Scenario Report

Property:	**Office Building Energy Audit Report** 36 Court Street Springfield, MA 01103	Report Date:	September 12, 2012
		Prepared By:	David Tine
		Company:	Celtic Energy
Property Type:	Office - Large (>50,000 SF)		
Property Size:	105,000 SF		
Scenario:	**Office Bldg Scenario #3**		
Baseline Period:	**Apr 2011 to Mar 2012**		

The tables below summarize and compare the property's Projected (with ECMs) energy consumption and cost to the Baseline Projected (weather normalized, no ECMs) consumption and cost values.

Projected Energy Savings (with ECMs)

11,418,378 kBTU/yr

43.6% better
than Baseline Projected (no ECMs)

Electricity: 1,412,706 kWh/yr
Fuels: 6,597,800 kBTU/yr

Projected Cost Savings (with ECMs)

$295,526 / year

42.4% better
than Baseline Projected (no ECMs)

Electricity: $218,270 / year
Fuels: $77,256 / year

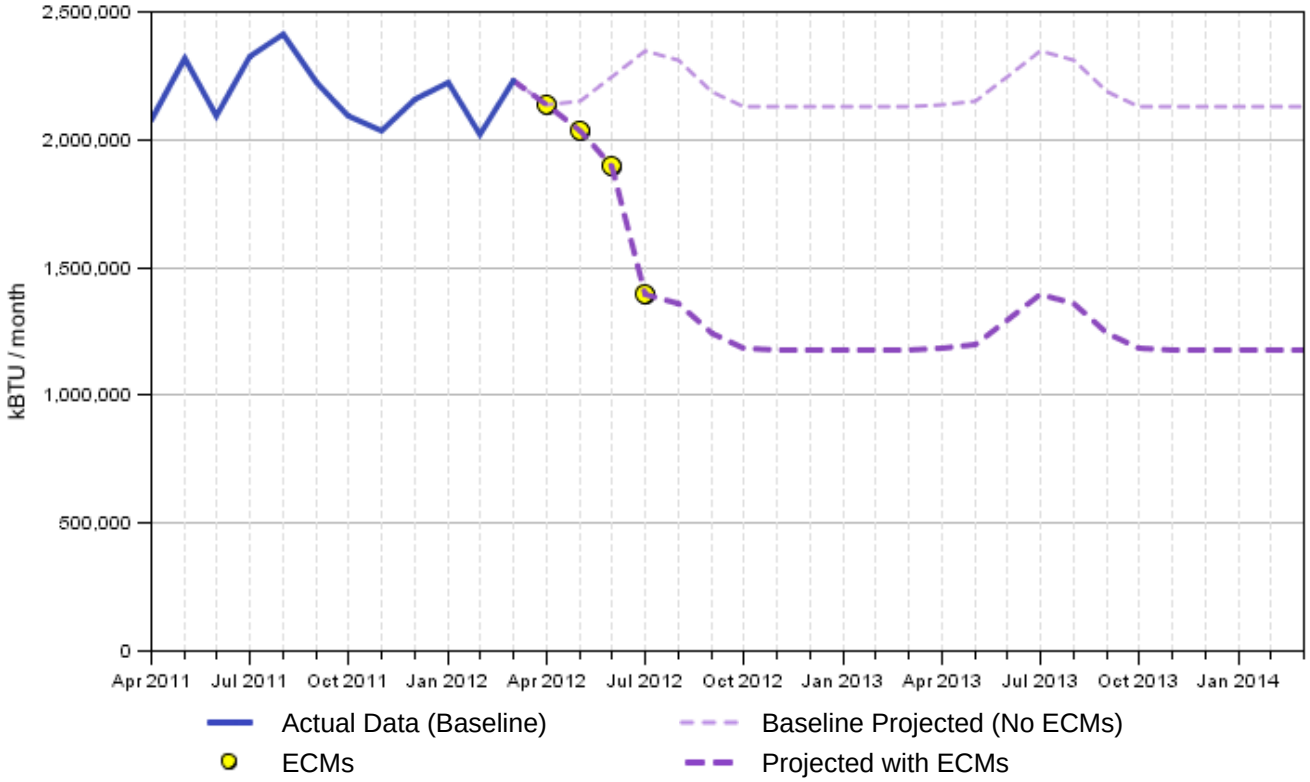
Consumption	Electricity		Fuels		Total Energy	
	kWh/yr	kWh/SF	kBTU/yr	kBTU/SF	kBTU/yr	kBTU/SF
Baseline Actual:	3,674,928	35.00	13,669,485	130.19	26,208,340	249.60
Baseline Projected (no ECMs):	3,494,581	33.28	14,237,754	135.60	26,162,315	249.16
Projected with ECMs:	2,081,875	19.83	7,639,954	72.76	14,743,937	140.42
Projected Savings: (Baseline Projected - Projected with ECMs)	**1,412,706** 40.4% better	13.45	**6,597,800** 46.3% better	62.84	**11,418,378** 43.6% better	108.75

Annual energy savings is estimated to be between 10,847,459 and 11,989,297 mmBTU/yr with an accuracy of ±5.0%.

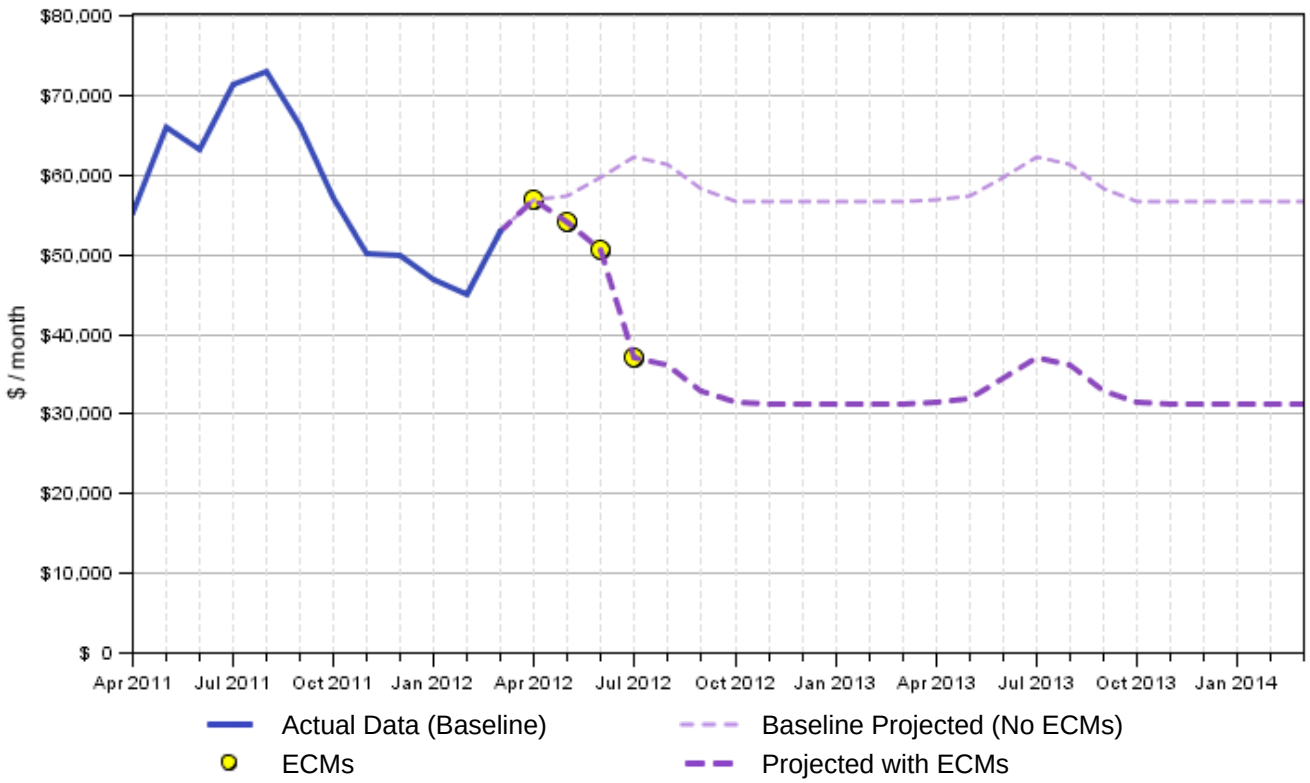
Cost	Electricity		Fuels		Total Energy	
	$/yr	$/kWh	$/yr	$/mmBTU	$/yr	$/SF
Baseline Actual:	$540,755	$0.1471	$156,923	$11.48	$697,679	$6.64
Baseline Projected (no ECMs):	$539,929	$0.1545	$166,716	$11.71	$706,645	$6.73
Projected with ECMs:	$321,659	$0.1545	$89,459	$11.71	$411,119	$3.92
Projected Savings: (Baseline Projected - Projected with ECMs)	**$218,270** 40.4% better		**$77,256** 49.2% better		**$295,526** 42.4% better	$2.81

Annual cost savings is estimated to be between $280,750 and $310,302 with an accuracy of ±5.0%.

Baseline and Projected Energy Consumption



Baseline and Projected Energy Cost



ECM Recommendations Summary

The table below displays a summary of the recommended ECMs.

ECM Name	Installation Cost	Utility Rebates/ Incentives	Tax Incentives Cash Value	Net Cost	Annual Savings	Simple Payback Term
Straighten Bent RTU Condenser Coil Fins	$200	-	-	**$200**	**$1,323**	0.2 years
Install PC Power Management Software	$6,205	-	-	**$6,205**	**$21,929**	0.3 years
Daylight Harvesting	$900	-	-	**$900**	**$480**	1.9 years
Install Occ Sensor Lighting Controls	$60,858	-	-	**$60,858**	**$32,237**	1.9 years
Install VFDs on RTU Fans	$109,280	$(31,047)	-	**$78,233**	**$36,996**	2.1 years
Exterior Lighting System Upgrades	$45,273	$(31,141)	-	**$14,132**	**$6,264**	2.3 years
Decrease Energy Wasting Plug Loads	$4,800	-	-	**$4,800**	**$2,018**	2.4 years
Replace Pneumatic BAS w/ Full DDC Platform	$603,500	$(171,456)	-	**$432,045**	**$126,726**	3.4 years
Interior Lighting Systems Updgrades	$265,719	$(124,564)	-	**$141,155**	**$36,375**	3.9 years
Install Condenser Pre-Coolers for RTUs	$80,000	-	-	**$80,000**	**$7,261**	11.0 years
Implement Variable Flow Hot Water Pumping	$17,325	-	-	**$17,325**	**$1,213**	14.3 years
Install Condensing Gas Boilers	$197,500	-	-	**$197,500**	**$10,719**	18.4 years
Total	**$1,391,560**	**$(358,207)**	**$(0)**	**$1,033,353**	**$283,542**	**3.64 years**

Key Assumptions

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

Key Assumptions	
Corporate Tax Rate:	30.0 %
CAP Rate:	7.00 %
Source: HVS, Comparative Capitalization Rate Study, April 2010	
Accuracy Level of Costs & Savings Estimates:	± 5 %
Fiscal Year Start Date (Month Day):	January 01
Annual Electric Utility Price Escalation:	5.0 %
Annual Fuels Utility Price Escalation:	2.0 %
Annual Savings Degradation Factor:	1.0 %
Percent Leveraged:	90 %
Interest Rate:	6.5 %
Discount Rate:	8.0 %
Number of Monthly Payments:	180
Do Rebates Go To Client?	Yes
Calculate CO2 Cost/Ton:	No

The ± 5% accuracy range is consistent with the scope of work and the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) energy audit guidelines, i.e. Level I, II, III energy audits, as well as requirements for EPAct 179D tax deductions.

Scenario Summary

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

Scenario Summary					
Cost Analysis					
Total Implementation Cost:			**$1,391,560**		
Total Utility Rebates/Incentives:			**-$358,207**		
Total Tax Incentives:	$0				
Cash Value of Tax Incentives (at 30.0%):			**$0**		
Renewables Tax Credit Amount:			**$0**		
Net Project Cost:			**$1,033,353**		
Projections					
Estimated Annual Savings:			**$283,542** ($23,628 avg. / month)		
Estimated Project Start Date:			April 01, 2012		
Estimated Project Completion Date:			July 01, 2012		
CO2e Emissions					
Annual CO2 Emissions Reduction:			763 tons / year		
Consumption Analysis	**Existing Consumption**	**Proposed Consumption**	**Proposed Savings**	**Units**	**Proposed % Savings**
Electric Consumption:	3,674,928	2,262,222	1,412,706	kWh/yr	38.4%
Electric Demand:			149.6	kW/yr	
Fuels:	136,695	70,717	65,978	therms/yr	48.3%
Existing consumption values are actual values consumed over the period Apr 2011 to Mar 2012. Proposed consumption values are calculated by subtracting the sum of the recommended ECMs proposed savings from the existing consumption.					

Key Financial Metrics

The table below displays the key financial metrics relating to implementing the recommended ECMs.

Key Financial Metrics	Projected	'Worst' Case	'Best' Case
Costs and Savings			
Estimated Required Investment (Unleveraged):	**$1,033,353**	$1,102,931	$963,775
Estimated Annual Savings:	**$283,542**	$269,365	$297,719
Projected: ($23,628 avg. / month)			
Return on Investment (ROI):	**27.4%**	24.4%	30.9%
Simple Payback Term (years):	**3.64**	4.09	3.24
Finance Scenario			
Estimated Required Investment (90% leveraged):	**$103,335**	$110,293	$96,377
Amount Financed (90% leveraged):	**$930,018**		
Estimated Annual Debt Service:	**$97,217**		
$8,101 per month for 180 months at 6.5% interest.			
Estimated First Year Benefit:	**$476,350**		
Excess Annual Cash Flow ($15,527 avg. / month):	**$186,324**	$172,147	$200,501
Financial Projections			
Asset Value Impact from Recommendations:			
@ 6.00% CAP Rate	**$4,725,696**	$4,489,412	$4,961,981
@ 7.00% CAP Rate	**$4,050,597**	$3,848,067	$4,253,127
@ 8.00% CAP Rate	**$3,544,272**	$3,367,059	$3,721,486
Asset Value Impact less Required Investment:			
@ 6.00% CAP Rate	**$3,692,343**	$3,386,481	$3,998,206
@ 7.00% CAP Rate	**$3,017,244**	$2,745,136	$3,289,352
@ 8.00% CAP Rate	**$2,510,919**	$2,264,128	$2,757,711
Unleveraged Internal Rate of Return (IRR):	**30.5%**	27.2%	34.2%
Leveraged Internal Rate of Return (IRR):	**184.3%**	164.4%	206.9%
Net Present Value (NPV at 8% discount rate):	**$2,021,533**	$1,799,211	$2,243,855
Time to Cash Flow Positivity (years):	**0.55**	0.64	0.48

Estimated 'Best' and 'Worst' cases are calculated using a ± 5% level of accuracy. This accuracy range is consistent with the scope of work and the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) energy audit guidelines, i.e. Level I, II, III energy audits, as well as requirements for EPAct 179D tax deductions.

Projected Cash Flows

The table below displays the projected annual cash flows relating to implementing the ECMs.

Projected Cash Flows

Unleveraged				90% Leveraged			
Year	Projected	'Worst' Case	'Best' Case	Year	Projected	'Worst' Case	'Best' Case
Initial Investment	($1,033,353)	($1,102,931)	($963,775)	Initial Investment	($103,335)	($110,293)	($96,377)
1	$283,542	$269,365	$297,719	1	$186,324	$177,008	$195,641
2	$294,742	$280,005	$309,479	2	$193,684	$184,000	$203,368
3	$306,384	$291,065	$321,703	3	$201,335	$191,268	$211,401
4	$318,486	$302,562	$334,410	4	$209,287	$198,823	$219,752
5	$331,066	$314,513	$347,620	5	$217,554	$206,677	$228,432
6	$344,143	$326,936	$361,351	6	$226,148	$214,840	$237,455
7	$357,737	$339,850	$375,624	7	$235,081	$223,326	$246,835
8	$371,868	$353,274	$390,461	8	$244,366	$232,148	$256,584
9	$386,557	$367,229	$405,884	9	$254,019	$241,318	$266,720
10	$401,826	$381,734	$421,917	10	$264,052	$250,850	$277,255
11	$417,698	$396,813	$438,582	11	$274,482	$260,758	$288,207
12	$434,197	$412,487	$455,907	12	$285,325	$271,058	$299,591
13	$451,347	$428,780	$473,915	13	$296,595	$281,765	$311,425
14	$469,176	$445,717	$492,634	14	$308,310	$292,895	$323,726
15	$487,708	$463,323	$512,094	15	$320,489	$304,464	$336,513

Estimated 'Best' and 'Worst' cases are calculated using a ± 5% level of accuracy. This accuracy range is consistent with the scope of work and the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) energy audit guidelines, i.e. Level I, II, III energy audits, as well as requirements for EPAct 179D tax deductions.

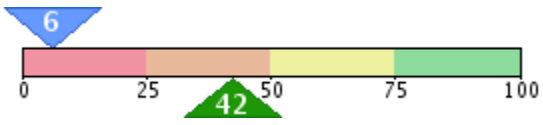
ENERGY STAR Current and Projected Ratings

The chart below displays the current ENERGY STAR rating at the end of the specified reporting period, Mar 31, 2012. Also displayed is the projected (with ECMs) ENERGY STAR rating.

ENERGY STAR Rating

Property Type: Office (>5,000 SF)

Peer Group: Nationwide (498 peer buildings)



Current ENERGY STAR Rating

Projected ENERGY STAR Rating (Post-ECMs Installation)

Source: Commercial Buildings Energy Consumption Survey (CBECS), 2003.

Comments