



Guaranteed Energy Savings Performance Contracting

“More with Less”



Agenda

- Introduction
- Understanding Educational Challenges
- Optimizing Budgets and Operational Performance
- Implementation Process
- Benefits of Partnership...



Educational Challenges

- Budget short falls due to shrinking economy
- SPLOSTS projections lower
- Growing student populations
- Increasing operating and utility expenses
- Aging Infrastructure,
- Increasing Technology Demands,
- Limited Man-Power and Deferred Maintenance
- All this while focusing on developing children and retaining staff...



Organizational Goals

- Provide Top-Notch Schools for ALL Students,
- Provide a safe, healthy environment for staff and students,
- Minimize costs that do not directly affect education,
- Leverage technology to prepare students for the future,
- Educate the children



Solutions for Your Schools

“More with Less”



Energy Savings Performance Contracting

- A financial solution to help fund school needs
- Provide *REAL* Value,
 - Reduce utility consumption
 - Utilize energy savings to pay for upgrades
 - Improve classroom learning environment
 - Guaranteed construction – No change order
 - Guaranteed revenue stream to pay for the annual finance cost
- True partnership in your schools success



Energy Savings Programs Goal

- Develop a customized low risk program
- Makes needed improvements to your schools infrastructure
- Generates energy savings to pay for the improvements – budget neutral
- Improve the classroom comfort and safety
- No up front capital required
- Written Guarantee

Improved Budget Utilization

How Performance Contracting Works



Current Utility Budget

\$500,000

- Electricity Bills
- Natural Gas Bills
- Water Bills
- Aged Equipment
- Poor Learning Environment

Performance Contracting Goal

\$400,000

- Lower Electricity Bills
- Lower Natural Gas Bills
- Lower Water Bills

\$100,000

Annual Lease Payment for 10 years

- New HVAC Equipment
- High Efficiency Lighting
- Low Consumption Plumbing

ESCO Guarantees the \$100,000



Project Overview

- Heating and Air-conditioning Systems – 22 Schools
 - Upgrade to meet the current fresh air standards and add humidity control for improved comfort
 - Total replacement – **1,036 units**
- Building Automation – 26 Schools
 - Install new systems at 26 schools with full temperature, monitoring and start/stop control from a central location
- Water Conservation Upgrades – All kitchens
 - Install foot activated pedal valves for kitchen sinks for energy savings and sanitary benefits
- Lighting Renovations – 26 Schools
 - Upgrade existing fixtures with new high efficient lamps, ballasts and reflectors
 - Improve the light levels in the classroom
- Preventive Maintenance – 2 Schools
 - Help maintain complex systems at Savannah High and Savannah Arts to maximize energy efficiency



Financial Overview

Project Cost	\$10,693,640
Annual Savings	\$1,481,211
Annual Principal & Interest (4.5%, 10 yr)	<u>(\$1,329,926)</u>
Subtotal	\$151,285
Annual Measurement & Verification	<u>(\$107,072)</u>
Annual Positive Cash Flow	\$44,213

ESPLOST Savings \$5,143,663



Benefits

- Makes needed improvements to your schools infrastructure
- Improves the learning environment
- Project is paid from your existing utility budgets
- Avoid the need for capital funding
- Written guarantee that all savings are met
 - ESCO writes a check for the shortfall in savings
- Low Risk Solution



Potential Building Upgrades



Potential Upgrades in a Performance Contract

Standard Upgrades

- Lighting retrofits
- Building automation
- Heating, ventilation and air conditioning
- Water Conservation

Non Standard

- Building envelope – windows, doors and roofs
- Interior upgrades – ceiling tile, flooring, painting etc.



Lighting Upgrades

Classrooms, Hallways, Administration, Media, Cafeteria

- Low power electronic ballasts, T8 lamps, reflectors
- Maintain or improve lighting levels to IES standards
- Lighting exceeds standards – retrofit to save energy but still above IES levels

Gyms, Vocational, High Bays

- From HID to T8 or T5
- No restrike delays, high efficiency,

Other

- LED exit signs and outdoor wall-packs
- Compact fluorescents in accent and task lighting
- Outdoor – sports lighting, parking lot lighting, security



Heating and Air Conditioning Solutions

- Installation or replacement with high efficient equipment
 - Air conditioning replacements
 - Outside air upgrades to meet codes
 - Boiler replacements, tuning and optimizations
- Building Automation
 - Temperature, humidity and optimum start/stop
 - Installation of new web based controls
 - Custom solutions to maximize savings



Water Conservation Upgrades

- Saves both water and sewer costs
- Replacement with low or no consumption fixtures
 - Low consumption toilets
 - Low or no consumption urinals
 - Faucet replacement or retrofits
- Metering solutions
 - Boiler makeup and cooling towers,
 - Closed loop heating and cooling systems
 - Irrigation systems or even wells
- Wastewater treatment plant upgrades
 - Aeration, control and equipment upgrades to eliminate the need for expansion



Rate and Metering Upgrades

- Utility Rate optimization
 - Verify the best rate for your building
 - Change to the best available rate
 - Natural gas and propane negotiations to lower gas costs
- Metering Solutions
 - Meter combinations to lower costs
 - Combine schools sharing the same property
 - More consumption behind a meter the lower the cost especially with Georgia Power



Other Solutions

- Building Envelope
 - Roof replacement
 - Window upgrades or replacements
- Fire Alarm and security systems
- Interior finishing – ceiling tile, painting, flooring
- Outdoor sports lighting
- Garbage compaction and recycling
- Vending mizers to control compressor
- Electric transformer upgrades



Steps to a Performance Contract



Steps to Performance Contract

- Preliminary Facility Survey and Audit (No Cost)
- Approval
- Request for Qualifications/Proposal
- Selection of ESCO
- Final Engineering or Investment Grade Audit
- Approval
- Construction
- Commissioning
- On going Measurement and Verification



Preliminary Audit

- Survey the schools
- Review 12 month utility consumption
 - Electric, Nat. Gas, Propane, Water & Sewer, Wastewater
 - Any utility cost
- Needs from schools
 - Utility bills, building layout and history, hours of operation etc.
 - Access to locations and equipment
- Estimate ECM cost, savings and payback
- No cost



Request for Qualification/Proposal

- Qualify the best partner for your school based on:
 - Technical and Solutions approach
 - Experience in Performance Contracting
 - National certifications and awards
 - Guarantee Approach and abilities
 - Financial strength
 - Vendor neutrality
 - Open book pricing
- Publish to meet state requirements
- Review, Interview and Select the best vendor



Final Engineering/Investment Grade Audit

- Verify all proposed ECM's
- Develop energy baseline on each building
 - 2 to 3 years utility billing information
 - Model each meter/school to compare future consumption
- Develop final cost, scope and guaranteed savings
 - Bid ECMs to qualified vendors
 - Final engineering, design, permits, code compliance etc.
- Arrange financing of the project
- Cost are rolled into final project
 - Pay for the Audit if a self funding project is not delivered or you choose not to proceed with a self funding project.
- Present final project for approval



Implementation

- Board approval and Contract signing
- Construction of the scope of work
 - Finance company pays the ESCO for construction
 - ESCO Draws down an escrow account or finance company pays based on percent complete
 - School controls and approves draws
- Commissioning of all ECMs
- Final sign off on construction
- Guarantee starts and payments to finance company begin
- No Up Front Capital Needed



Written Guarantee

What to look for in a Guarantee



How the Guarantee Works

- Develop a historical energy baseline
 - Typically 2 – 3 years of consumption and cost data
 - Trend data based on student population, weather, operational hours etc.
 - Goal: Achieve an accurate model of your school
- Future years are compared to the Base Year
- Difference between the Current Year and Base Year is the savings



Keys for a Successful Guarantee

- Customized approach to meet your risk requirements
- National Energy Services Company (NAESCO)
 - www.naesco.org
 - Use a “certified” or “accredited” provider
 - Financially sound companies
 - History of meeting or exceeding Guarantees
- Utilization of International Performance Measurement and Verification Protocol (IPMVP)
 - International standard for energy savings projects
 - www.ipmvp.org



Measurement and Verification Options

- Option A – Partially Measured Retrofit Isolation
 - Point source, stipulated or engineered calculation
 - One time Measurement and Verification
 - Example: Lighting retrofit - before and after wattage readings with mutual agreement of operational hours

- Option B – Retrofit Isolation
 - Modified form of
 - Annual measurement and verification of the ECM
 - Example: Water retrofit - sample toilets every year to verify reduction



Measurement and Verification Options

- Option C – Whole Facility Approach
 - Comparing current bills to the base year bills
 - Example: Multiple ECM's in the school, lights, hvac, controls, and outside air to properly reflect the interaction between all the upgrades.
- Option D – Simulated Model
 - New building without any energy history
 - Build a computer model of the building based on the design and compare future energy to the base model.



IPMVP Protocol Importance

- International standard used by all legitimate ESCO's
- Ensure the savings are achieved
- Allows you to control the cost of the Measurement and Verification
- Balance the level of Measurement and Verification based on each ECM
- Creates a revenue stream for Finance Companies to fund the project



What to watch for in a Guarantee

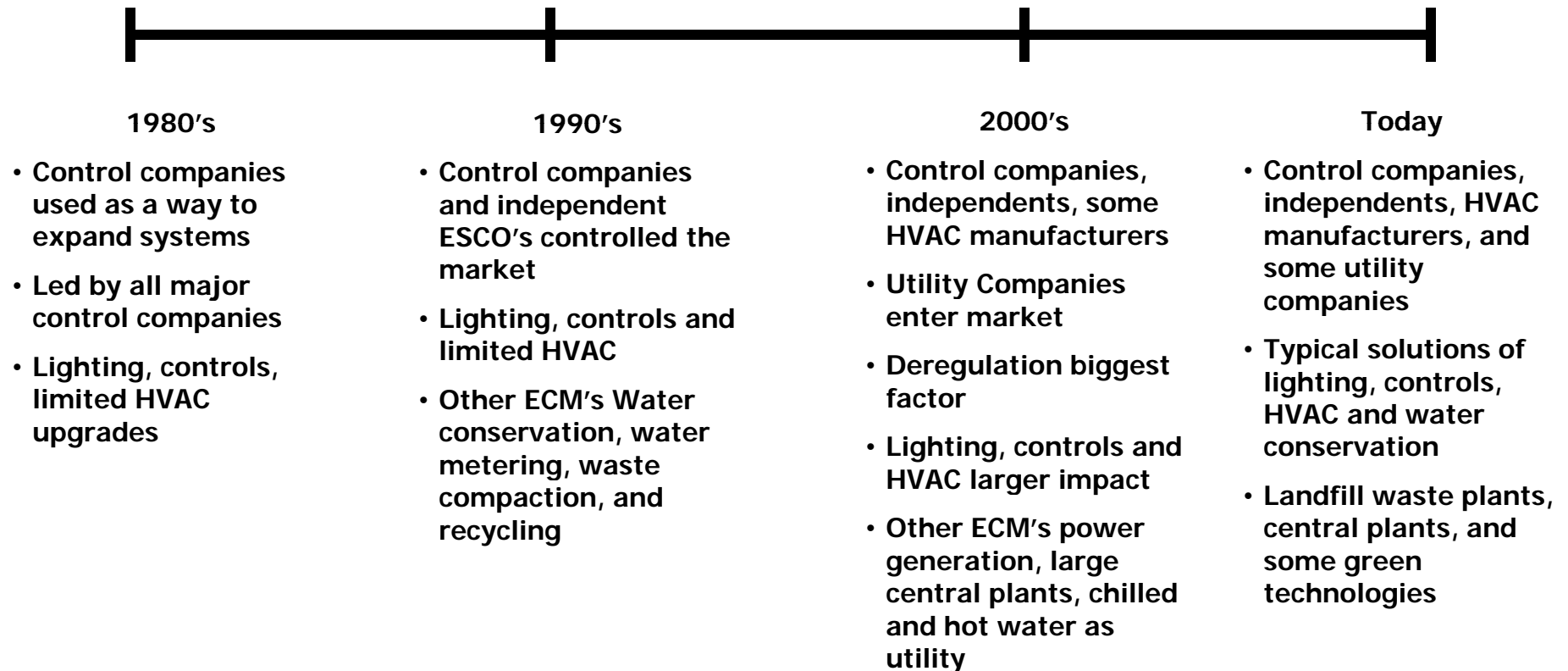
- Avoid or Verify all Capital Cost Avoidance Savings
 - Credit for upgrading equipment utilizing money you should be setting aside for replacement
 - Verify and thoroughly understand the budget ramifications
- Avoid or Verify all Maintenance and Operations Savings
 - Less cost for maintaining new equipment being installed, reduced man hours, or increased production of staff
 - Verify they are real cost reductions like a lower service agreement or ability to reduce staff
- Avoid maintenance contracts tied to the guarantee
 - Many ESCO's require a maintenance contract tied to the guarantee



History of Performance Contracting



History of Performance Contracting





Types of ESCO's

- Control Manufacturers
 - Johnson Controls, Siemens, Honeywell, Andover
- HVAC Equipment Manufacturers
 - Trane, Noresco (Carrier)
- Electric, Natural Gas and Oil providers
 - Chevron Energy (Oil), Florida Power and Light (Elec), Energy Systems Group (Gas), Constellation Energy (Elec)
- Independents
 - Ameresco, Control Technology and Solutions,



Things to Look For in an ESCO

- Local and National Experience
- Customized solution and approach
- Ability to use and bid to local vendors
- Open book pricing
- Vendor neutral for equipment
- Guarantee ability and open approach
- Union affiliations



Resources Available

- National Association of Energy Services Companies
 - www.naesco.org
- Federal websites for Performance Contracting
 - U.S. Department of Energy
 - <http://www1.eere.energy.gov/femp/financing/espcs.html>
- Energy Services Coalition
 - <http://www.energyservicescoalition.org/>
- Georgia Environmental and Finance Authority
 - www.gefa.org