



U.S. Department of Energy
Energy Efficiency and Renewable Energy

Performance Contracting



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Performance Contract Objectives

- Improve comfort and safety
- Repair, modernize and maintain facilities
- Reduce need for capital funding or bond issues
- Fund improvements from existing budget
- Achieve guaranteed results
- Transfer risk



Key Presentation Points

- The need
- A solution
- Financial approach
- Implementation

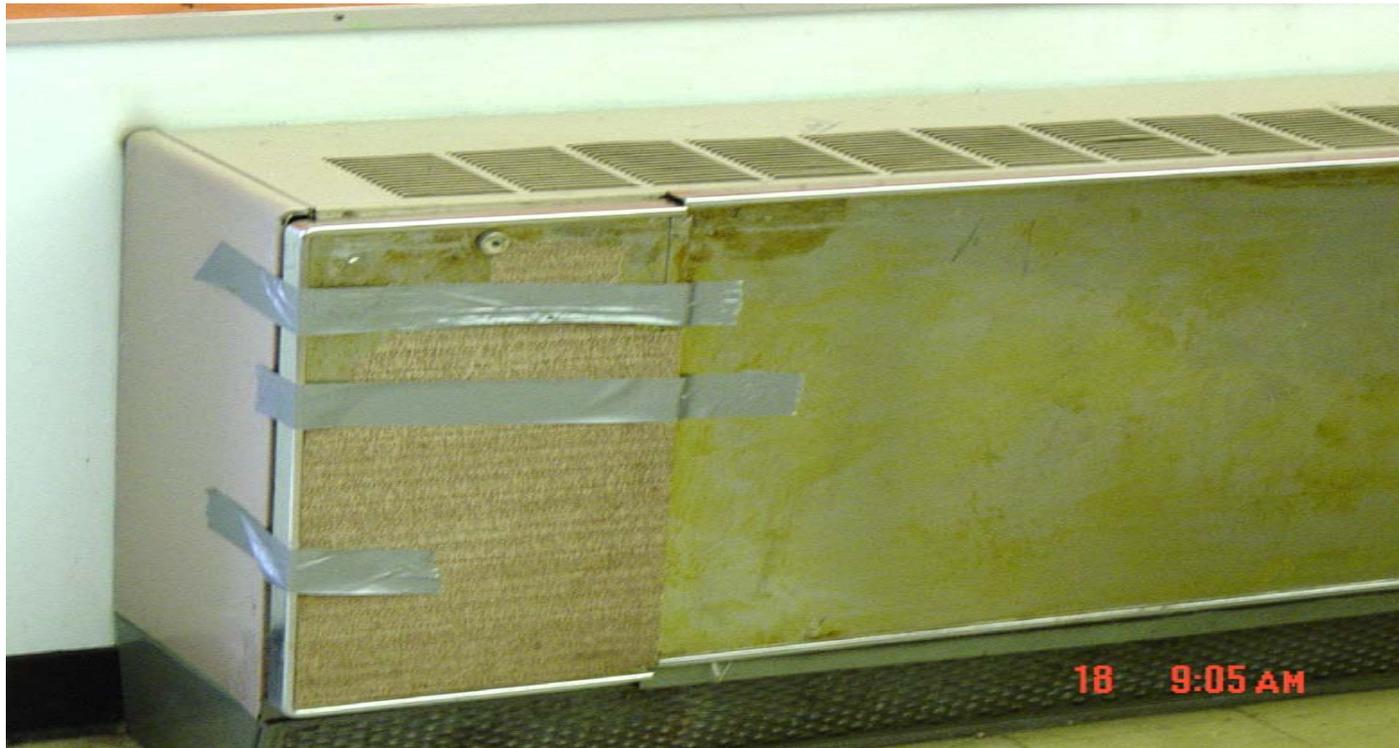


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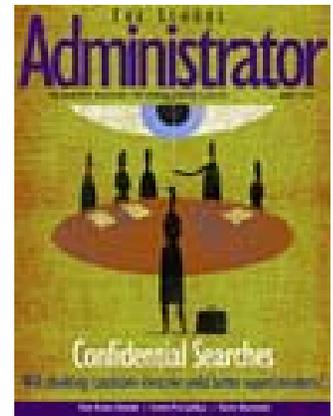
The Condition of America's Schools





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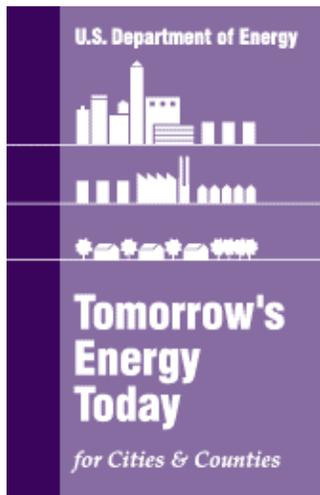
- In 1995, the General Accounting Office conducted an audit of the state of local public school infrastructure and determined that the nation's schools needed \$112 billion in repairs.
- In 1999, the National Center for Education Statistics found a need for \$127 billion in additional spending, with a long list of deficiencies that included insufficient access for disabled students, asbestos or lead in water or building materials, poor ventilation and heating, inadequate lighting, insufficient security, and crumbling roofs.





State and Local Government

- The United States is entering a period of renewed interest in energy management. Improvements in municipal energy management allow communities to free up energy operating funds to meet other needs. *Urban Consortium Energy Task Force (UCETF).*
- “These days of budget cuts, federal mandates, and ballot initiatives to limit taxes, some cities and municipalities are looking at reducing energy costs to relieve pressure on their budgets.”





A Vicious Cycle

Energy & Operational Costs



Maintenance, Operation and Capital Funds



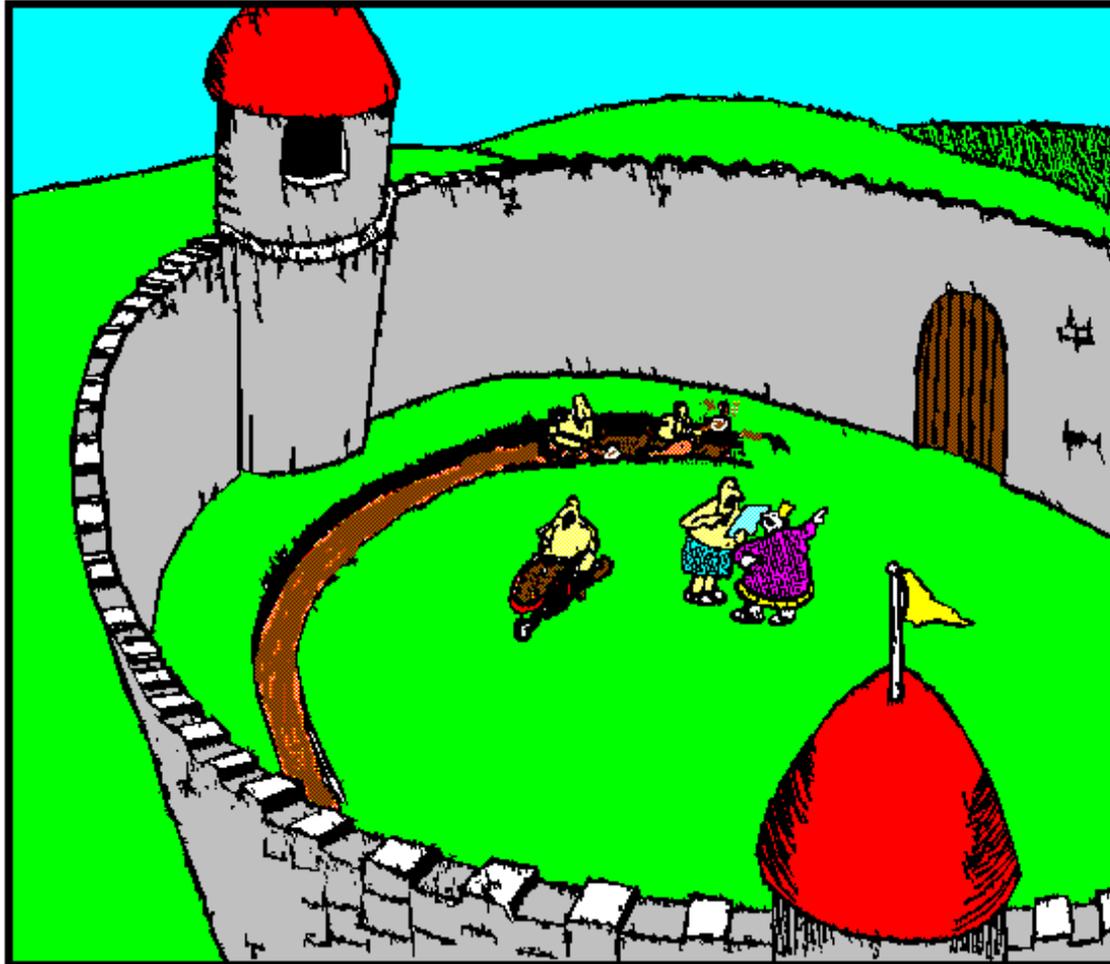
Results

- Decreased Efficiency
- Increased Run Times
- Increased Breakdowns
- Decreased Comfort
- Decreased Safety
- Poor Air Quality
- No Funds for Plant Renewal





Suddenly, a heated exchange took place between the king and the moat contractor.





Traditional Contracting Approach Issues

- Budget
- Timing (Completion)
- Quality
- On-going Performance



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Energy and Operational Efficiency Performance-Based Contracting Act

- **Allows Public Sector and Energy Service Provider to partner on long-term energy solutions and services (i.e., projects where capital is available...just not enough to design and install the most energy efficient systems)**

– Maintenance savings are defined as operating expenses eliminated and **future capital replacement expenditures avoided** as a result of new equipment installed or services provided



Performance Contracting

- A contract for systems and/or services that directly ties the contractors payment to performance.
- Also includes written guarantees that the costs will not exceed the energy and operational savings.



Alternative Construction Delivery Approach

- Performance Based Contracting
- Select “Top Performing” Equipment, Systems, and “ESP” – Energy Services Provider
- Shift Project Delivery Risk From Owner to Contractors



Benefits of Performance Contracting

Rating Criteria	Design Bid Build	Performance Based Design Build
1 st cost	★★★	★★
Life Cycle Cost	★	★★★
Construction Quality	★	★★★
Timing & Budgets	★	★★★
Exposure to Risk	★	★★★

★★★ Excellent

★★ Good

★ Poor



Benefits

- ✓ Improves Existing Building Infrastructure
- ✓ Improves Comfort of Building Occupants
- ✓ Reduces Energy Use and Costs
- ✓ Reduces Maintenance Deficit and



Distribution of Project Risk

	ESP	Customer
<i>Performance</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>Usage</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>Rate Schedule</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



Traditional Energy Conservation Measures

- Lighting systems
- DDC Controls
- Motor and Drive efficiency upgrades
- Central energy plants / decentralization
- Chillers and thermal storage systems
- Boiler efficiency upgrades
- Steam trap replacements
- Infrared heating
- Building Envelope





Renewable Technologies

- Landfill Gas Recovery
 - Direct Use
 - Cogeneration
- Digester Gas Use
 - Waste Water Treatment
- Solar Photovoltaic
- Wind Power
- ...





Geothermal Heat Pumps

- Year round heating and cooling
- Reduced maintenance cost
- Domestic hot water byproduct





Access To Real-Time Utility Consumption

- Identify Load Shifting and Shedding
- Optimize Generation Assets
- Fuel Switch, Depending on Costs
- Benchmark Facilities
- Effect Measurement and Verification
- Negotiate Utility Rates and Contracts
- Aggregate Loads
- Understand Energy Usage and Loads



Maintenance of Installed Equipment

- *Customer dictates level required*
 - Does in-house maintenance already exist?
 - New technology installed with no on-site staff
 - Shared responsibility?
- *Project economics drive maintenance decisions*
 - Are maintenance dollars readily available for contractor payment?
 - Current maintenance subcontracted or in-house?
 - Are maintenance savings real and clearly justifiable?



Proposed Measurement and Verification

- *Follow FEMP guidelines*
 - DOE/EE-0157 International Performance Measurement and Verification Protocol (IPMVP)
 - As a minimum, savings are verified annually with facility
- *Balance project economics with project risk*
 - More M&V means fewer infrastructure improvements
 - Customer makes final decision based on risk / reward



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Financing Alternatives

- Tax Exempt Lease- Public and Not for Profit
 - Lowest Rates Available
 - Includes Non Appropriation
- Operating Leases
- Capital Leases
- Outright Purchase



Financing Alternatives

- Capital Leverage
 - Buy downs
- Payment Options
 - Monthly, Quarterly, Semiannual or Annual
 - Advance or arrears
- Term
- Guarantees- Payments Less Than Savings

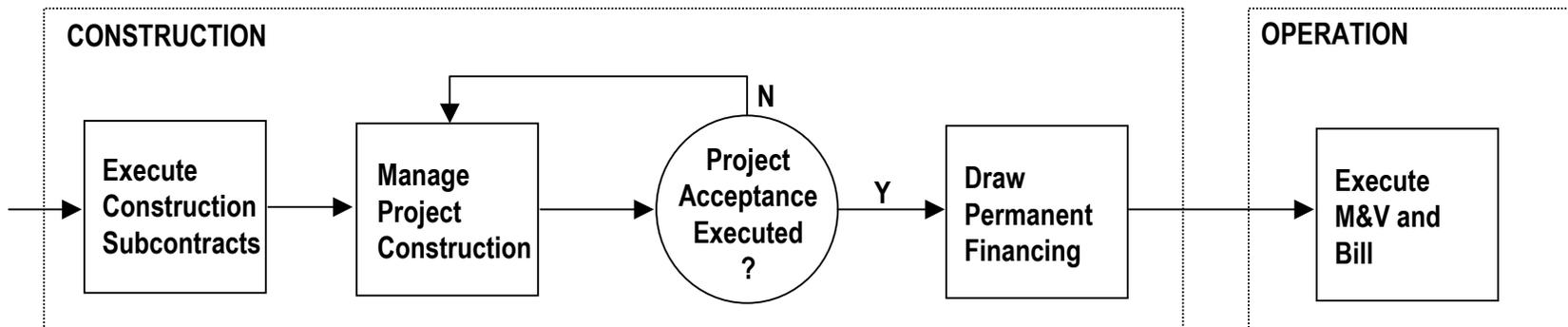
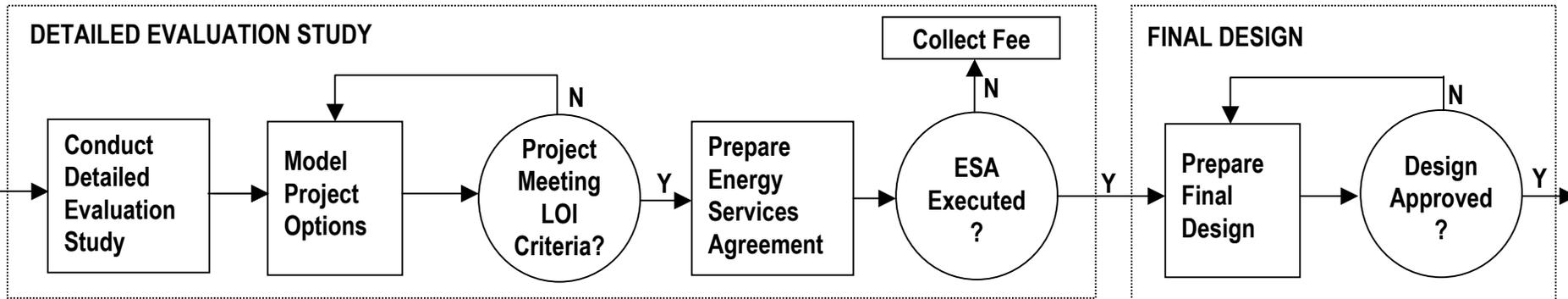
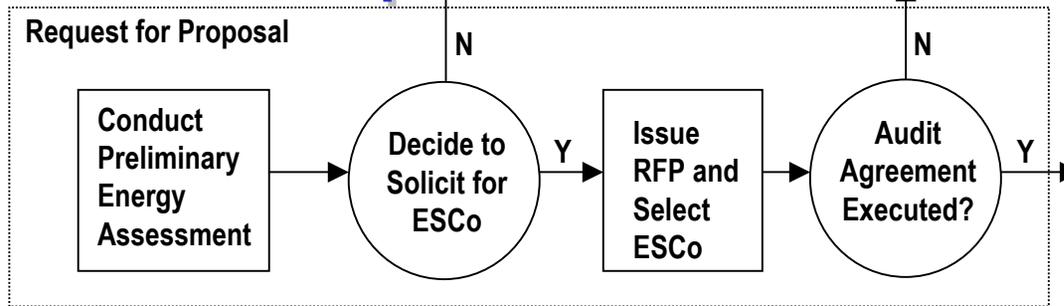


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Implementation





Questions