Energy Audits of Existing Building

Outcomes of Energy Audits

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Agenda

- The need to rehabilitate our failing infrastructure
- Why do an Energy Audit?
- Different Levels of Energy Audits
- Who performs the Energy Audits?
- Developing a Business Case for Facilities Improvements
- Third Party Financing
- Few Case Studies
The need to rehabilitate our failing infrastructure

- Our essential infrastructures are old and failing
  - City Hall
  - Post Office
  - Hospitals
  - Police & Fire buildings
  - Water & Wastewater treatment centers
  - Schools and Colleges
  - Downtown shopping centers
  - Public Housing
  - Correctional Facilities

BROWNFIELDS SEMINAR
Why do an energy audit?

• State of economy
  • Lack of funds
    • Deferred Preventive Maintenance
    • Deferred Capital Upgrades

• Evaluate the current operating state of the facility that lays the foundation for a rehabilitation plan
  • Mechanical Systems
  • Electrical Systems
  • Water Usage
Different levels of audits

- ASHRAE’s classification of Energy Audits
  - Level I
  - Level II
  - Level III
Different levels of audits

• ASHRAE’s classification of Energy Audits

• Level I
  “One-Day” or “Walk-through” audit
  ➢ Easiest to perform
  ➢ Brief survey of building & analysis of utility bills
  ➢ You’re really just getting started

Expected Results
  ➢ Detects some of the low hanging fruits
  ➢ Suggest other options that needs more study
  ➢ Rough estimate on how energy is being used
  ➢ Benchmark the building
Different levels of audits

• ASHRAE’s classification of Energy Audits

• Level II
  More efforts in building survey and energy analysis
  ➢ More system performance testing
  ➢ Investigates more broader range of savings
  ➢ Accounts for “people factors” and its effect
  ➢ Explores maintenance procedures

Expected Results
  ➢ Rough breakdown of energy use
  ➢ Suggests more complex conservation measures
  ➢ Produces simple capital improvements
Different levels of audits

• ASHRAE’s classification of Energy Audits
  • Level III
    “Investment Grade Audit”
    ➢ Extensive system performance testing
    ➢ Gather more detail field data: spot-measurement, short-term energy monitoring with data loggers
    ➢ Perform intensive engineering and economic analysis

Expected Results
➢ Detail scope of work
➢ Reliable estimates of major capital projects
➢ Financial performance with the highest confidence level needed for major capital projects
Who performs the energy audits?

• Please do your research…..
  • Qualified Energy Service Companies [ESCO]
  • FCIP program has a list of prequalified ESCO
  • Issue a Request for Qualifications from Energy Services
Developing a business case for facilities improvement

• How do we pay for these capital improvements?
  • Incentives
  • Tax breaks
  • **Energy Savings**
  • Third party financing

**Energy Savings** is one of the deliverables from an energy audit.
Developing a business case for facilities improvement
Third Party Financing

• How do we pay for these capital improvements?
  • Third party financing companies
    • Public Housing Authority Projects
    • Higher Education Projects
    • Economic Development Projects
    • Water and Sewer Projects
    • Hospital Facility Projects

• Available Financing Programs
  • Build America Bonds
  • Commercial Development Revenue Bonds
  • Capital Improvement Project
  • General Obligation Tax Maintenance Notes
  • Facilities Revenue Refunding (Taxable)
  • Etc, etc.....
Third Party Financing

• Financing Interest Rates
Case Studies of Energy Projects

Fresno County

**Project Size:** Seven Buildings totaling over 1 million sq. ft. Includes a new 1.25 MW Combined Heat & Power Facility

**Project Cost:** $12 Million

**Contract Term:** 15 yr. Guaranteed ESPC

**Projected Annual savings:** $1.4 Million

**Rebates & Incentives:** $1.5 Million
Case Studies of Energy Projects
University of Texas at Austin - Lighting

Details
- 140 buildings
- 12.6 million square feet

Representative Facility Types:
administrative, athletic, academic, laboratory, research, museum, library, power generation and central plants

Project Cost: $10.5 Million

Source of Funds: Client Financing

Projected Annual savings: $1.8 Million
Case Studies of Energy Projects

Columbus Regional Airport - Energy Project

Project Size: Port Columbus International
Approximately 1.5 million square feet

Project Cost: $5.5 Million

Contract Term: 10 yr. Guaranteed ESPC

Projected Annual savings: $680 Thousand
Thank you !!