

Energy Efficiency Efforts

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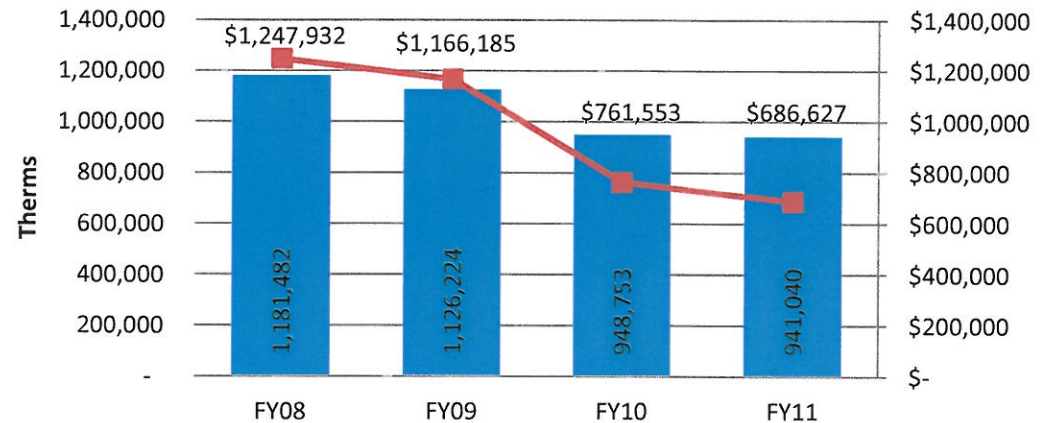
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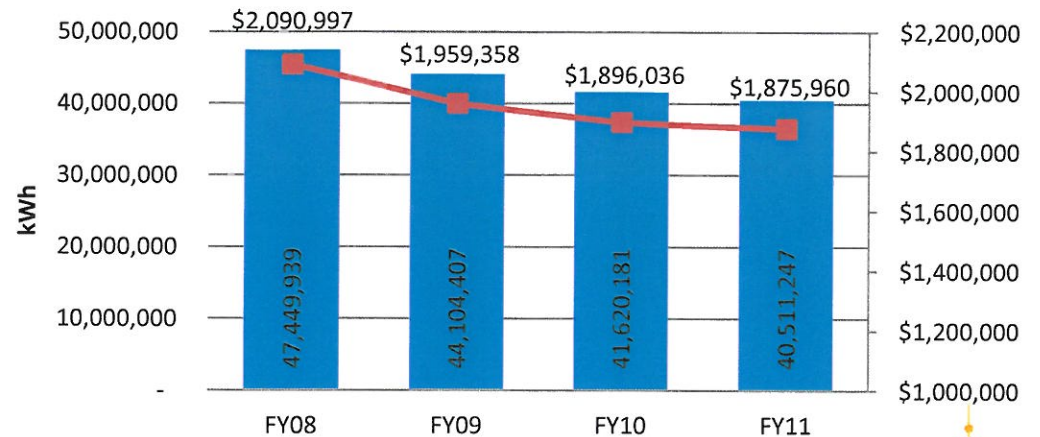
DAS Energy Management Results

- ▶ DAS pays the utility bills for buildings on the Capitol Complex, Terrace Hill and the Iowa Laboratories in Ankeny.
- ▶ Since FY08, DAS has decreased overall energy consumption by 17%, spending nearly \$800,000 less on utilities in FY11 than in FY08.
- ▶ Of the \$800,000 in savings, roughly \$300,000 is due to lower natural gas prices.

Natural Gas



Electricity



DAS Energy Management Process

- ▶ Energy Management Process
 - Review bills and tariffs
 - Saved more than \$70,000 to date
 - Set policies
 - Temperature set points for summer (78) / winter (68)
 - Implement deadband control (reduced natural gas usage by ~10%)
 - Core hours for building lighting (6:30 am to 5:30 pm)
 - Implement energy efficiency upgrades
 - Estimated to save \$150,000 annually
 - Estimated payback within 4 years (after grant and utility rebates)
 - Received nearly \$150,000 in rebates to date
 - Measure results

DAS Energy Management Efforts

Year Installed	Project
1976	Automated building lights and turn off during nights, weekends and holidays.
1986	Automated building heating and cooling setpoints and setback temperatures during nights and weekends.
1986	“Free cool” buildings by using cool outside air for air conditioning.
2002	Installed Vending Misers on most vending machines on campus.
2003	Converted lighting from T12 to T8 fluorescent lamps and electronic ballasts.
2003	Changed incandescent light bulbs to compact fluorescent lamps.
2003	Added occupancy sensors to conference rooms, bathrooms and private offices.
2003	Replaced exit signs with LED exit signs.
2007	Replaced incandescent light bulbs in Capitol with cold cathode lamps.
2008	Added variable frequency drives to air handling unit motors.
2008	Added dry coolers to Central Energy Plant to use cold outside air to provide chilled water during winter months.

DAS Energy Management Efforts

- ▶ Enrolled in MidAmerican Energy's Efficiency Partners in 2007
- ▶ Conducted energy audits of all buildings on Complex
- ▶ Implementing additional projects:
 - Retro-commissioned 3 office buildings
 - Optimized ventilation rates at the Iowa Labs
 - Added variable frequency drives to chilled water pump motors
 - Replaced HPS and metal halide lighting with T5 and T8 fixtures
 - Added variable frequency drives, upgrade motors and install coordinating software at data center
 - Finished replacement of exit signs with LED exit signs.
 - Install additional occupancy sensors
 - Finish conversion of the few remaining T12 lamps and incandescent light bulbs

DAS Energy Management Plans

- Future Opportunities
 - Evolving LED technology, daylighting
 - Motor replacements
 - Elevator upgrades
 - Chiller plant optimization
 - Boiler upgrades
 - Additional submetering
 - Chilled water
 - Steam

DAS Lessons Learned

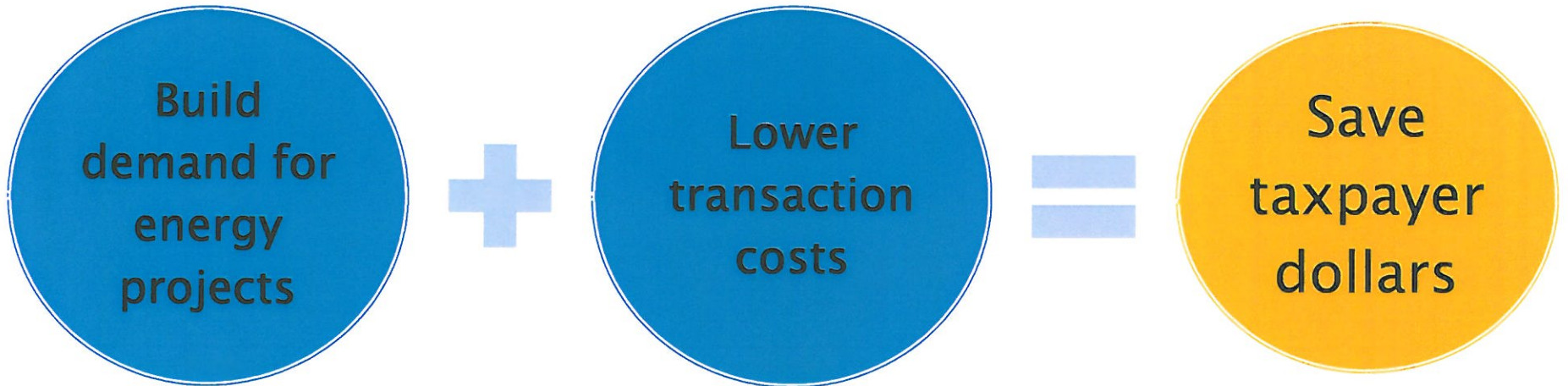
- ▶ Energy management barriers
 - Lack of time
 - Lack of capital
 - Utilities offer rebates, but need to cover entire expense up-front
- ▶ Keys to success
 - Identify energy champion
 - Involve building engineers and custodians
 - Solicit ideas from all employees



The Iowa Energy Bank



Role of The Energy Bank

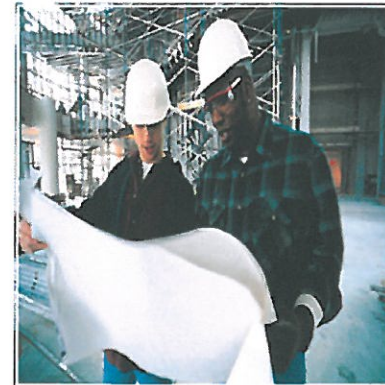


Key Goals



Attract and deploy
capital to finance energy
improvements

Identify and implement
all cost effective projects
& save taxpayer dollars



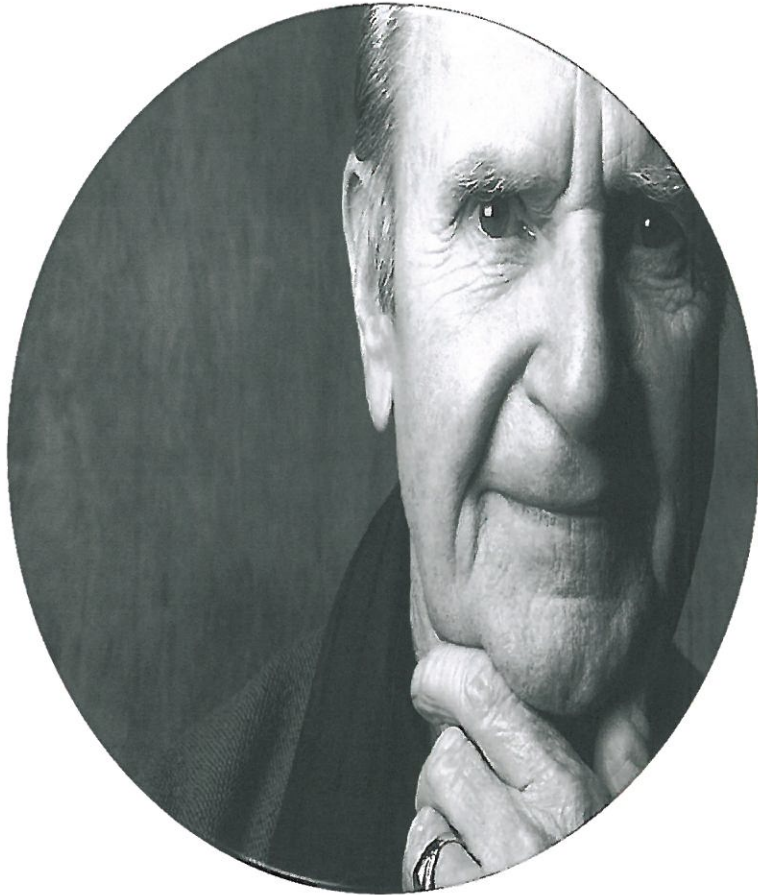
Funding

We provide the money public facilities need to make investments in energy projects

- ✓ Only projects that pay for themselves with energy savings
- ✓ No upfront capital or appropriations needed
- ✓ \$12.5 million revolving loan fund
 - 1% interest
 - 2% closing costs
 - 0.25% servicing fee
 - Partnership with IFA
 - Loan committee



Oversight



We provide the knowledge of DAS and private sector experts to ensure success

- ✓ DAS energy experts assure high quality investment information
- ✓ A monitoring system is being put in place to track the project's effectiveness over time
- ✓ If savings get off track, program staff are there to troubleshoot

Expected Results



Rule of thumb – most buildings can reduce energy costs by at least 15%

- ✓ The \$12.5 million revolving loan fund is expected to save \$1 million annually
- ✓ For the future:
 - Test demand and examine options to grow the loan pool
 - Bring in more capital