

CREATIVE FINANCING

FOR SUCCESSFUL

ENERGY PROJECTS

IDEA's 27th Annual Campus Energy Conference
“Clean, Efficient & Resilient Energy”

February 18 - 21, 2014 • Atlanta Marriott Marquis • Atlanta, GA
Including Pre-Conference Workshops on Monday Feb 17 and Tuesday Feb 18



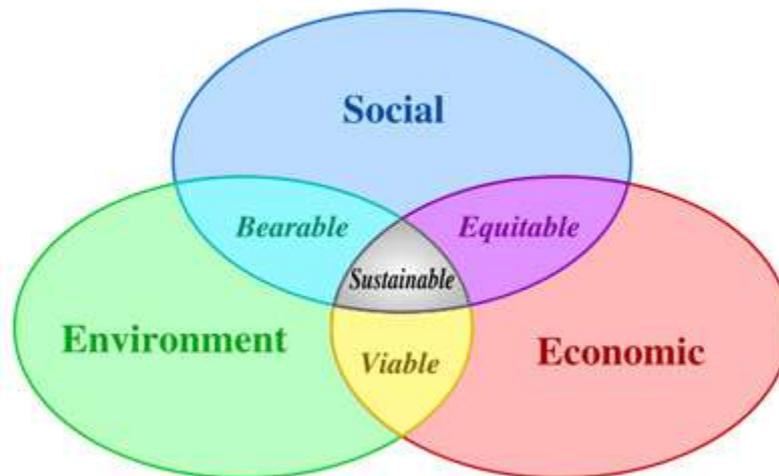
Are your Energy Reduction initiatives getting funded?



You will learn:

- The best ways to sell your project to CFOs
- Some essential Financial Terms
- Analytical approaches to prove viability
- Financing options to consider
- Recipes for success

- **Sustainability** *is smart and responsible actions that prioritize people, natural resources, and finances to safeguard the health of future generations.*
- Triple Bottom Line: Social, Environmental & Economical



GHG Reduction Plan and Strategies

Central Plants

- Co-generation
- System Optimizations
- Energy Recovery
- Conversion Efficiencies
- Emissions

Buildings (>95% GHG)

- Energy audits & Metering
- Optimal Commissioning
- Conservation upgrades
- New Technology & Controls
- Energy Recovery
- Waste reduction
- Building thermal envelope
- Lighting and Controls

Behavior change

- Education
- Green Lab & Office
- Green Teams
- Student engagement
- Consultants
- Designers

Transportation

- Vehicle Efficiency
- Emissions

Opportunities for onsite renewables

- Solar PV
- Solar Thermal
- Bio-Fuels
- “Urban” Wind

Legislation

Codes

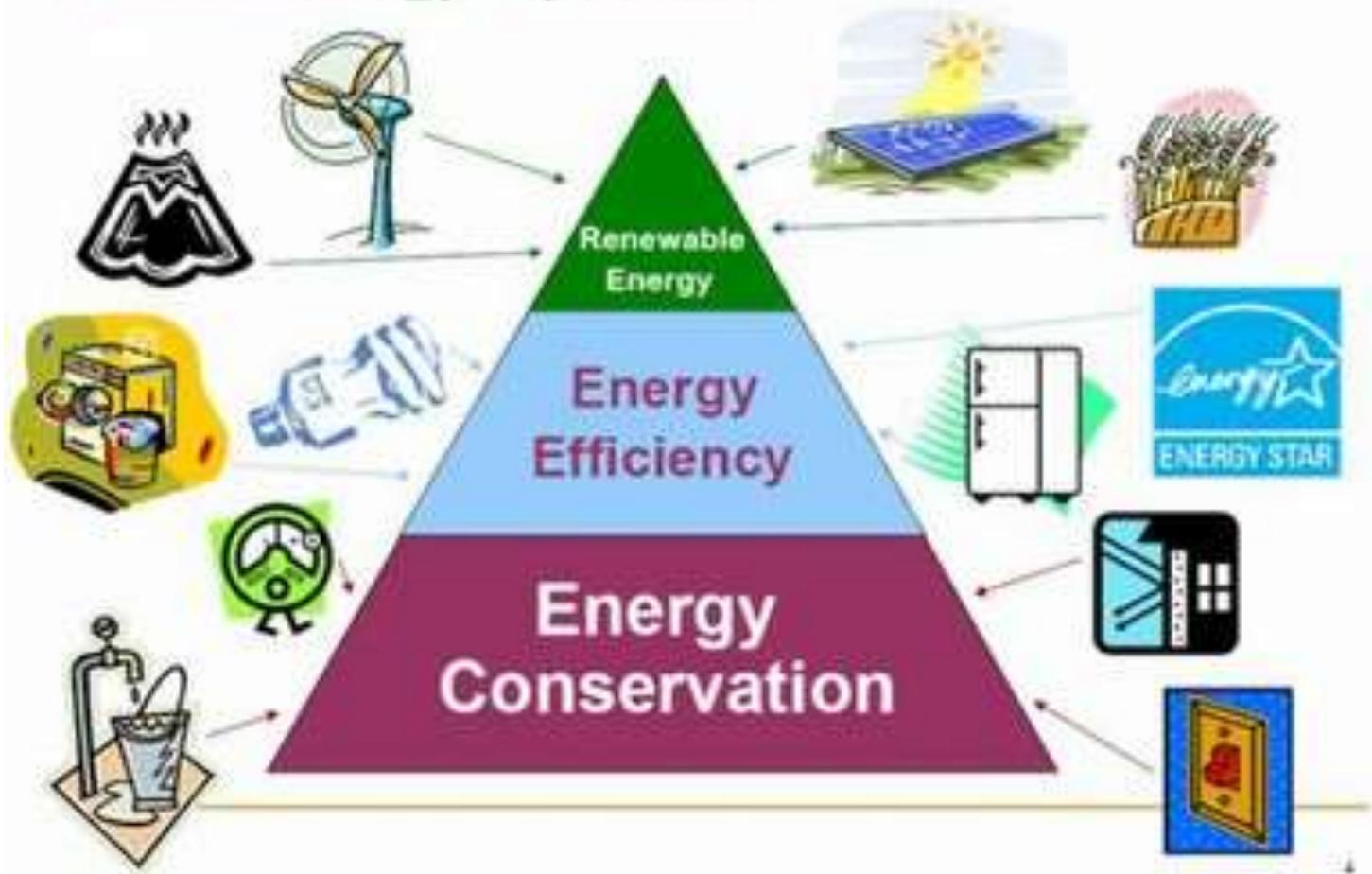
Incentives

Goal Setting

Peers



The Energy Pyramid



What to target first?

Assessing Project Viability

- First Cost
- Simple Pay-back Period
- Return on Investment
- Internal Rate of Return
- Net Present Value
- Life Cycle Cost Analysis
- Time Value of Money Principles
- Savings to Investment Ratio
- Adjusted Internal Rate of Return



Other Financial Terminology

- Analysis with Replacement
- Cost/Assessment
- Cash Flow
- Cash Flow Schedule
- Current Salvage
- Discount Rate
- Improvement Analysis
- ECM Lifetime
- End of Life Salvage
- Fuel Price Inflation Rate
- Future Value (FV)
- General Inflation Rate
- Internal Rate of Return (IRR)
- Loan-to-value Ratio (LTV)
- Maintenance Cost
- Net Cash Flow
- Net Present Value (NPV)
- Present Value (PV)
- Simple Payback
- Savings to Investment Ratio (SIR)
- Internal Rate of Return on Investment (IRR)
- Saving to Investment Ratio (SIR)
- Simple payback
- Upgrade Cost



Financing 101

- **Return on Investment:** Divide the total incentives and net savings of a project by the initial costs to implement, expressed as %.
- **Simple Payback Period:** The number of years it would take to recover a project's costs.
- **Time Value of Money:** The idea that money available at the present time is worth more than the same amount in the future due to its potential earning capacity.
- **Savings to Investment Ratio:** The ratio of the present value of an energy saving stream with respect to the present value of the cost of making the energy efficiency improvements.

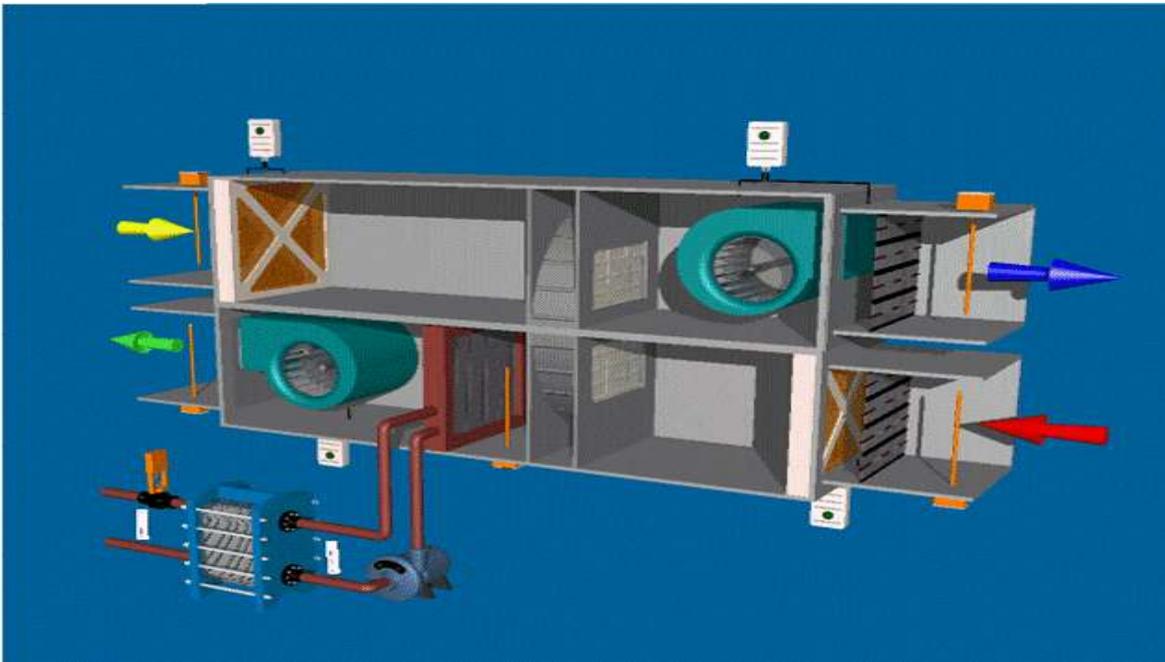
Learning to Sell a Project to the CFO

- **Net Present Value** compares the value of a dollar today to the value of that same dollar in the future, taking inflation, the cost of money and returns into account. If the NPV of a prospective energy project is positive, it should be accepted. However, if NPV is negative, the project should probably be rejected because cash flows will also be negative.
- **Internal Rate of Return** is the "annualized effective compounded return rate" or "rate of return" that makes the net present value of all cash flows from a particular investment equal to zero. If the IRR is greater than your internal cost of money (or assumed investment return), then you would have a financially attractive project.

Comparing Similar but Complex Options

Life Cycle Cost is the total cost of ownership over the life of an asset.

Life Cycle Cost Analysis is used to evaluate alternative designs with different initial costs and operating costs, over the project life, compared to the base design cost



The formula relies on projections for Cost of \$\$, Inflation, Utility Rate Escalation, First Costs, Energy Savings, Maintenance and Repair Costs over the term...

Traditional Project Financing Options

- **Self Fund**: Cash, Use savings or Endowment, No interest financing, Operating funds.
- **Borrow**: Commercial Loan, Specialty Loan, Bond Sale, etc.
- **Other sources of funds**: Grants, Rebates, Gifts



No Cash? No Problem...

Performance Contracts

Operating or Capital Leases

On-Bill Financing

Revolving Loan Funds

Shared Savings Agreements

Purchase of Power Agreements



Performance Contracting

This is a turnkey service where an ESCO provides customers with a set of energy reduction measures and often guarantees that the savings produced will be sufficient to finance the full cost of the project and overhead. The ESCO provides all of the services required to design and implement a comprehensive project at the customer facility, from the initial energy audit through long-term Monitoring and Verification (M&V) of project savings.



Operating & Equipment Leases

This type of financing does not appear as a liability on the company's balance sheet. A company may engage in off-balance-sheet financing if it wishes to keep its debt-equity ratio low and thereby appear as if it is carrying little debt.



Utility Company On Bill Financing

On-bill financing refers to a financial product in a partnership with a utility company for energy reduction improvements in a building, and repaid by the building owner on their monthly utility bill.

This allows a customer to pay back the cost of a project with the money saved on their monthly utility bill. This may be an attractive financing method to cash strapped customers.



Revolving Loan Fund

The *Revolving Loan Fund* or **green revolving fund**, on college and university campuses. These are used for projects that reduce energy use or improve sustainability. These funds have become increasingly popular by universities, to incentivize energy projects.



The central fund cash reserves are replenished from project's energy savings, creating the opportunity to issue new loans for additional projects.

Shared Savings Agreement



Under a "***shared savings***" ***contract***, the Energy Service Company finances the project and takes the lion's share of the savings for a defined period. The end user has no up-front cost, guaranteed savings and improved equipment and operations.

Purchase of Power Agreement

A ***Power Purchase Agreement*** is where you pay for the net output of the project. Projects that have energy outputs work well with PPAs. The 3rd party owner pays for the engineering, installation and operations. The recipient pays only for the usable output.



So....Which Options Will Work for You?



The Latest Trends at Hopkins

- **Traditional Capital:** Heat Recovery and Reuse, Central Plant & HVAC Optimization projects, Gray water re-use systems, Research support system enhancements, Metering and tracking
- **Student Programs:** CNG Shuttle fleet, Anaerobic Composter, Living Walls, Rain water run-off mitigation, Dash-boards
- **On-Bill Financing:** Lighting retrofits, Controls Re-Commissioning, Window Films
- **PPA:** Solar PV and Solar Thermal Hybrid, CHP and Black water to Utility water.
- **Utility Incentives and Grants:** Rebates, RECs, Tax Incentives, Rapid Depreciation....
- **What's next?**

Questions?

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