM Recommendations Financial Summary. ECM savings are assumed to persist over the term of each ECM's EUL and terminate at each ECM's EUL end-date or the end of the Finance Term, whichever is earlier. Projections also include annual utility price escalation factors of 3.0% for electricity and 3.0% for fuels, and an annual savings degradation factor of 1.0% (compounded monthly beginning in Year 2). 'Best' and 'Worst' cases are calculated using uncertainty levels of $\pm 10\%$ for projected costs (applied to total installation cost, excluding incentives) and $\pm 10\%$ for projected savings. One-time incentives applied to Projected, 'Worst' and 'Best' cases and annual incentives applied to cash flows are unaffected by uncertainty assumptions. The 'Worst' case is comprised of the upper range of costs and the lower range of savings. The 'Best' case is comprised of the lower range of costs and the upper range of savings.

Scenario Summary

The table below displays the summary analysis of implementing the recommended ECMs.

Cost Analysis					
Total Implementation Cost:					\$2,462,000
Total Utility Incentives:					(\$469,317)
Total Tax Incentives:	\$0				
Cash Value of Tax Incentives (at 30.0%):					\$0
Renewables Tax Credit Amount:					\$0
Net Project Cost:					\$1,992,683
Projections					
Projected First Year Savings:					\$256,807 (\$21,401 avg./month)
Projected Project Start Date:					April 01, 2015
Projected Project Completion Date:					February 28, 2016
Effective Useful Life (cost-weighted avg.):					19.9
Effective Useful Life (savings-weighted avg.):					21.6
CO2e Emissions					
Annual CO2 Emissions Reduction:					1,505.3 tons/year
Consumption Analysis					
	Baseline Consumption	Projected Consumption	Projected Savings	Units	Projected % Savings
Total EUI:	112.2	38.2	74.0	kBTU/SF	66.0%
Total Consumption:	12,563	4,277	8,286	mmBTU/yr	66.0%
Electric Consumption:	2,193,100	826,849	1,366,251	kWh/yr	62.3%
Electric Demand:			382.0	kW	
Fuels:	50,797	14,556	36,240	therms/yr	71.3%
Baseline consumption values are from the most recent 12 months of the baseline period Jan 2012 to Dec 2012. Projected consumption values are calculated by subtracting the sum of the recommended ECMs projected savings from the baseline consumption during the baseline period.					
Job Creation*:					
	Direct	Indirect	Total	Percent Local Jobs	Local (in-state)
Job-Years Created:	19	30	49	100%	49
* Job-years created values are based on methodology outlined in Navigant Consulting's, March 2009, Renewable Energy/Energy Efficient Economy Baseline Study.					

Key Assumptions

The table below displays the key assumptions of implementing the recommended ECMs.

Building	
Income Tax Rate:	30.0 %
Assumed Capitalization (CAP) Rate:	7.50 %
Project	
Fiscal Year Start Date (month day):	January 01
Do Incentives Go To Building Owner?	Yes
Percent Local Jobs (%):	100 % (in-state labor allocation)
Assumptions Used to Calculate Projected Savings	
Annual Electric Utility Price Escalation:	3.0 %
Annual Fuels Utility Price Escalation:	3.0 %
Annual Savings Degradation Factor:	1.0 %
Methodologies Used to Calculate Savings Projections	
Energy Consumption Baseline Data:	Conventional (Utility bill-based, no adjustments)
Savings Estimates Uncertainty Level:	± 10 % (ASHRAE Level II energy audit with modeling)
Costs Estimates Uncertainty Level:	± 10 % (Firm quotations for primary ECMs)
Financing	
Percent Financed:	100 %
Annual Interest Rate:	6.00 %
Term:	20 Years
Discount Rate (for NPV calculation):	6.0 %
Program Administration Cost (%):	2.500 % of project finance amount
The uncertainty levels of ± 10% for projected costs and ± 10% for projected savings are consistent with this project's scope of work.	

ECM Recommendations Financial Summary

The table below displays a financial summary of the recommended ECMs.

ECM Name	Effective Useful Life (EUL) (years)	Gross Installed Cost	One-Time Utility Incentives	Net Installed Cost	Annual Savings & Incentives (First Year)	Life Cycle Savings Over EUL	Life Cycle Savings Over Finance Term	Simple Payback Term (years)
Pumps: High Efficiency (associated w/ Chiller, HW): Replacement w/VFDs: ID: 14.1.2: Convert to Variable Volume	20.0	\$14,000	(\$5,600)	\$8,400	\$11,632	\$279,860	\$279,860	0.72
Maintenance Practices: Improvements to Increase EE: Cleaning: ID:10.1.1: Plate & Frame Heat Exchangers	5.0	\$4,000	(\$800)	\$3,200	\$2,400	\$12,396	\$12,396	1.33
HVAC-Heating: Boiler Controls: Uncategorized: ID:7.1.3: Pumps	15.0	\$15,000	(\$6,000)	\$9,000	\$3,748	\$64,212	\$64,212	2.40
Pumps: High Efficiency (associated w/ Chiller, HW): Replacement w/VFDs: ID: 14.1.2: Address oversized HW pumps	20.0	\$14,000	(\$5,600)	\$8,400	\$2,400	\$57,743	\$57,743	3.50
Pumps: High Efficiency (associated w/ Chiller, HW): Add VFD and Controls: ID:14.1.1: Variable Primary Flow	25.0	\$187,000	(\$62,436)	\$124,564	\$31,218	\$989,706	\$751,089	3.99
HVAC-Air Conditioning: Cooling Towers: Uncategorized: ID:6.3.2: Pumping System	13.0	\$45,000	(\$18,000)	\$27,000	\$3,991	\$58,056	\$58,056	6.77
HVAC-Ventilation: Air Handling Unit: w/ Damper Modification: ID:8.1.4	20.0	\$80,000	(\$14,471)	\$65,529	\$7,223	\$173,782	\$173,782	9.07
Building Envelope: Windows: Replacement: Low-E: ID:1.13.3.2	25.0	\$1,000,000	(\$251,462)	\$748,538	\$81,024	\$2,568,707	\$1,949,395	9.24
Pumps: High Efficiency (associated w/ Chiller, HW): Add VFD and Controls: ID:14.1.1	13.0	\$57,000	(\$6,429)	\$50,571	\$3,215	\$46,768	\$46,768	15.73
HVAC-Air Conditioning: Cooling Towers: Replacement w/VFDs: ID: 6.3.1	22.0	\$222,000	(\$24,976)	\$197,024	\$12,113	\$327,377	\$291,432	16.27
Controls: HVAC Energy Management System (EMS): Direct Digital Control: ID:4.4.1	11.0	\$354,000	(\$34,291)	\$319,709	\$17,145	\$206,788	\$206,788	18.65
HVAC-Air Conditioning: Chillers: Replacement w/VFDs and High Efficiency Motors: ID:6.1.6	17.0	\$470,000	(\$16,645)	\$453,355	\$8,322	\$164,956	\$164,956	54.48
ECM Related Costs / Savings Name	Term (years)	Cost	One-Time Incentives	Net Cost	Annual Savings & Incentives (First Year)	Life Cycle Savings Over EUL	Life Cycle Savings Over Finance Term	
ECM Related Costs/Savings: Costs: Data Center Removal: ID:5.1.5	15.0	\$0	-	\$0	\$74,132	\$1,270,062	\$1,270,062	
ECM Related Costs/Savings: Savings: Utility Incentive: Comprehensive Bonus (multi-ECMs): ID:5.2.8.1	1.0	\$0	(\$22,607)	(\$22,607)	\$0	\$0	\$0	
ECM Related Costs/Savings: Costs: County Servicing Fee: ID:5.1.25	20.0	\$0	-	\$0	(\$1,756)	(\$42,248)	(\$42,248)	
Project Totals:		\$2,462,000	(\$469,317)	\$1,992,683	\$256,807	\$6,178,165	\$5,284,291	
Weighted EUL (to set finance term):				Savings to Investment Ratio (SIR): 1.50				
19.9 Cost-weighted avg.				(Financing Term: 20 Years)				
21.6 Savings-weighted avg.								
ECM Life Cycle Savings Over EUL are calculated based on each ECM's EUL. These savings are assumed to persist over the term of each ECM's EUL and terminate at each ECM's EUL end-date. ECM Life Cycle Savings projections, over EUL and Finance Term, include annual utility price escalation factors of 3.0% for electricity and 3.0% for fuels, as well as an annual savings degradation factor of 1.0%.								

ECM Recommendations Savings Summary

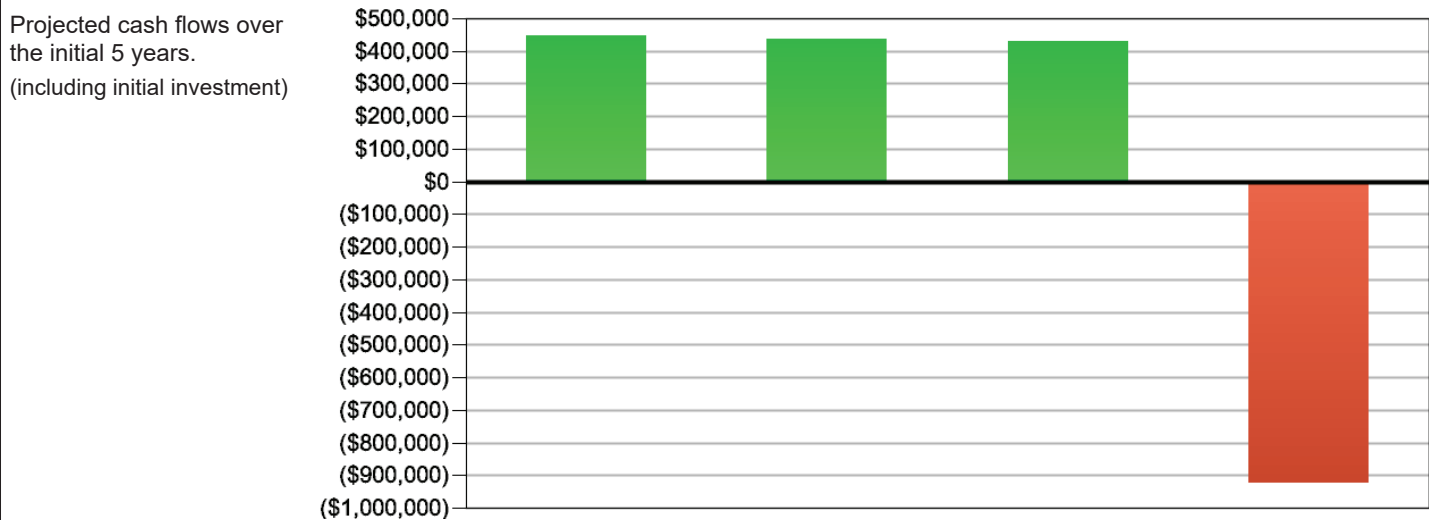
The table below displays a summary of the projected energy savings from recommended ECMs.

ECM Name	Effective Useful Life (EUL) (years)		Projected Annual Unit Savings	Life Cycle Unit Savings Over EUL	Life Cycle Unit Savings Over Finance Term	Projected % Savings Over Baseline
Pumps: High Efficiency (associated w/Chiller, HW): Replacement w/VFDs: ID:14.1.2: Convert to Variable Volume	20.0	Electric:	77,545 kWh/yr	1,418,780 kWh	1,418,780 kWh	3.5%
Maintenance Practices: Improvements to Increase EE: Cleaning: ID:10.1.1: Plate & Frame Heat Exchangers	5.0	Electric:	16,000 kWh/yr	78,710 kWh	78,710 kWh	0.7%
HVAC-Heating: Boiler Controls: Uncategorized: ID:7.1.3: Pumps	15.0	Electric: Fuels:	-3,084 kWh/yr 2,807 therms/yr	-43,356 kWh 39,462 therms	-43,356 kWh 39,462 therms	(0.1)% 5.5%
Pumps: High Efficiency (associated w/Chiller, HW): Replacement w/VFDs: ID:14.1.2: Address oversized HW pumps	20.0	Electric:	21,431 kWh/yr	392,106 kWh	392,106 kWh	1.0%
Pumps: High Efficiency (associated w/Chiller, HW): Add VFD and Controls: ID:14.1.1: Variable Primary Flow	25.0	Electric: Demand:	208,121 kWh/yr 11 kW	4,646,779 kWh	3,807,826 kWh	9.5%
HVAC-Air Conditioning: Cooling Towers: Uncategorized: ID:6.3.2: Pumping System	13.0	Electric:	26,605 kWh/yr	327,320 kWh	327,320 kWh	1.2%
HVAC-Ventilation: Air Handling Unit: w/Damper Modification: ID: 8.1.4	20.0	Electric: Fuels: Demand:	47,350 kWh/yr 63 therms/yr 31 kW	866,326 kWh 1,153 therms	866,326 kWh 1,153 therms	2.2% 0.1%
Building Envelope: Windows: Replacement: Low-E: ID:1.13.3.2	25.0	Electric: Fuels: Demand:	193,755 kWh/yr 34,640 therms/yr 167 kW	4,326,025 kWh 773,418 therms	3,544,982 kWh 633,781 therms	8.8% 68.2%
Pumps: High Efficiency (associated w/Chiller, HW): Add VFD and Controls: ID:14.1.1	13.0	Electric:	21,431 kWh/yr	263,665 kWh	263,665 kWh	1.0%
HVAC-Air Conditioning: Cooling Towers: Replacement w/VFDs: ID: 6.3.1	22.0	Electric: Demand:	80,756 kWh/yr 81 kW	1,609,700 kWh	1,477,529 kWh	3.7%
Controls: HVAC Energy Management System (EMS): Direct Digital Control: ID:4.4.1	11.0	Electric: Demand:	114,302 kWh/yr 26 kW	1,201,554 kWh	1,201,554 kWh	5.2%
HVAC-Air Conditioning: Chillers: Replacement w/VFDs and High Efficiency Motors: ID:6.1.6	17.0	Electric: Demand:	55,483 kWh/yr -3 kW	875,465 kWh	875,465 kWh	2.5%
Project Totals:			8,286 mmBTU/yr	158,389 mmBTU	138,446 mmBTU	66.0%
Project Subtotals:		Electric:	1,366,251 kWh/yr	23,084,420 kWh	21,332,253 kWh	62.3%
		Fuels:	3,624 mmBTU/yr	79,618 mmBTU	65,654 mmBTU	71.3%
		Demand:	382.0 kW			
Life Cycle Unit Savings projections include an annual savings degradation factor of 1.0%. Projected % Savings for each ECM is calculated as the ratio of the Projected Annual Unit Savings to the total energy consumption during the Baseline Period for the corresponding energy type. Project Totals are normalized to mmBTU using conversion factors of 3.4123 kWh/mmBTU and 10 therms/mmBTU.						

Scenario Comparison

The table below displays a summary comparison for the selected scenarios.

	Recommended	Alternatives		
	Cap Provider A 20 Year Term 6% Rate	Cap Provider B 20 Year Term 6.15% Rate	Cap Provider C 20 Year Term 6.25% Rate	Cap Provider D 5 Year Term 5% Rate
Project Costs				
Net Installed Cost	\$1,992,683	\$1,992,683	\$1,992,683	\$1,992,683
Percent Financed	100.0%	100.0%	100.0%	80.0%
Borrower Equity Contribution	\$0	\$0	\$0	\$398,537
Finance Terms				
Interest Rate	6.00%	6.15%	6.25%	5.00%
Finance Term	240 mo.	240 mo.	240 mo.	60 mo.
Annual Debt Service	\$175,597	\$177,725	\$179,151	\$370,027
Amount Financed				
Program Administration Cost	\$49,817	\$49,817	\$49,817	\$39,854
Energy Savings Insurance Premium	\$0	\$0	\$0	\$0
Total Amount Financed	\$2,042,500	\$2,042,500	\$2,042,500	\$1,634,000
Key Financial Metrics				
Average Annual Savings	\$247,127	\$247,127	\$247,127	\$247,127
Net Present Value (NPV)	\$1,070,267	\$1,034,130	\$1,010,389	(\$854,006)
Savings to Investment Ratio (SIR)	1.50	1.48	1.47	0.71
Projected Cash Flows				



Total Cash Flows (5 years)	\$448,450	\$437,812	\$430,684	(\$922,236)
Time to Positive Cash Flow *	Immediate	Immediate	Immediate	N/A

* Indicates the first time during the term at which the cumulative projected cash flows, including initial investment, are positive.