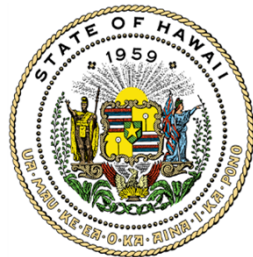


# Investing In Energy Efficiency For Buildings



# Overview

1. Reasons To Invest in Energy Efficiency Now
2. Typical Office Building Energy Usage
3. Considerations when using Financial Metrics
4. Sample Savings Potential – Case Studies

# Reasons To Invest in Energy Efficiency (EE) in Your Commercial Building

## 1) Current energy usage in your commercial building:

Hawaii commercial energy costs (\$ per kWh) have increased an average of 5.7% every year since 1988.\*

Significant operating expense

## 2) Mitigate the risk of rising utility rates:

No Investment= 100% risk exposure to price volatility

# Reasons to Invest in Energy Efficiency (EE) in Your Commercial Building

## 3) Reduction in operating expense:

- **Improves Cash Flow= Increases Net Operating Income**



# Reasons to Invest in Energy Efficiency (EE) in Your Commercial Building

## 4) Lower interest rates:

translates into quicker payback periods, which in turn, lead to greater savings over the life of the improvements.

## 5) Broader financing options:

Greater flexibility in financing options which uses the EE savings to pay off the financed amounts some of which include performance guarantees as well as off-balance sheet options for those with lien restrictions.

# Reasons to Invest in Energy Efficiency (EE) in Your Commercial Building

## 6) Increases building's value:

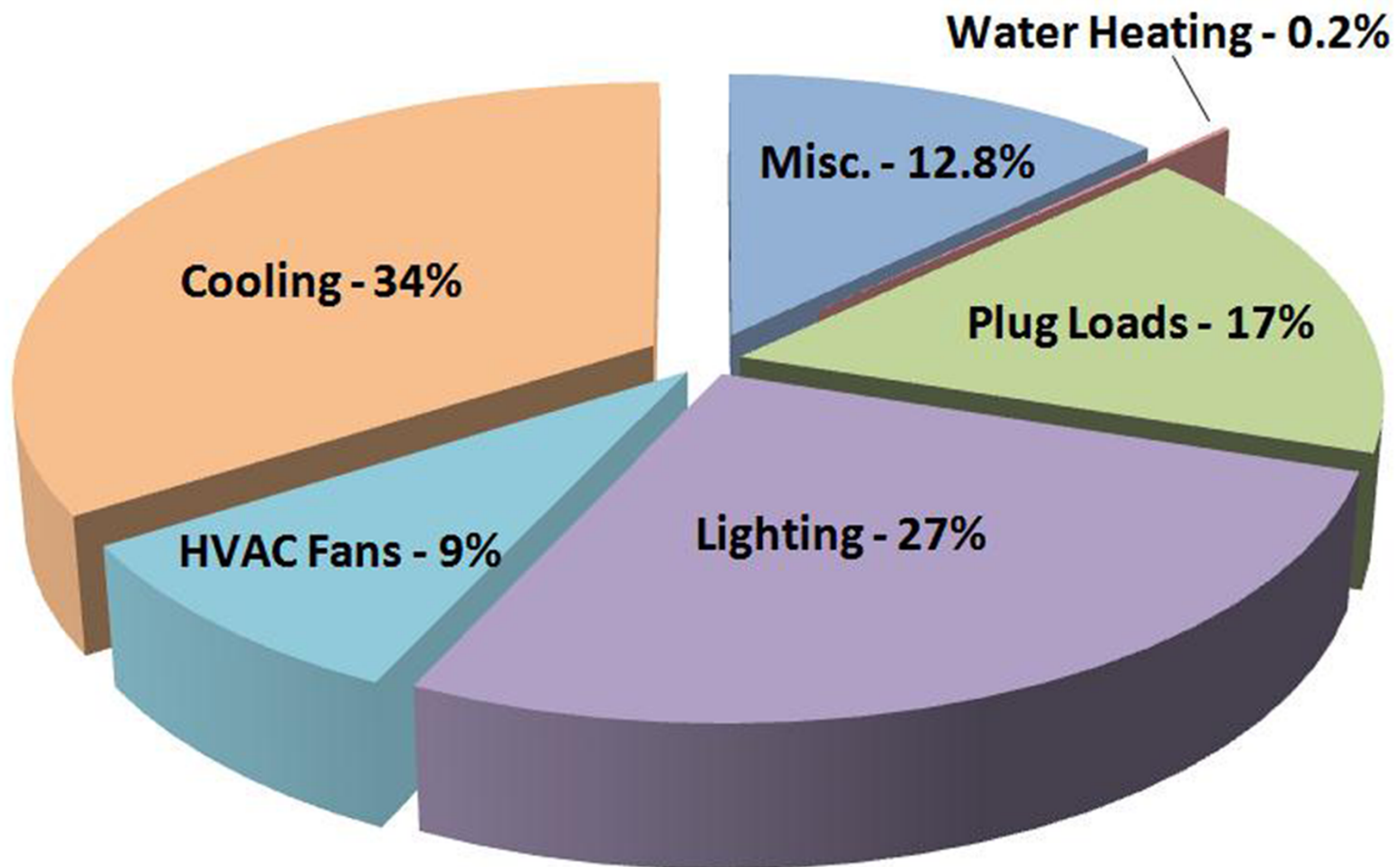
- Improvement in sustainability and environment equates to greater tenant retention which is important for income properties.
- Higher sustained net operating income supports higher appraisal values.

## 7) Incentives:

Utilizing electric ratepayer funds, Hawaii Energy offers cash rebates and other incentives to help businesses offset the cost of installing energy efficient equipment.



# Typical Office Building Energy Usage



# Considerations when using Financial Metrics with EE Investments

- NPV, ROI, MIRR, SPP, SIR.

- EE debt service can be paid for using current operating budget without using in house funds

- Traditional financial metrics by themselves do not normally account for the cost of delaying or foregoing the investment.



## Sample Savings Potential: Case Studies

- Illustrates 3 preliminary assessments with different levels of investment and the projected savings over a ten year period using conventional financial metrics. (Pre-tax basis)
- All proposals contain a blend of various Energy Conservation Measures (ECM's) ranging from lower cost lighting improvements to more comprehensive cooling and heating systems that are more capital intensive.

	Building #1	Building #2	Building #3
<b>Current Electric Bill Per Year</b>	\$2,000,000	\$380,000	\$3,400,000
<b>Energy Conservation Measures (ECM's) Proposed</b>	Various HVAC improvements, high efficiency lighting, new controls	Various HVAC improvements, high efficiency lighting, new controls	Comprehensive HVAC improvements, high efficiency lighting, new controls
<b>Cost of ECM's</b>	\$2,000,000	\$1,150,000	\$13,400,000
<b>Estimated Annual Dollar Savings</b>	\$360,000 or approx. 18%	\$216,000 or approx. 57%	\$2,230,000 or approx. 66%
<b>Simple Payback Period</b>	5.6 years	5.3 years	6 years
<b>Return on Investment(ROI)- 1<sup>st</sup> year</b>	18%	18.8%	16.6%
<b>Net Present Value (NPV)-8% discount rate, 3% inflation rate</b>	Yr. 5-(\$480,674) Yr. 7-\$33,139 Yr. 10-\$718,048	Yr. 5- (\$238,404) Yr. 7- \$69,833 Yr. 10-\$480,828	Yr. 5- (\$3,988,618) Yr. 7- (\$805,834) Yr. 10-\$3,426,798
<b>Modified Internal Rate of Return(MIRR) – Finance and reinvestment rate 8%</b>	Yr. 5- 2.2% Yr. 7- 8.3% Yr. 10- 11.4%	Yr. 5- 3.1% Yr. 7- 8.9% Yr. 10- 11.8%	Yr. 5- 0.6% Yr. 7- 7.0% Yr. 10- 10.5%
<b>Savings to Investment Ratio (SIR)</b>	Yr. 5- 0.8 Yr. 7- 1.0 Yr. 10- 1.4	Yr. 5- 0.8 Yr. 7- 1.1 Yr. 10- 1.4	Yr. 5- 0.7 Yr. 7- 0.9 Yr. 10- 1.3

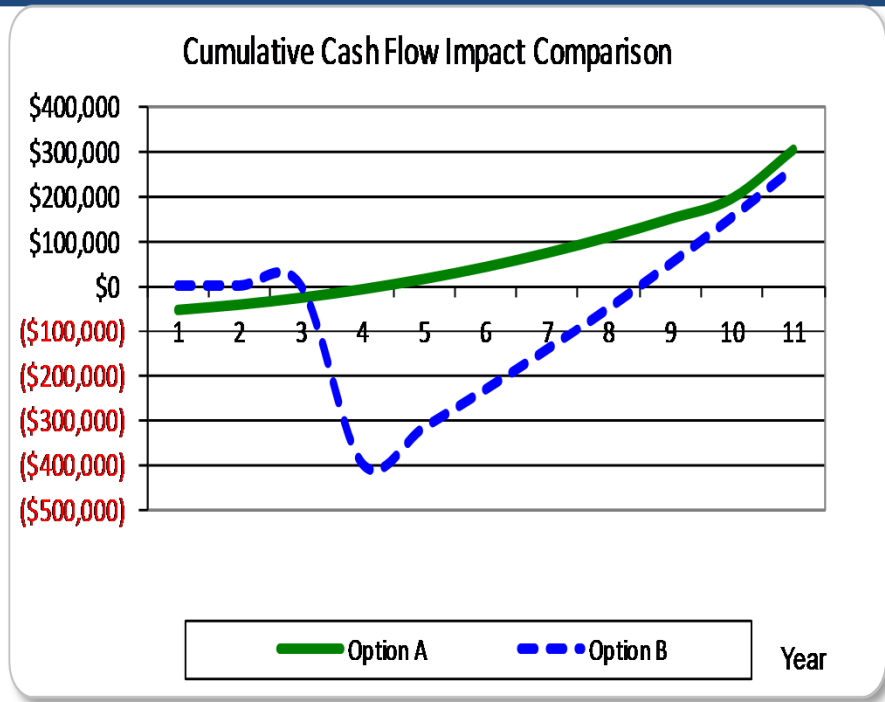
# Cost of Delay

- Loss of savings opportunity
- Increase in project costs over time
  - Building materials, labor
  - Inflation
  - Cost of capital
  - Annual utility cost escalation

See the “Cash Flow Opportunity Calculator” at:  
[energystar.gov](http://energystar.gov)

# Cost of Delay- Sample

Project cost	400,000	\$
Simple payback	6	years
		month(s)
Interest rate	8.00	%
Financing term	10	years
Year(s) postponed	3	years
Project cost increase due to postponement	1.00	%
Estimated energy cost change in year 2	5.00	%
Annual change in energy costs after year 2	5.00	%
Estimated energy savings in year 1	6.00	%



These cash flow calculations are on a pretax basis.

For purposes of this calculation, all cash flows are being discounted at the interest rate indicated in cell G7 - financing paid monthly in arrears.

<b>Net Present Value of Option A (Fast Track Financing)</b>	<b>\$143,343</b>	<b>\$61,781</b>	<b>Net Present Value of Option B (Waiting for Cash)</b>
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**Fast Track Financing generates \$81,562 or 132% more cash than waiting!**

# Summary and Recommendations

- Obtain an energy assessment
- Identify your financial barriers and potential funding source
- Recognize that the payment for a properly constructed EE investment is already embedded in your current payment (operating funds) to the utility, regardless of your method of funding the improvements
- Use financial metrics as guide to include utility savings and cost delay scenarios

Thank you.

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