



# *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



## *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

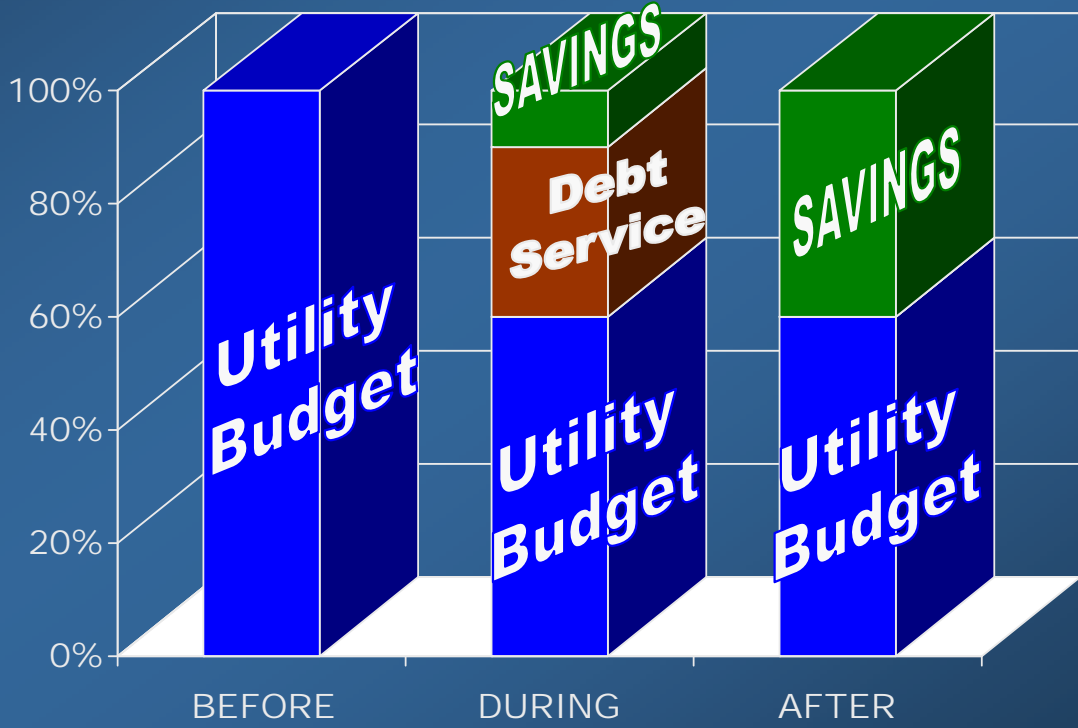


## *Developing a business case for facilities improvement*

- 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*

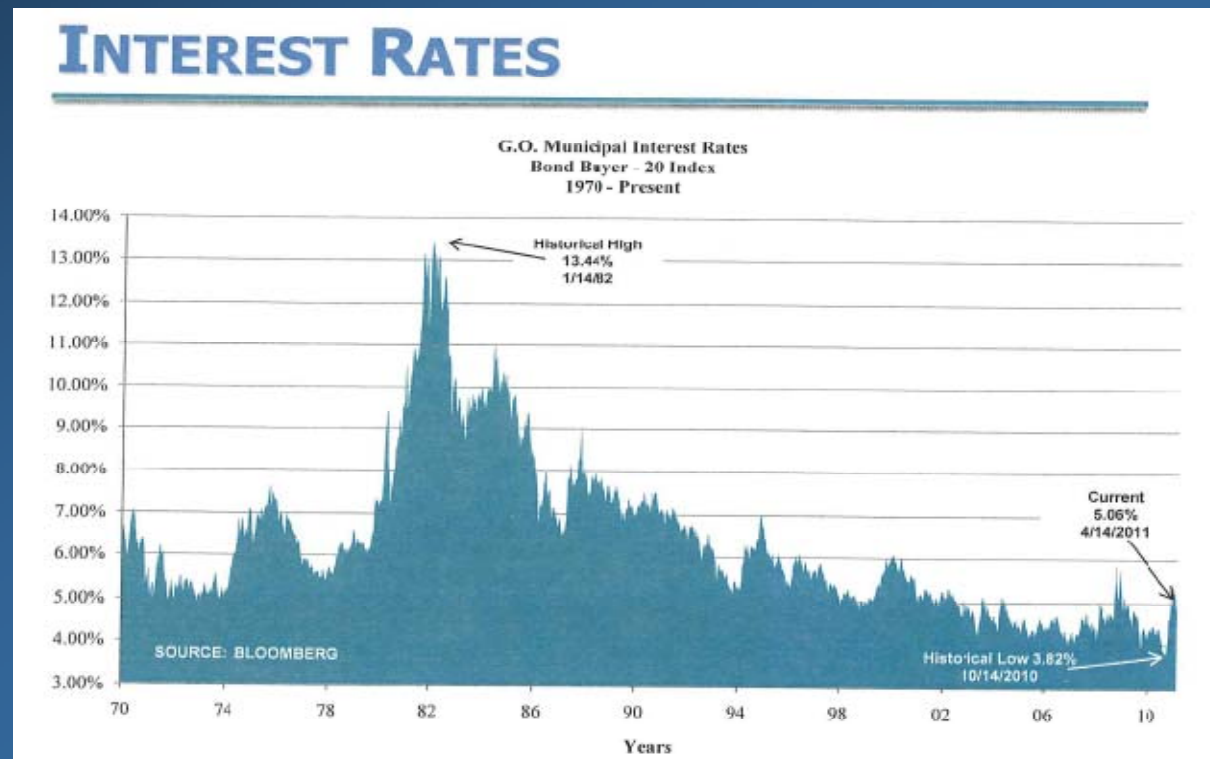


## *Third Party Financing*

- 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*

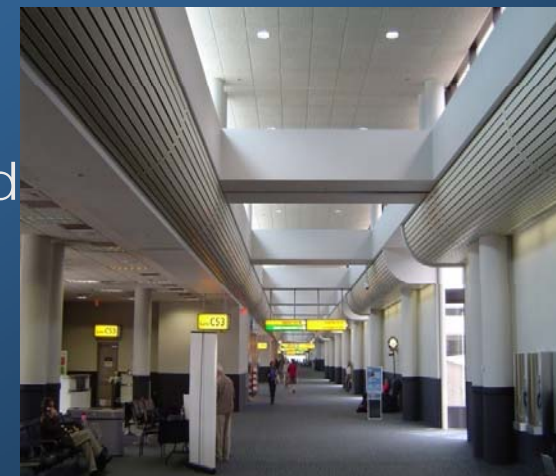
### **Columbus Regional Airport – Energy Project**

**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 !!*