



Kentucky Energy Efficiency Program for Schools

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**2009 Energy Management
Workshops for Schools
February 24 & 26, 2009**



What is KPPC?

- ❑ KPPC is a non-profit organization established in 1994 through a legislative mandate
- ❑ Statewide technical assistance & outreach programs
- ❑ Based at the *University of Louisville's* J.B. Speed School of Engineering (SSoE)
- ❑ Represents the *University of Louisville* as a nationally recognized Center of Excellence
- ❑ Provides hands-on training for students through the Cooperative Education Program at SSoE

KPPC

Mission

KPPC is Kentucky's primary resource to help businesses, industries and other organizations develop environmentally sustainable, cost-saving solutions for improved efficiency.

Based at the **University of Louisville J.B. Speed School of Engineering, KPPC provides technical information and assistance that is free, confidential and non-regulatory.**



KEEPS is a Partnership

KPPC (Kentucky Pollution Prevention Center)



In Partnership with:

**The Department for Energy Development & Independence
(DEDI)**

**The KY Chapter of the National Energy Education
Development program (NEED)**

**The Kentucky School Plant Management Association
(KSPMA)**

Kentucky Green & Healthy Schools (KGHS)

KEEPS Pilot Members/Mentors



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Kentucky Energy Efficiency Program for Schools (KEEPS)

- ❑ Helps Kentucky school districts & higher education institutions reduce energy use & save money
- ❑ Emphasizes the benefits of proactive energy management & responsible environmental stewardship
- ❑ Educates school administrators, teachers, students & facilities managers on how their actions affect energy consumption
- ❑ HB 2 establishes KPPC as a primary resource to assist school districts in complying with the mandates of HB 2



Objectives for Energy Management Workshops for Schools

- ❑ Understand Kentucky House Bill 2 Section 16 that requires all boards of education to enroll in KEEPS on or before January 1, 2010
- ❑ Learn a step-by-step systems approach for creating both district & school-level energy management programs (EMP)
- ❑ Develop a multi-disciplinary EMP that will provide real solutions & savings
- ❑ Utilize available tools, including technical and curricular resources, to help school districts meet their energy performance goals

KEEPS Pilot Members/Mentors

□ School Systems

- ✓ Bullitt County Public Schools, Shepherdsville
- ✓ Kenton County Public Schools, Fort Wright
- ✓ Franklin County Public Schools, Frankfort
- ✓ Madison County Public Schools, Richmond
- ✓ Russell Independent Schools, Russell

□ Colleges/Universities

- ✓ Thomas More College, Crestview Hills, Kenton County
- ✓ Kentucky State University, Frankfort
- ✓ Western Kentucky University, Bowling Green



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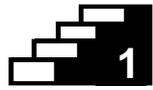
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Planning Lessons Learned

- To be truly successful, E2 requires a systematic, integrated, consistent, organization-wide approach
- This approach can be achieved through comprehensive E2 planning
- “Failing to plan is planning to fail!”

EPA's Energy Star's 7 Step Energy Management Program (EMP)



Make Commitment to Continual Improvement



Assess Performance & Opportunities



Set Goals



Create Action Plan



Implement Action Plan



Evaluate Progress



Recognize Achievements



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KPPC Partnerships

Keys to success

❑ KPPC Commitment:

- ✓ Enrollment, data gathering & review
- ✓ Opportunities assessment using tools
- ✓ Facilitate site assessment with energy team
- ✓ Confidential services

❑ CLIENT Preparation AND Commitment:

- ✓ Policy, Team & Leader commitment to program
- ✓ Pre & post measuring & monitoring
- ✓ Provide critical data to project
- ✓ Team & Site assistance in assessments



House Bill 2 Section 16

To reduce the rising energy costs that are straining school budgets:

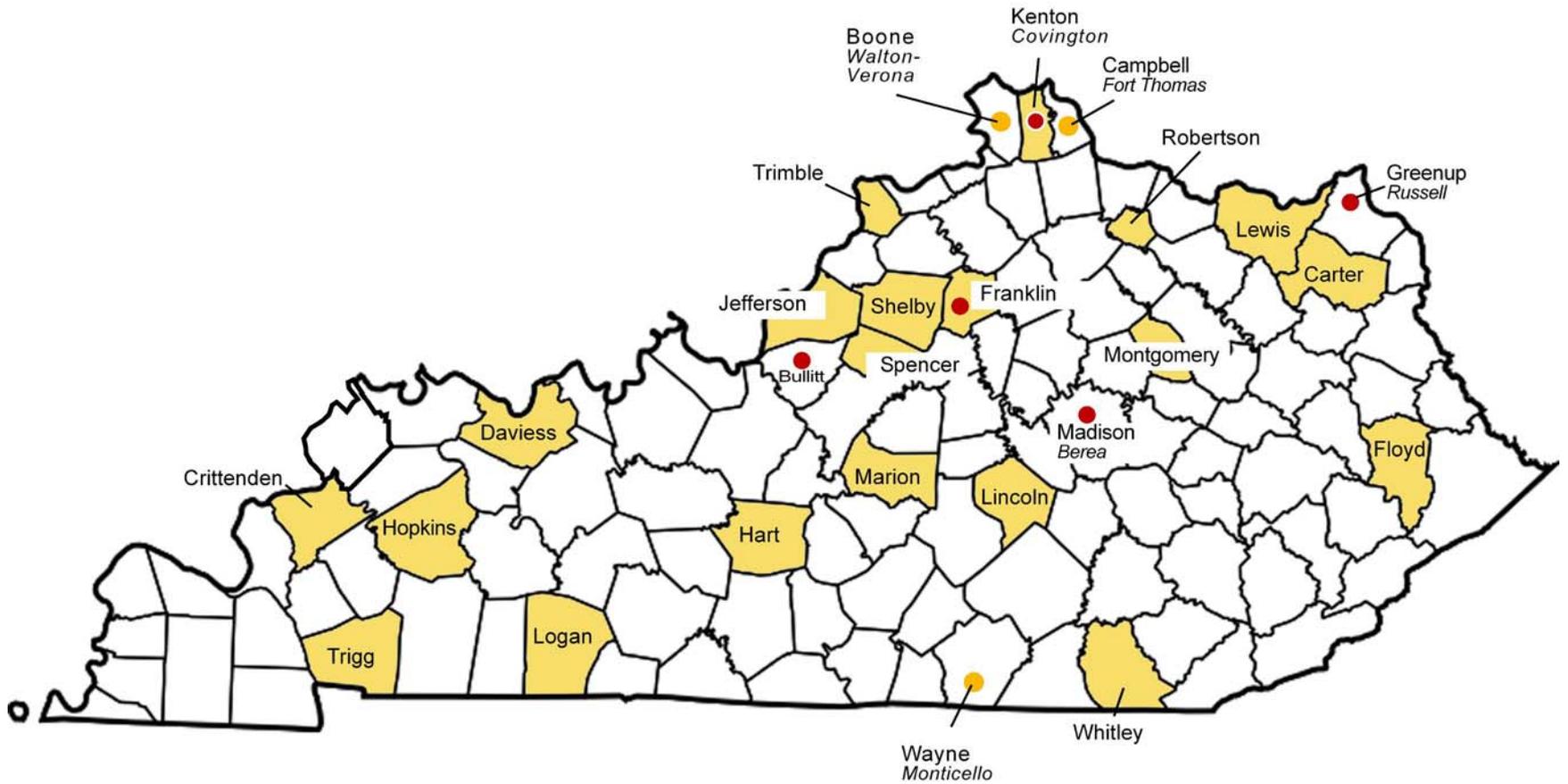
✓ Boards of education shall enroll in KEEPS

Why? To obtain information regarding the potential energy savings for every board-owned & operated facility

When? On or before January 1, 2010

Where do I sign up? With the Kentucky Energy Efficiency Program for Schools (KEEPS) offered by KPPC at U of L

KPPC began enrollment on NOVEMBER 1, 2008



● **KEEPS Members**

● **KEEPS Mentors**



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KEEPS Program Objectives

- 1) Web Site Development
 - 2) Outreach & Training/Education
 - 3) Tracking, Monitoring & Reporting
 - 4) Regional Network Planning & Development
 - 5) Recognition Program Development
- ✓ **HB 2 Section 16: KPPC will prioritize the provision of assistance & development of energy management plans **based upon available resources****

KEEPS Objective 1

KPPC will continue to develop the KEEPS Web Site as a primary tool in providing communication, outreach & technical assistance

- ✓ **Energy Resources (information and links to DEDI, NEED, KSPMA, KGHS & KEEPS mentors)**
- ✓ **KEEPS Members FAQ's, Tips of the Trade**
- ✓ **Training & Event Notices**
- ✓ **Regional Networks**



Kentucky Energy Efficiency Program for Schools

What is KEEPS?

The Kentucky Energy Efficiency Program for Schools (KEEPS) helps Kentucky school districts reduce energy consumption and lower operating expenses. KEEPS is funded by the Kentucky Department for Energy Development and Independence and administered by KPPC – the Kentucky Pollution Prevention Center, based at the University of Louisville J.B. Speed School of Engineering.

Following the success of the KEEPS pilot program and with the burden of increasing energy costs on school budgets, [Kentucky House Bill 2 Section 16](#) was signed into law on April 24, 2008 requiring all public school districts to enroll in the KEEPS program by Jan 1, 2010. Boards of education are also required to report data on energy usage, costs and savings measures to KPPC through the KEEPS program. KEEPS will summarize and facilitate annual reporting of the data to the Kentucky Department for Energy Development and Independence and the Legislative Research Commission.

How KEEPS works

Through KEEPS, KPPC offers a valuable package of tools, training, coaching and expertise to assist participants in developing a systems approach to energy management. Using the [Energy Star® Seven Step Guidelines for Energy Management](#), KPPC has compiled available resources specific for Kentucky schools to help analyze and understand their energy consumption, which includes everything from light usage and heating/air conditioning issues to natural gas usage and best environmental management practices.



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Kentucky Energy Efficiency Program for Schools



* All questions in red are required

School District	Event Name:	KEEPS Enrollment
School District Contact First Name:	<input type="text"/>	
School District Contact Last Name:	<input type="text"/>	
School District Contact Primary Phone Number:	<input type="text" value="{xxx-xxx-xxxx}"/>	
School District Contact E-mail Address:	<input type="text"/>	
Retype School District Contact E-mail Address:	<input type="text"/>	
School District Contact Address:	<input type="text"/>	
School District Address:	<input type="text"/>	
School District City:	<input type="text"/>	
School District County:	<input type="text"/>	
School District ZIP:	<input type="text"/>	
District Web Site Address:	<input type="text"/>	
District Energy Web Site Address:	<input type="text"/>	
Number of Schools in District:	<input type="text"/>	
Energy Manager/Energy Team Leader First Name:	<input type="text"/>	
Energy Manager/Energy Team Leader Last Name:	<input type="text"/>	



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Kentucky Energy Efficiency
Program for Schools

Madison County School District

Is Hereby Recognized as a Member of
The Kentucky Energy Efficiency Program for Schools

Member Since
November 2008

KEEPS MEMBER



Step 1: Make a Commitment to Continual Improvement

- ❑ Energy program is vital to continuously improving energy performance
- ❑ For commitment, the school district should:
 - ✓ Appoint an energy manager
 - ✓ Establish an energy team
 - ✓ Institute an energy policy
- ❑ EP will:
 - ✓ Define energy usage goals
 - ✓ Organize the energy management projects
 - ✓ Involve all levels of the school district



Energy Management Program

MANAGEMENT

POLICY



SET GOALS



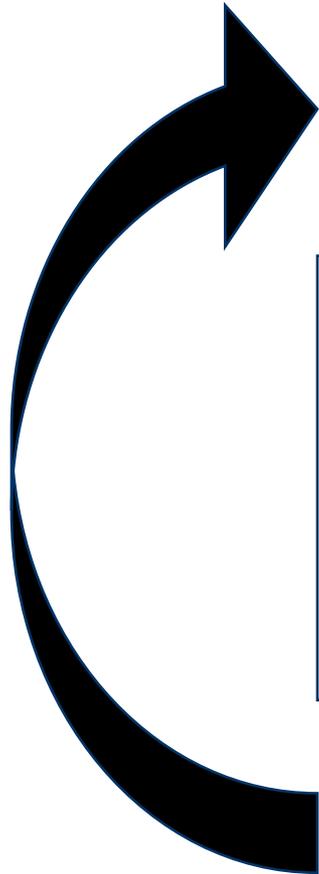
ACTION PLAN



IMPLEMENT PROJECTS



EVALUATE PROGRESS



TECHNICAL

MONITOR & MEASURE



ENERGY USE PROFILE



E2 ASSESSMENT



Team Approach with Leader



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Partnership for a Green City (PGC): Jefferson County Public Schools

Energy Use Principle

We will save energy every day and work to reduce the amount of energy that we use in our buildings, vehicles and equipment.

We will increase our use of renewable resources.



KEEPS Objective 2

KPPC will provide routine outreach & training to enrolled KEEPS members

These services will include:

- ✓ **E-mail group listserv (news, events)**
- ✓ **Assistance via phone, e-mail and/or on-site**
- ✓ **Webinars**
- ✓ **Attendance/presentations at state E2 conferences**
- ✓ **Presentations at KEEPS regional network meetings**

Outreach & Training

KEEPS' On-line Training Program:

- ✓ **Energy Star's 7 Step Energy Management Program with downloadable documents, examples, resources & assessment tools (Steps 1 & 2 are available now)**
- ✓ **Basics of Energy Management**

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28



Kentucky Energy Efficiency Program for Schools

The seven-step Energy Management Process (EMP) system's approach is to educate their schools.

Each of the individual resource materials to

Many of the additional materials, such as pre-engineers.

The seven step process outcomes will be directed

The Seven Step

Step One: Make the Commitment

Step Two: Assess Performance & Opportunities

Step Three: Set Performance Goals

Step Four: Create an Action Plan

Step Five: Implement the Action Plan

Step Six: Evaluate Progress

Step Seven: Recognize Achievement

The Seven Step Process

Step One: Make the Commitment

Step Two: Assess Performance & Opportunities

Step Three: Set Performance Goals

Step Four: Create an Action Plan

Step Five: Implement the Action Plan

Step Six: Evaluate Progress

Step Seven: Recognize Achievement



upcoming events	
	Green Marketing Claims Webinar 2009-02-19
	Energy Management for Schools 2009-02-24
	Recycling for Schools 2009-02-26
	Waste Management for Schools 2009-03-10
	West Virginia Energy Exchange Martinsburg, KY 2009-03-12
	... events...
	... events...

news	
	Kentucky Industrial Materials Exchange (KIME) 2009-02-02

A seven-step [Energy Management Process training module](#), based on the [ENERGY STAR®](#) program, has been developed by KPPC as a tool designed to help Kentucky school district energy teams reduce energy consumption and operating expenses.



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Outreach & Training

Energy Star's 7 Step Energy Management Program:
downloadable documents, examples, resources &
assessment tools

Step 1. Make Commitment to Continuous Improvement

1.1 Hire/Appoint an Energy Auditor/Manager

Provides typical job description of EM

1.2 Establish a Cross-Functional Energy Team

Provides a list of suggested team members

1.3 Schedule regular Energy Team Meetings

Provides sample agendas for Team meetings

1.4 Institute an Energy Policy

Provides examples of generic and/or existing energy policies

HB 2 Section 16 Reporting

KPPC reports annually to DEDI & LRC:

- ✓ Number of boards of education enrolled in KEEPS
- ✓ Status of energy management plan development by boards of education & anticipated cost savings to be obtained through planning
- ✓ Amounts & disposition of grants provided by DEDI & any state appropriations for support of the KEEPS program

When?

- ✓ On or before December 1, 2011 (on or before December 1 of each year thereafter)

KEEPS Objective 3

KPPC will compile information & data provided by the boards of education for reporting

Data will include:

- Enrolled boards of education
- Progress with Energy Management Programs
 - ✓ **Categorical** information
 - ✓ **Numerical** data

Tracking, Monitoring & Reporting

Categorical Information

To be obtained via KEEPS initial enrollment form & an annual KEEPS member survey

- ✓ Enrolled Districts (Total number)
- ✓ Energy Policy/Principle/Mission (developed)
- ✓ Energy Manager/Auditor/Coordinator (appointed)
- ✓ Energy Management Team Members (participating)
 - Energy Management Team Meetings (dates & times)
- ✓ Districts signed up to be an EPA Energy Star Partner

Tracking, Monitoring & Reporting

Numerical Data

- ✓ Annual Energy Usage & Costs
- ✓ Projected Reductions/Opportunities
- ✓ Reductions Due to E2 Measures
- ✓ Other? (Carbon Footprint reduction, etc.)

Step 2: Assess Performance & Opportunities

- ❑ **Process of evaluating energy use for all major facilities & functions**
- ❑ **Understand current & past energy use**
- ❑ **Analyze energy use to:**
 - ✓ Identify energy opportunities
 - ✓ Improve energy performance
 - ✓ Gain financial & environmental benefits
- ❑ **Key aspects of assessing performance include:**
 - ✓ Data collection & management
 - ✓ Baselineing & Benchmarking
 - ✓ Data analysis
 - ✓ Technical E2 Assessments



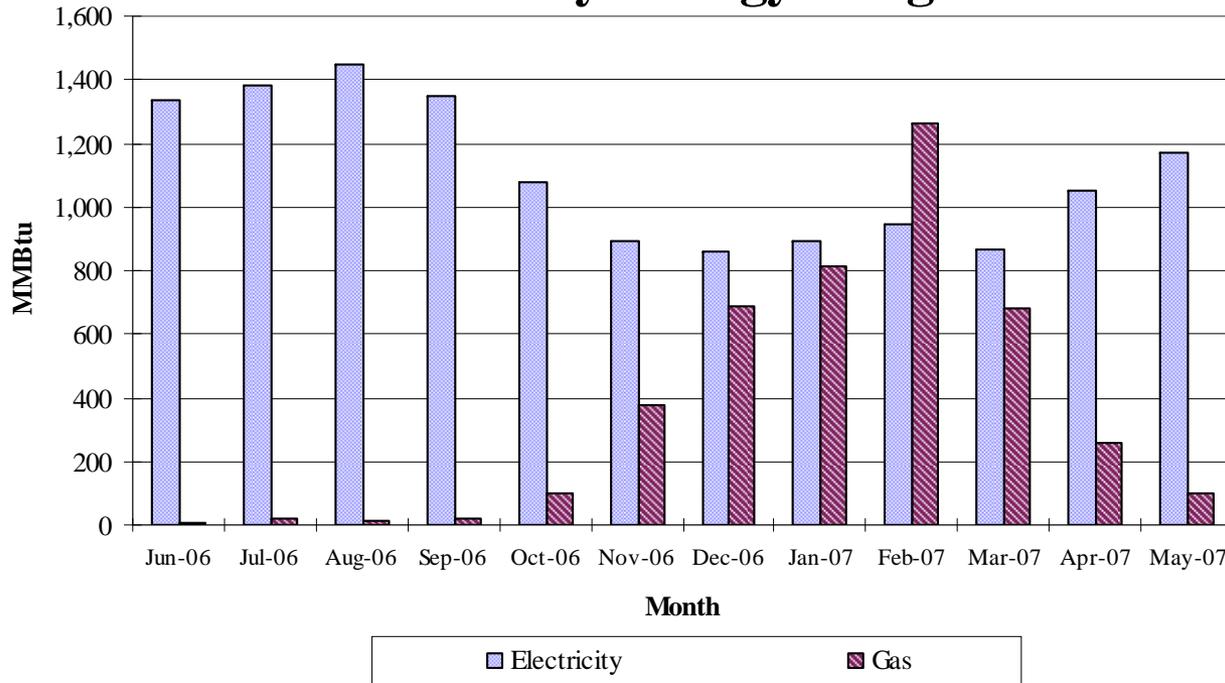
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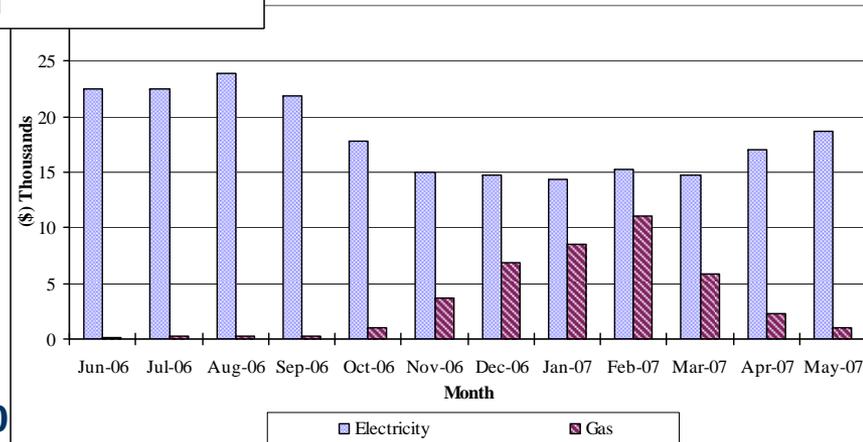


Tracking Energy Use

**Figure 1:
Monthly Energy Usage**



**Figure 2:
Monthly Energy Costs**



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Step 3: Set Goals

- Performance goals**
 - ✓ Drivers for energy management activities
 - ✓ Promote continual improvement

- Setting clear & measurable goals**
 - ✓ Critical for understanding intended results
 - ✓ Developing effective strategies
 - ✓ Reaping financial gains

- Well-stated goals**
 - ✓ Guide daily decision-making
 - ✓ Basis for tracking & measuring progress



Step 4: Create Action Plan

- ❑ Roadmap to improving energy performance
- ❑ Successful organizations use action plans to:
 - ✓ Ensure a systematic process
 - ✓ Implement energy use reduction measures
 - ✓ Support E2 goals & objectives
- ❑ Action Plans are regularly updated to reflect:
 - ✓ Recent achievements
 - ✓ Changes in energy performance
 - ✓ Shifting priorities, interests & drivers
 - ✓ Behavioral changes → sustainability

Step 5: Implement Action Plan

❑ Technology options:

- ✓ Identify and verify options
- ✓ Develop & justify capital investment

❑ Team member responsibility:

- ✓ Investigate E2 opportunities
- ✓ Verify data calculations
- ✓ Develop a timeline
- ✓ Identify resources
- ✓ Support the E2 goals & objectives
- ✓ Other tasks based on Step 2 information

Action Plan Format

Date:

E2 Opportunity Selected <ul style="list-style-type: none">•Purpose•Project•Benefits					
Action	Responsible Person	Performance Standard	Monitoring Technique	Completion Deadline	Resources Needed
1					
2					
3					
4					

Step 6: Evaluate Progress

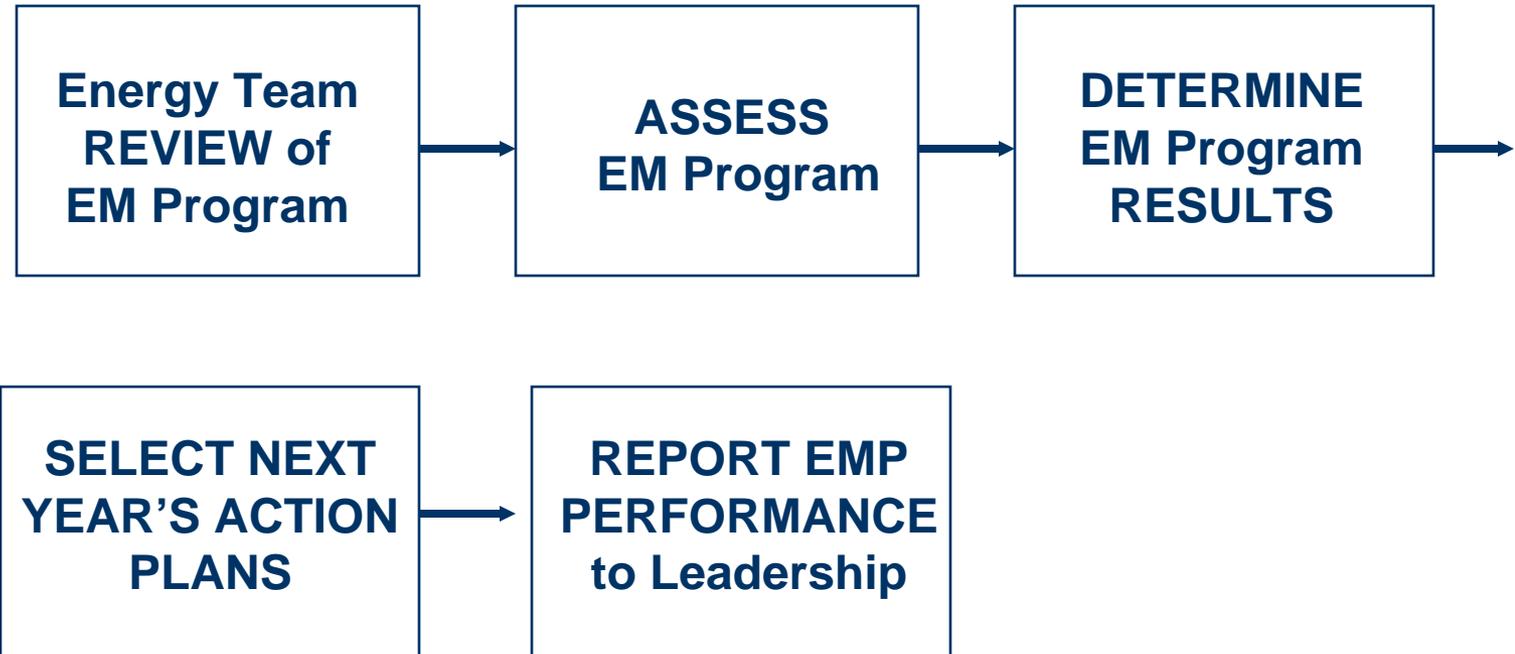
- ❑ **Evaluating progress includes:**
 - ✓ Formal review of energy use data & activities
 - ✓ Compares it to your performance goals

- ❑ **Review should include:**
 - ✓ Looking at effectiveness
 - ✓ What activities & projects were successful
 - ✓ Documenting “best practices”
 - ✓ Goals that were not met (determine root cause, decide corrective & preventative actions)

- ❑ **Formal review process results are used to:**
 - ✓ Create new action plans
 - ✓ Set new performance goals



Maintain EM Program



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Program Success (FY06 –FY08)

□ Financial

Electricity - \$101,477/yr

Natural Gas - \$22,464/yr

Rate Change - \$12,000/yr

Account Credits - \$11,900/yr

Avoided Costs - \$11,000/yr

✓ FY06 – FY07 **Over \$158,000** in Avoided Costs!

✓ FY07 – FY08 **Over \$246,000** in Avoided Costs!

□ Improved Energy Conservation Behaviors and Attitudes



Program Success (FY06 – FY08)

✓ **Electric Rate Reviews = \$75,000 total savings**

Meet with local electric supplier to ensure facilities are on the correct rate structure

✓ **Natural Gas Suppliers = \$45,600 total savings**

Solicit competitive bids from natural gas suppliers for high gas usage facilities

✓ **Targeting Schools with DDC Systems = \$116,500**

Limiting Setpoints, increasing heating offsets, controlling schedules

✓ **FY06 – FY07 Over \$237,000 in total savings!**

✓ **FY07 – FY08 Over \$284,000 in total savings!**

✓ **FY08 – FY09 Over \$230,000 in total savings for electricity, natural gas, propane, water & sanitation (first 6 months of FY)**



KEEPS Objective 4

KPPC, DEDI, KSPMA, NEED & KGHS will assist in the development & coordination of regional networks

- 2 regional workshops are being delivered:**
 - ✓ **Georgetown – February 24, 2009**
 - ✓ **Cave City – February 26, 2009**

Objectives for regional networks include:

- Peer support & cross-training**
- Outreach & training opportunities**
- Technical assistance deployment**
- Identifying regional energy resources**

KEEPS pilot members/mentors are assisting in providing presentations for regional KEEPS workshops/networks.



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Step 7: Recognize Achievement

- School facility, team & individual success
- Environmental performance:
 - ✓ Energy use reductions
 - ✓ Energy cost savings
 - ✓ Emissions reduction
 - ✓ Pollution prevention
 - ✓ Other
- Community recognition
- Apply for Recognition from EPA's Energy Star Program



KEEPS Objective 5

KPPC will develop a recognition program for KEEPS members which highlights several tiers of involvement. These levels may include:

- KEEPS Certificate of Enrollment & KEEPS Membership logo received upon completing online enrollment**
- KEEPS Energy Awareness Award—received upon completion of twelve or more E2 related measures within their district**
- KEEPS Energy Leadership Award—received after developing a comprehensive energy management system that includes progress in all seven steps of the Energy Management Process**
- Governor's Energy Efficiency Challenge Award—to be determined (KPPC & DEDI are discussing an award that may encourage school districts to reduce energy consumption by 10%.)**

Conclusions

**“Although you can learn from others’
E2 success stories, real
E2 success comes
from the persistent application of the
E2 philosophy and core values in each
organization’s specific environment
and culture. It cannot be achieved by
simply *copying* others!”**

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