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# High Performance Schools-

“How do we get there?”

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**Build an Energy Team and Utilize Performance Contracting**

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# How do we go from this to High Performance? Teamwork!

- **76% of all school district in the US indicated they need to invest in repairs**
- **Total repairs exceeded \$127 Billion dollars**
- **Most maintenance budget are deferred due to budget constraints**
- **The average K-12 school in the US is 42 years old**
- **Only 21.6% of K-12 spending is on capital outlay and O&M budgets**

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# Building an Energy Team

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**“Optimizing Energy in Your Organization”**

# Energy Optimization

- “Optimization is an ongoing process of review and adjustment in order to reduce costs and increase productivity”
- In an organization it is essential to establish an energy plan that will help sustain this effort

# Develop the Team

- Energy Optimization is a team sport
- Team should reflect the entire organization
- Appoint a strong leader
- Set goals
- Engage the entire organization

# Energy Accounting

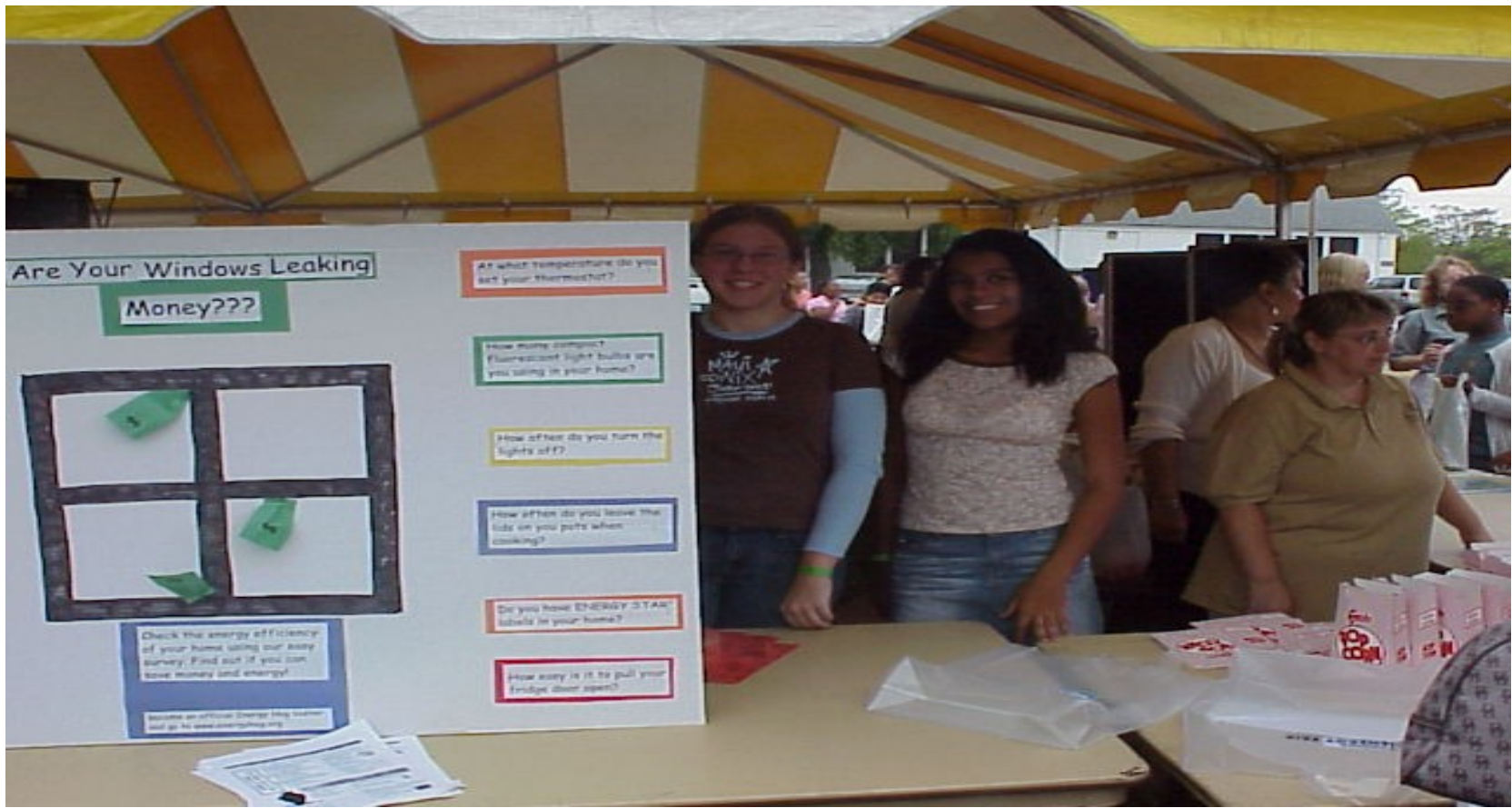
- Review historical energy consumption
- Identify energy mix
- Method to record, analyze, track and report use and costs
- Need is based on the premise that you “cannot manage what you cannot measure”

# Develop a “Tool Bag”

- Benchmarking
- Training
- Audits
- Software
- Models
- Others-Financing, purchasing options, promotions, grants



# Henrico's First Energy Fair featured an energy poster contest! Savings Bonds were awarded to the winners! Good Job Jerry!



# Setting Goals

- Simple
- Measurable
- Verifiable
- Specific examples of what you want to achieve
- 10-20% savings are usually a good place to start



# Review Process- Once a measure is implemented:

- Improve based on field input
- Review to ensure results
- Adjust to meet specific needs



# Begin with an Energy Audit

- Preliminary Audits can help locate your quickest payback items
- Detailed audits will fine tune your recommendations and require organizational input and assistance



# Typical Components of a Detailed Audit

- Utility Rate review
- Operational and Maintenance Procedures
- Lighting
- HVAC
- Motors and Controls
- EMS
- Alternative Energy options
- Building Envelope
- Grants and Financing Recommendations
- Process improvements specific to your organization

# Develop a Sustainable Plan

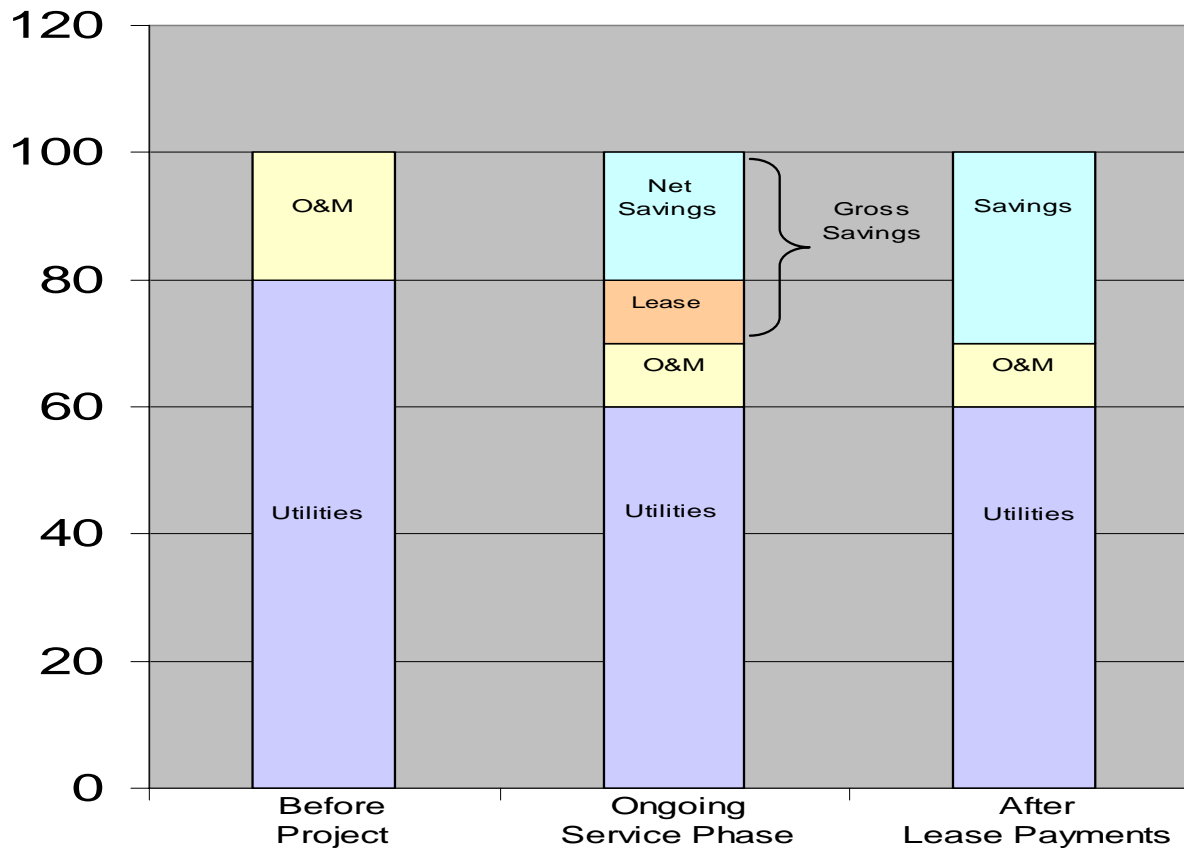
- Requires Management commitment
- Places individual accountability at all levels
- Celebrates past success and rewards future achievements
- Don't hesitate to bring in an "expert" such as an Energy Performance Contractor- Virginia "Pick 3" process provides free "back of the envelope" audits

# An Energy Performance Contract Brings It All Together

- Meet energy efficiency initiatives/requirements
- Guaranteed Energy Solution
- Turnkey project from energy audit to ongoing savings
- Paid for from guaranteed cost savings
- No capital expenditures
- Energy education and awareness



# How an Energy Performance Contract Works



# Aspects of an Energy Performance Contract

- Energy Auditing
- Engineering
- Construction
- Financing
- Positive cash flow
- Guaranteed savings
- Measurement and verification
- Extended warranties
- Operation and maintenance

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# Who Can Benefit From an Energy Performance Contract

- K through 12 Schools Systems
- City and State Buildings
- Colleges and Universities
- Owner Occupied Office Buildings
- Military Bases
- Coop and Condo Associations
- Hospitals
- Industrial Facilities

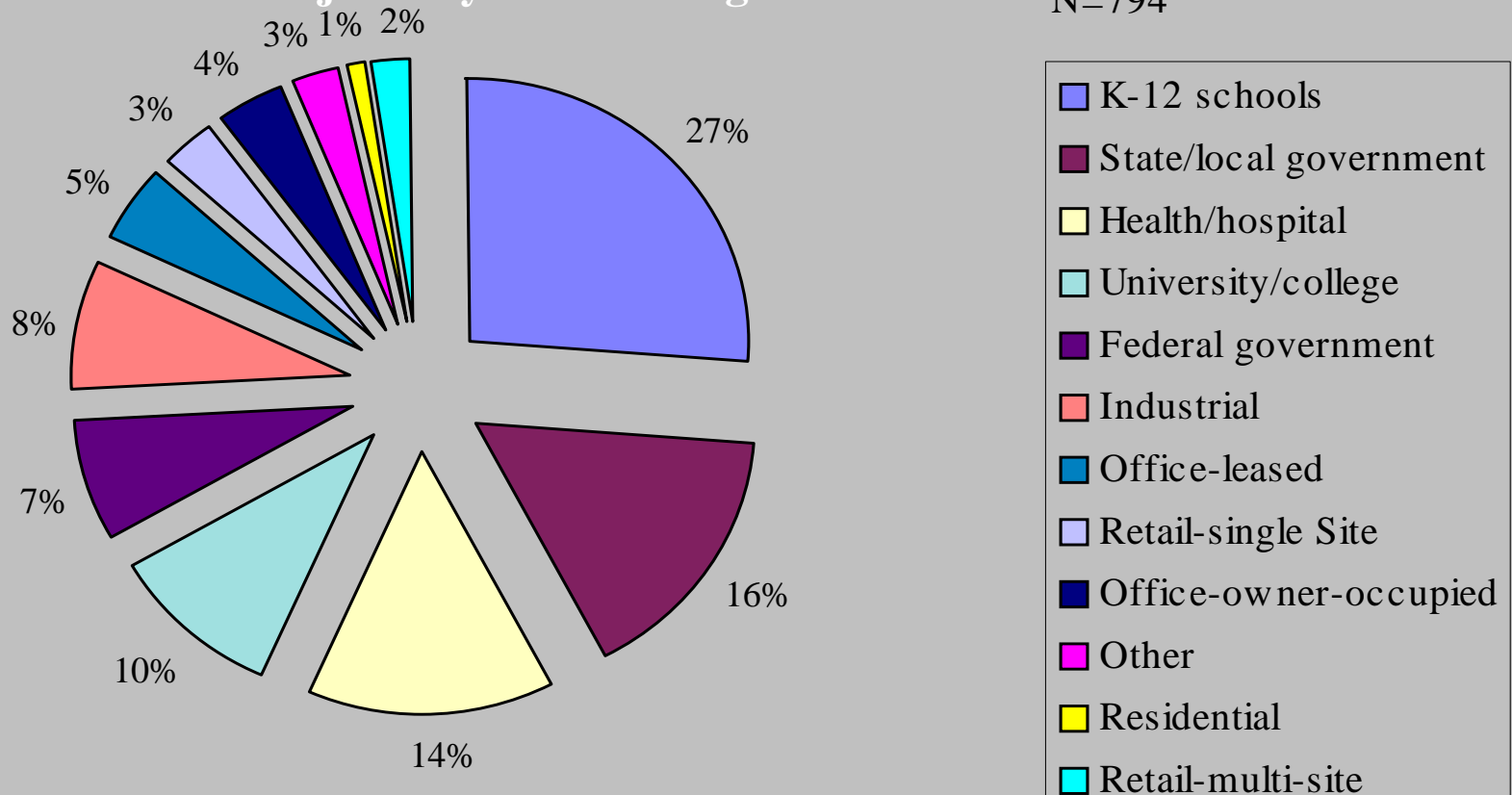
# Statistics on Performance Contracting – From NAESCO

- National Association of Energy Services Companies
- Results from NAESCO Project Database (*Market Trends in the U.S. ESCO Industry: Results from the NAESCO Database Project* by Charles A. Goldman, Julie G. Osborn, and Nicole C. Hopper, LBNL; Terry E. Singer, NAESCO )
- 60+ participating companies
- ~1500 projects
  - ❖ 76% based on some type of performance contracting arrangement
  - ❖ \$2.6 billion capital investment for all sectors

# Performance Contract by Market Sector

Figure 2. ESCO Projects by Market Segment

N=794



# Project Characteristics

- 95% of the projects installed lighting or HVAC or both
- Project costs typically are in the range of \$600,000 to \$2 million although trending to larger \$ volumes over several phases
- 23% average reduction in electric savings

# Performance Contracting will lessen our Carbon Footprint and provide a better learning environment for our students

- **Estimated savings potential from 1990-2010 for 1400 energy performance contracting projects implemented by a national ESCO:**
  - **\$18 billion on energy bills**
  - **352 million tons of CO<sub>2</sub> -- equivalent to eliminating emissions from 4 million cars**



# Contact Information

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