

LONG

ENERGY SOLUTIONS



Introduction to Green Investments

Doug Hargrave
September 8, 2009



Introduction

✓ LONG Energy Solutions

- Colorado-based, ~300 employees
 - Offices in: NV, UT, WY, CO
 - Colorado offices:
 - Ft. Collins, Denver, Grand Junction, Boulder, Colo Sprgs
- 45+ years in business
 - over ten years in energy-based design/build contracting

✓ Doug Hargrave, LEED AP

- Director of Project Development
- 15 years experience as an energy engineer
- RCx, LEED facilitation, energy audits, program mgmt and oversight, Cx, M&V, design/build contracting



- ✔ Opportunities for Greening Your Business
 - Conservation measures
 - Efficiency measures
 - Renewables (non-solar)
- ✔ Investment Decision Making 101
 - Financial metrics – ROI, IRR, NPV, LCC
 - Profit margin equivalency to increased throughput / production

Operating Savings – How to find them

- First, acknowledge operating costs are variable, not fixed !!
- Savings are possible on most types of operating costs
 - Utilities (electricity, natural gas, water, sewer)
 - Maintenance (preventative, emergency)
 - Operations (how many contractors need to be hired)

Energy Conservation

- ✔ Conservation is using less energy on an absolute scale, i.e. shutting things off
- ✔ Examples:
 - Turning your thermostat up in the summer from 70 to 72
 - Shutting off lights when not needed
 - Jimmy Carter sitting in the dark with a sweater on.

Energy Efficiency

- ✔ Efficiency is using less energy to accomplish the existing result
- ✔ Examples:
 - Using 30% less power to circulate the same amount of air in your building
 - Using CFLs instead of incandescent light bulbs
 - Jimmy Carter sitting in the light (via CFLs) without a sweater (because he put in a 96% efficient boiler in the White House).

Renewable Energy (non-solar)

- ✔ Solar to be covered in greater detail later
 - Solar thermal (DHW, building heat) and solar PV
- ✔ Other examples
 - biomass (cogen or not), passive solar design, micro wind, micro hydro

Example Building

- ✔ 50,000 square feet commercial space
- ✔ Measures being considered include:
 - HVAC replacement
 - New controls system
 - Solar PV

Investment Decision Making 101

- ✔ Financial metrics
 - Simple payback, ROI, IRR, NPV, LCC
 - Which tool(s) is right for you?
- ✔ Profit margin equivalency to increased throughput / production
- ✔ Rules of Thumb
 - Use with caution!
 - These usually overlook one or more important variables
 - Your rule of thumb should be to run the numbers when making a decision

Financial Metrics: Simple Payback

✔ Simple Payback

- What it is: Compares costs and expenses of an investment with no interest, maintenance costs, or life span of equipment taken into account
 - In other words, simple payback solves for time period
 - Called “simple payback” because it often calculated without variables important to businesses
 - Example: O&M, depreciation of investments
- Variables: initial investment, cash flow, NOT inflation or interest rates

Financial Metrics: ROI

▼ ROI

- What it is: Ratio of money accumulated relative to the initial investment
 - ROI ratio is expressed in percentage.
- Variables: initial investment, cash flow, NOT inflation or interest rates

Financial Metrics: IRR

- ✓ IRR (aka, rate of return or ROR)
 - What it is: Compares profitability of investments, generates the internal interest rate
 - In other words, IRR solves for interest rate when the NPV is 0
 - Variables: time period, initial investment, cash flow, NOT inflation or interest rates

Financial Metrics: NPV

▼ NPV

- What it is: Measures cash flow in today's dollars, i.e. measures the time value of money
 - Expressed as an absolute value
 - Usually a number larger than you would expect until you become used to the scale of NPV results
- Variables: discount rate, time period, revenue (i.e. savings from installed measure), expenses

✔ Life Cycle Cost

- What it is: Measures the cost of an investment over a pre-determined time period
 - For buildings, the LCC period is usually defined by the expected or desired useful life of the equipment
 - Example: 15 or 20 years for roof top HVAC unit
- Variables: initial investment, cash flow

Financial Metrics: Best Tools

- ✔ Anything other than simple payback!
- ✔ The best tool is one that works for you.
 - Keep it simple enough that you are sure you are calculating the results accurately.
- ✔ Larger companies use NPV or LCC for evaluating green projects
 - Be sure to include operation and maintenance costs
 - Utility costs, any extra time needed to operate the equipment (by staff or contractor), maintenance costs, etc
 - Together, these are O&M. Often expressed on an annual basis.
 - Can also include: depreciation of equipment, increased revenue from reducing staff time dedicated to building issues, etc.

Profit Margin Equivalency

- ✔ Compare operating savings of making a building improvement to the profit (not revenue) that would come with additional sales.
 - Example: If, on an annual business, the operation savings of putting a new control system is equal to increasing sales 10%, is that sufficient to make the investment?

Profit Margin Equivalency

- ✔ Quick example of calculation approach
- ✔ Operation Savings
 - New control system cost: \$80,000
 - Cost is \$100,000, less \$20,000 rebate
 - Operation annual savings from new controls: \$10,000
 - Energy savings = \$8,000; O&M = \$2,000
- ✔ Increasing Sales / Revenue
 - Increasing annual sales 10%: \$50,000
 - Resulting annual after-tax profits: \$10,000

Profit Margin Equivalency

- ✔ Which is more easily achieved for you?
 - Increasing sales by \$50,000 per year, every year – OR – investing \$80,000 in control system?
 - Both yield annual savings of \$5,000.
 - What would tip the balance?

Profit Margin Equivalency

- ✔ Financing additional incentives
 - Examples: tax breaks (federal, state), accelerated depreciation of equipment, low-interest loans (GEO, banks) – should also be considered.
 - Can lower costs for control system
- ✔ Also consider non-financial support for energy measures
 - Technical: Ft. Collins Utilities will assist you with the control system.
 - PR: Recognition from joining Climate Wise, Energy Star, or other similar programs

Thank You !

Doug Hargrave
Director of Project Development
LONG Energy Solutions
(303) 975-2152
dhargrave@long.com

