LEED EB Pilot Project
Wilmore Elementary School

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Agenda

- KY USGBC Introduction
- LEED in America & Kentucky
- Wilmore Elementary LEED EB
- Jessamine County Schools' view
- Questions and Discussion

USGBC

U.S. Green Building Council

U.S. GREEN BUILDING COUNCIL
LEED
LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN
HOMES
NEIGHBORHOOD DEVELOPMENT (IN PILOT)
COMMERCIAL INTERIORS
CORE & SHELL
NEW CONSTRUCTION
SCHOOLS, HEALTHCARE, RETAIL
EXISTING BUILDINGS
OPERATIONS & MAINTENANCE
DESIGN
CONSTRUCTION
OPERATIONS

Consensus-Based Standards

USGBC has four levels of LEED:

Kentucky LEED Certified Projects (65)
March 2013

Twenhofel/Kenton County Middle School	Independence	Silver
Bernheim Visitors Center	Clermont	Platinum
Big Ass Fans Phase 1	Lexington	Gold
Boone Tavern	Berea	Gold
CFNA, Carrollton KY	Carrollton	Certified
CFNA, Lexington, KY	Lexington	Certified
CMTA, Inc. New Corporate Office Building	Louisville	Gold
Centre College Pearl Hall	Danville	Gold
Clinical and Translational Research Bldg	Louisville	Gold
Crounse Corporation - New Corp Office	Paducah	Gold
PNC Bank, Hamburg	Lexington	Silver
Rainbow Blossom Natural Foods	Louisville	Certified
Ross Tarrant Architects Office	Lexington	Gold
The Green Building	Louisville	Platinum
The Healing Place - Women's Facility	Louisville	Silver
Tucker Booker Donhoff Architects Offices	Louisville	Certified

Kentucky LEED Registered Projects (181)
March 2013

39 in Fort Campbell	Fort Campbell
34 in Louisville	Louisville
20 in Lexington	Lexington
15 in Fort Knox	Fort Knox
8 in Bowling Green	Bowling Green
4 in Nicholasville	Nicholasville
4 in Paducah	Paducah
3 in Glasgow	Glasgow
2 in London	London
2 in Frankfort	Frankfort
1 in Danville	Danville
Tivol/Wilcher Residence	Alvaton
Carlisle County Judicial Center	Bardwell
Wolfe County Judicial Center	Campton
Riverwoods Environmental Education Cente	Corbin
Seneca Place Rowhouse	Covington
Todd County Justice Center	Elkton
Schneider Electric at Dolwick	Erlanger
HANCOCK COUNTY JUDICIAL CENTER	Hawesville
Pike County Judicial Center	Pikeville

KY LEED Registered and Certified K-12 Schools November 2012

Barkley Elementary School	Ft. Campbell
Bristow Elementary	Bowling Green
DoDEA Kingsolver-Pierce Elem School	Fort Knox
Glasgow Independent High School	Glasgow
Montessori Middle School of KY	Lexington
Montgomery Elementary School	Mount Sterling
Replacement High School - Fort Knox	Fort Knox
Richardsville Elementary School	Bowling Green
Riverwoods Environmental Education Center	Corbin
St. Francis School - Athletic & Perform	Goshen
Thornwilde Elementary School	Hebron
Twenhofel/Kenton County Middle School	Independence
WB Muncy Elementary School Renov Add	Wooton

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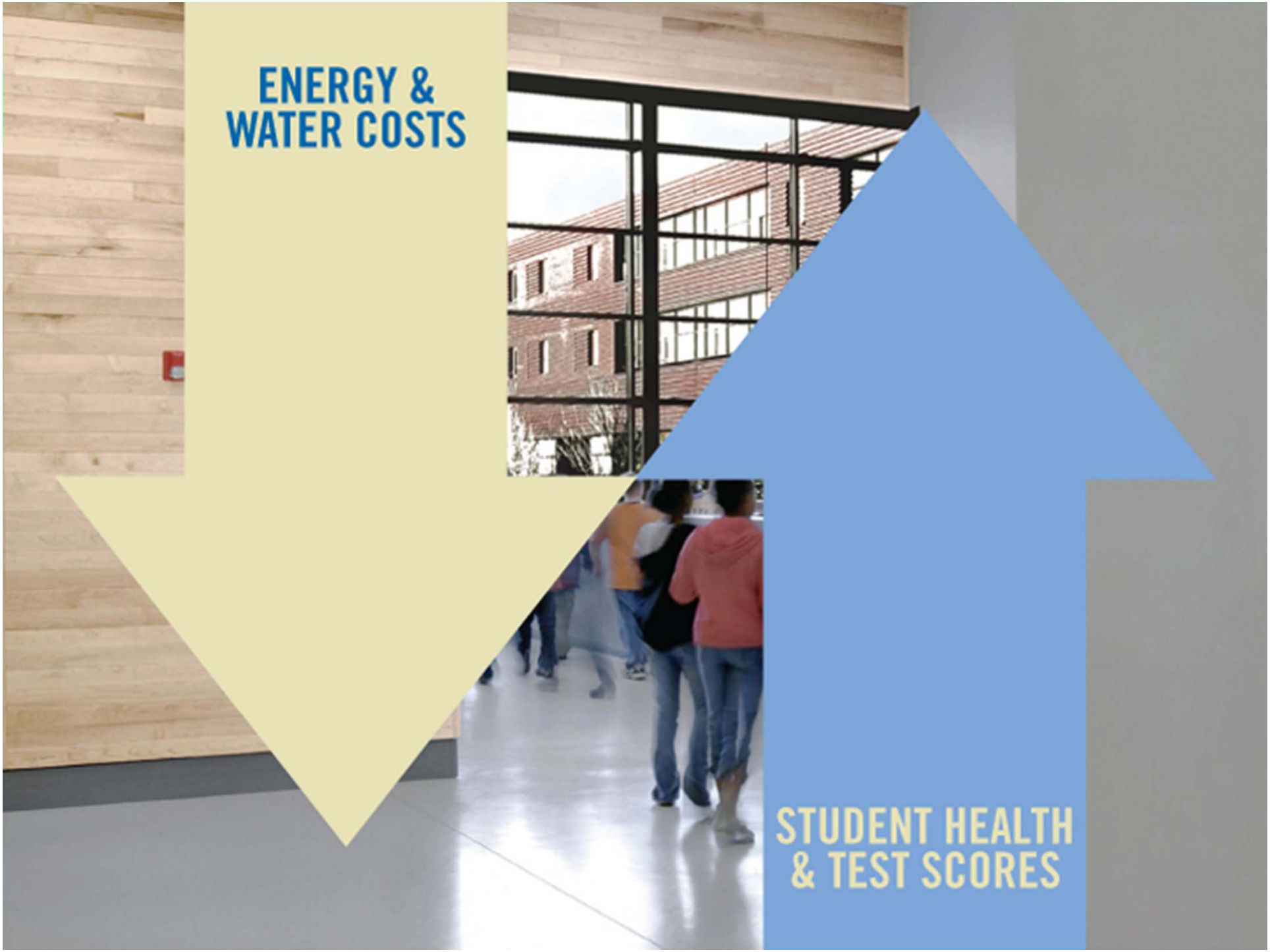
green school

a school building or facility that creates a healthy environment that is conducive to learning while saving energy, resources and money


ENERGY &
WATER COSTS
STUDENT HEALTH
& TEST SCORES

Studies Show Going Green
Doesn't Have to Cost More
Mount Holyoke College Science Center,
South Hadley, MA: LEED Certified
Source: Davis Langdon, "The Cost of Green Revisited," 2007

Wilmore Elementary School

The Volunteer Project Team

Why JCPS and Wilmore Elementary School were a good fit for the project

- Good Community Fit
- ‘We want to be first’ attitude
- Beginning Energy Star score 69
- Existing Energy Team
- Room to improve
- JCPS willingness to be a pioneer

Why JCPS and Wilmore Elementary School were a good fit for the project (cont.)

Year 2007
Provider -- Select Provider --
Utility Type -- Select Utility Type --
Location --Select Location--
Building Wilmore Elementary Scho.
Bill Account Number E3000-0362 Clear All Filters
Note: Selecting an account number will enable Bill Entry.

Enter Bills

Bill data was saved successfully

Bill Account Number: E3000-0362
Provider: Kentucky Utilities
Location: Jessamine County-UD
Year: 2007
Utility Type: Electric
Building: Wilmore Elementary School-UD

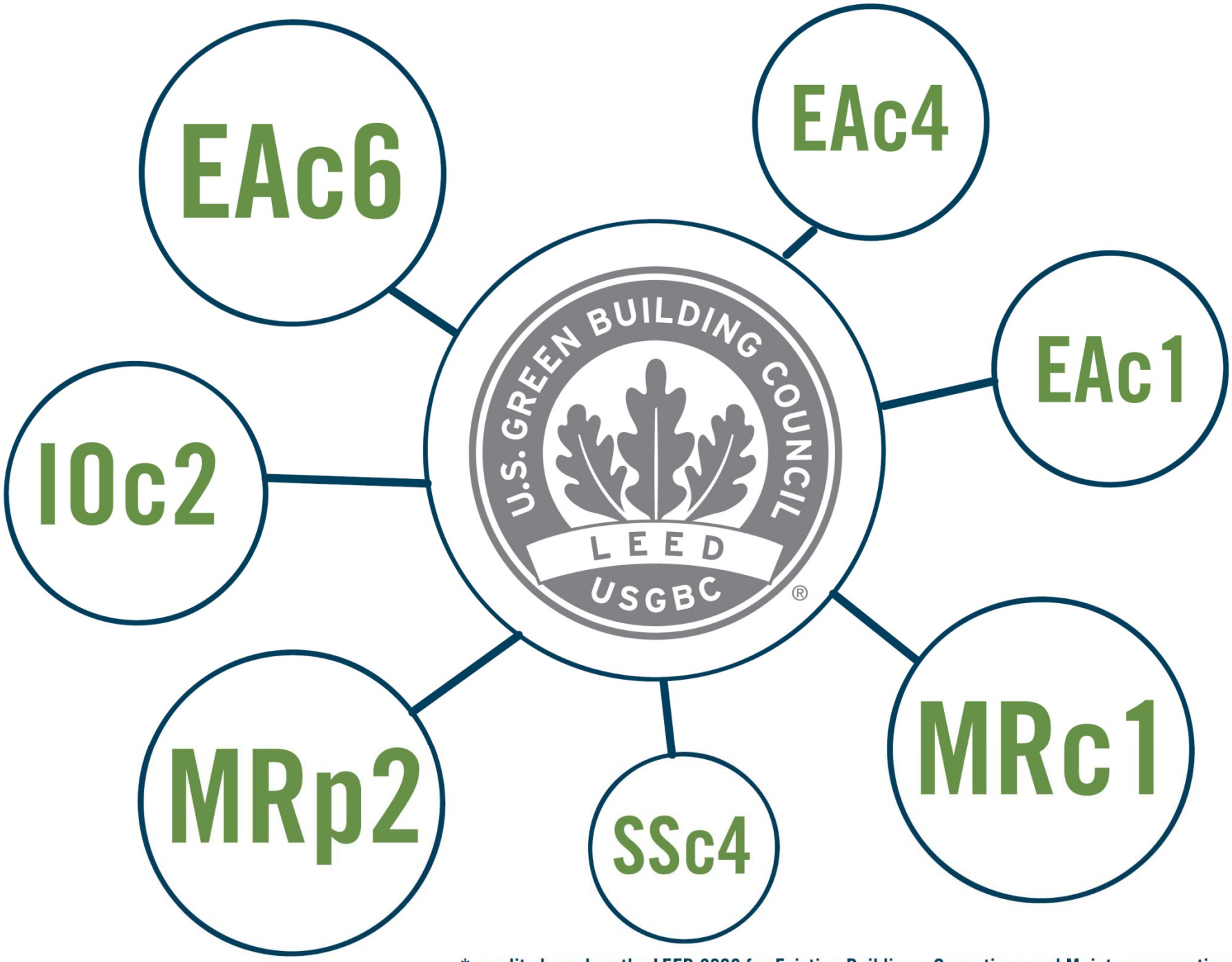
Month	Start Date	End Date	Days	Est.	Registered Demand	Billed Demand	Use (KWH)	Cost	Total Cost	Avg. Cost
Jul	06/27/2006	07/29/2006	32		260.00	260.00	59800.00	4361.53	4361.53	0.07
Aug	07/29/2006	08/29/2006	31		341.50	341.50	71600.00	5430.79	5430.79	0.08
Sep	08/29/2006	09/29/2006	31		341.80	341.80	106400.00	6901.43	6901.43	0.06
Oct	09/29/2006	10/29/2006	30		331.80	331.80	88400.00	6466.39	6466.39	0.07
Nov	10/29/2006	11/29/2006	31		332.80	332.80	80400.00	5404.39	5404.39	0.07
Dec	11/29/2006	01/02/2007	34		401.60	401.60	87800.00	6497.90	6497.90	0.07
Jan	01/02/2007	02/02/2007	31		413.20	413.20	105600.00	6095.83	6095.83	0.06
Feb	02/02/2007	03/02/2007	28		439.20	439.20	112000.00	7218.92	7218.92	0.06
Mar	03/02/2007	03/29/2007	27		344.80	344.80	87000.00	5104.82	5104.82	0.06
Apr	03/29/2007	04/29/2007	31		351.50	351.50	90400.00	6117.41	6117.41	0.07
May	04/29/2007	05/30/2007	31		321.60	321.60	83600.00	5714.41	5714.41	0.07
Jun	05/30/2007	06/28/2007	29		321.60	321.60	51800.00	4922.43	4922.43	0.10
Totals			361		4201.4	4201.4	1024800	70236.25	70236.25	0.07

Save/Previous Year | Save | Save/Next Year | Save/Next Account

- Over five years worth of utility data entered into SchoolDude UtilityDirect Database
- Almost all of JCPS's facilities are controlled by an AutomatedLogic BAC

Question: What is LEED EB?

GREEN SCHOOLS
Transportation/ Busses
Recycling
Energy Efficiency
Water Efficiency
IAQ
Green Cleaning
Curriculum/ Environmental Education



* credits based on the LEED 2009 for Existing Buildings: Operations and Maintenance rating system

Sustainable Sites	26
Water Efficiency	14
Energy and Atmosphere	35
Material and Resources	14
Indoor Environmental Quality	15
Innovation in Operations	6
Regional Priority Credits	4
Total 110	

Sustainable Sites - 24%

Water Efficiency - 13%

Energy & Atmosphere - 32%

Materials & Resources - 13%

Indoor Environmental Quality - 14%

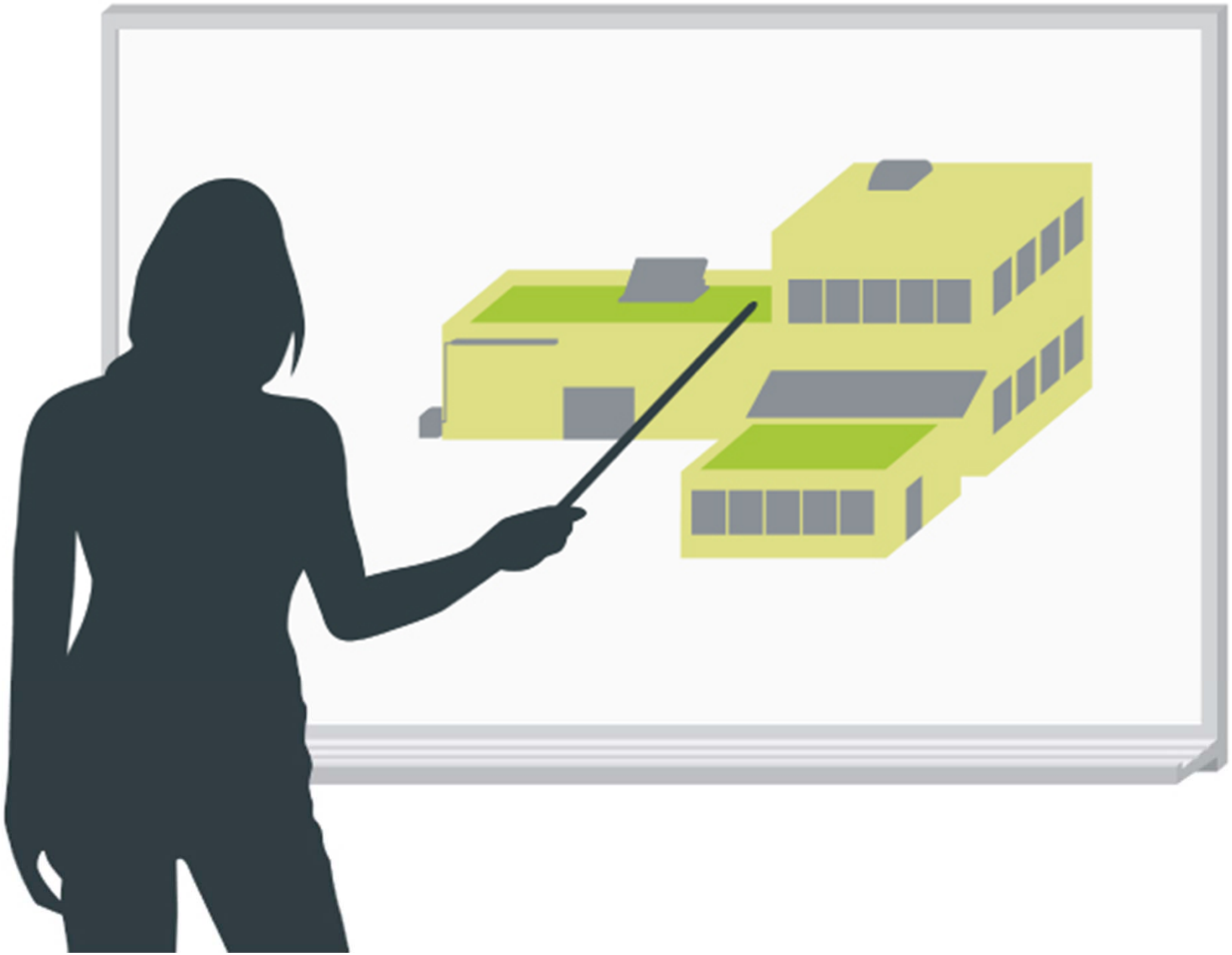
Stakeholders: Culture Shift

Existing Building Certification Process

- Building Walk-through
- Energy Star Benchmarking
- Environmental Comfort Analysis
- Cost Reporting
- Supply Chain Audit

MEMORY
ELEMENTARY

- In-depth Review of Assessment
- Professional Planning Sessions
- Performance and Certification Goals
- Identify Capital Improvements
- Define Budget and Schedule



- Provide Direction and Training to Stakeholders
- Polices and Procedures
- Capital Improvements
- Track Performance
- Commissioning

Energy and Atmosphere- Issues

Energy Best Management Practices

Commissioning and Auditing

Energy Performance Measurement

Metering, Monitoring and Management

Green Power

Material and Resources - Issues

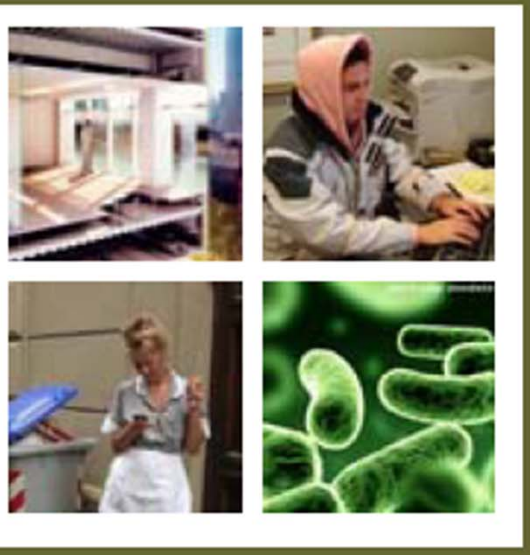
Purchasing

Solid Waste

Indoor Environmental Quality - Issues

Outdoor Air Delivery & Monitoring

IAQ Best Management Practices



Occupant Comfort

Green Cleaning

CASE STUDY

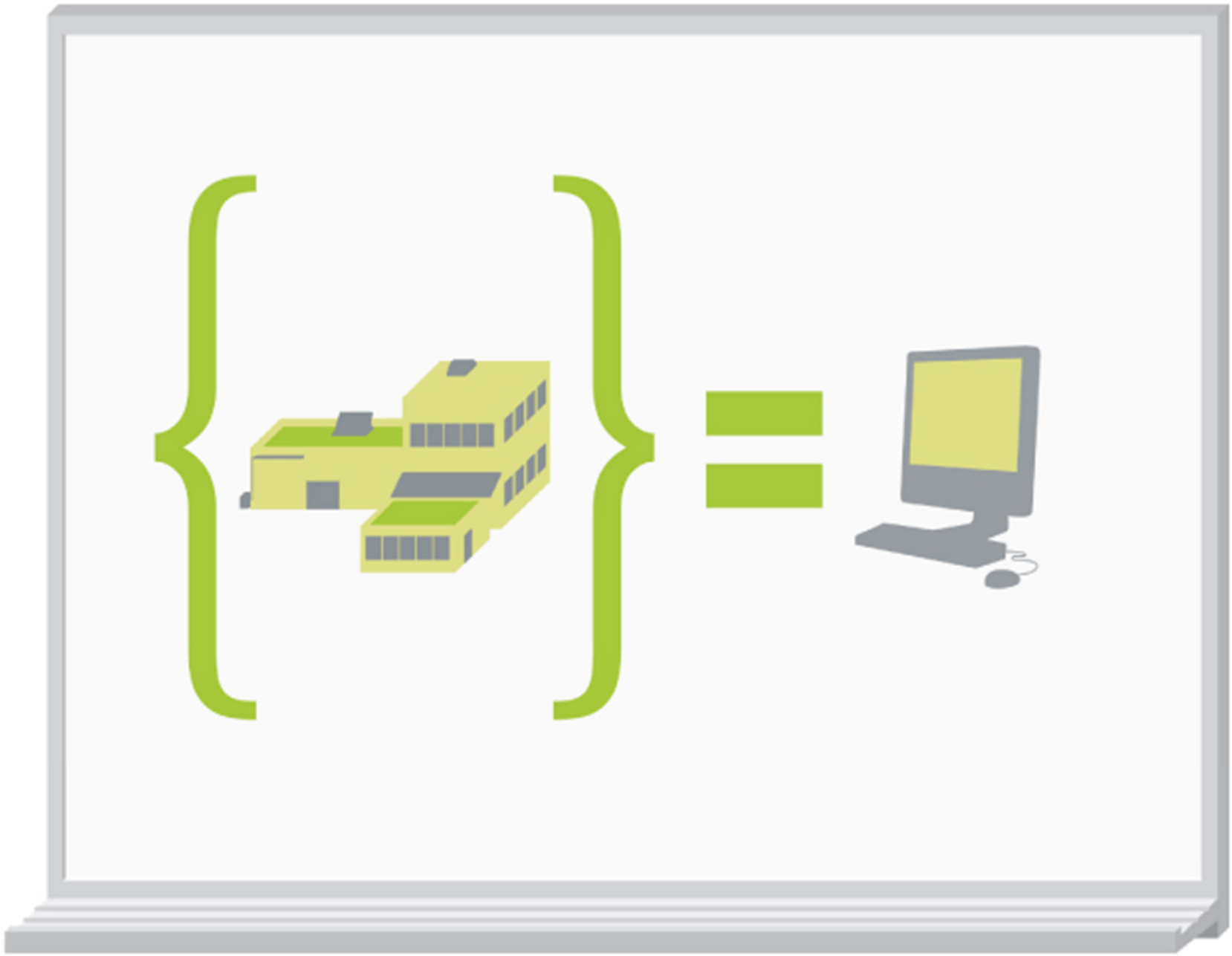
30 Schools Studied

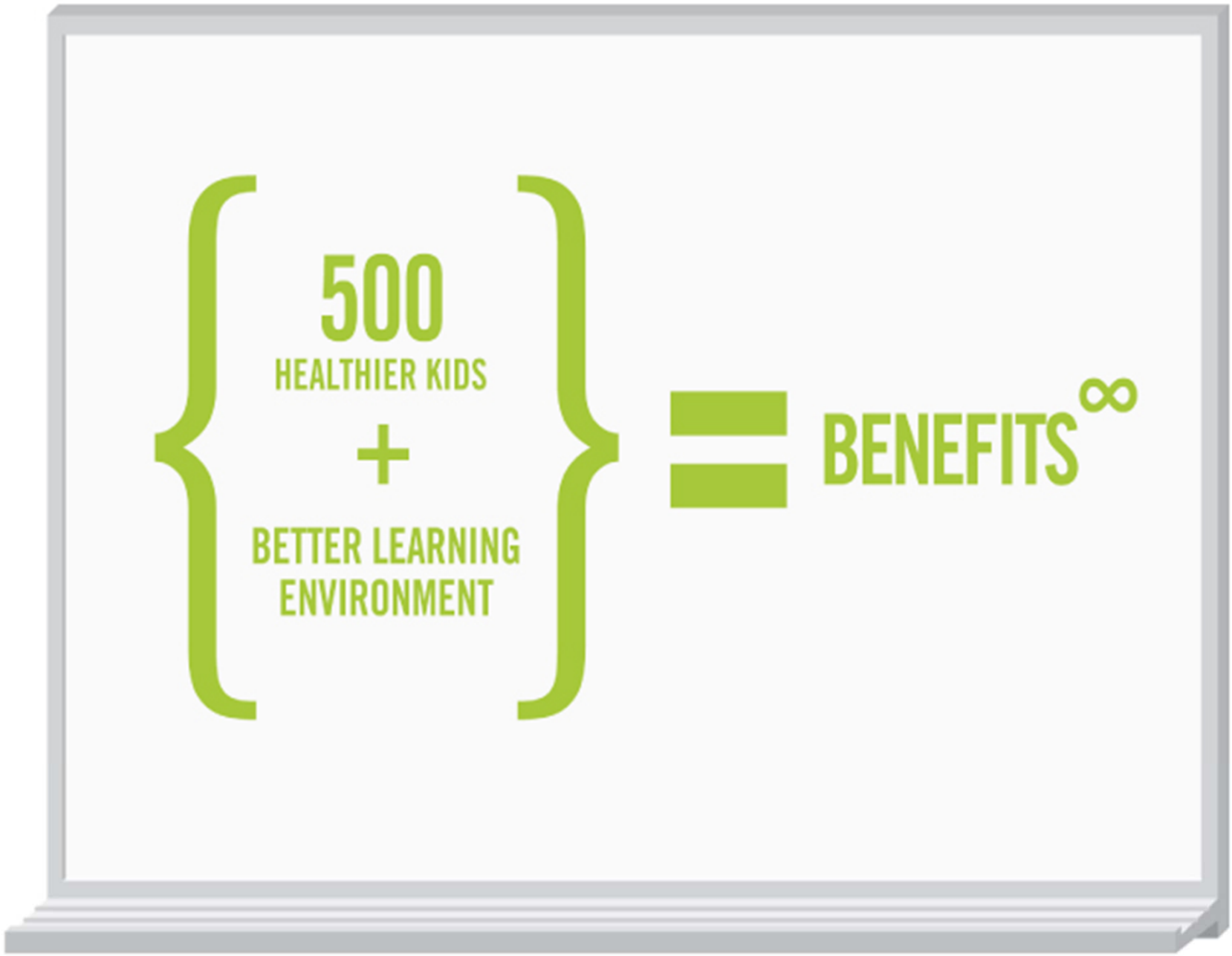
33.4%
Average direct energy savings

50%
Average indirect energy savings

32.1%
Average water savings

DIRECT SAVINGS
FOR AN AVERAGE
GREEN SCHOOL
$47,880
Annual Direct Energy Savings Per School
$95,760
Annual Total Direct Savings Per School




500
HEALTHIER KIDS
+
BETTER LEARNING
ENVIRONMENT
BENEFITS∞

District Policies & Procedures

Whereas deteriorating school infrastructure and poor indoor environmental quality threaten the health, well being, and achievement of staff and students;

Whereas current climate and energy challenges compound the structural and resource deficiencies of our district's schools;

Whereas green schools are schools that create a healthy environment that is conducive to learning while saving energy, resources, and money;

Whereas, green schools support student learning through improvements in indoor air quality, lighting, thermal comfort, and maintenance practices – all of which have an important impact on a child's ability to learn and a teacher's ability to teach;

Whereas, the benefits of superior indoor air quality – a key emphasis of green schools – have been linked to lower asthma rates, fewer allergies, reduced absenteeism, and increased teacher retention rates;

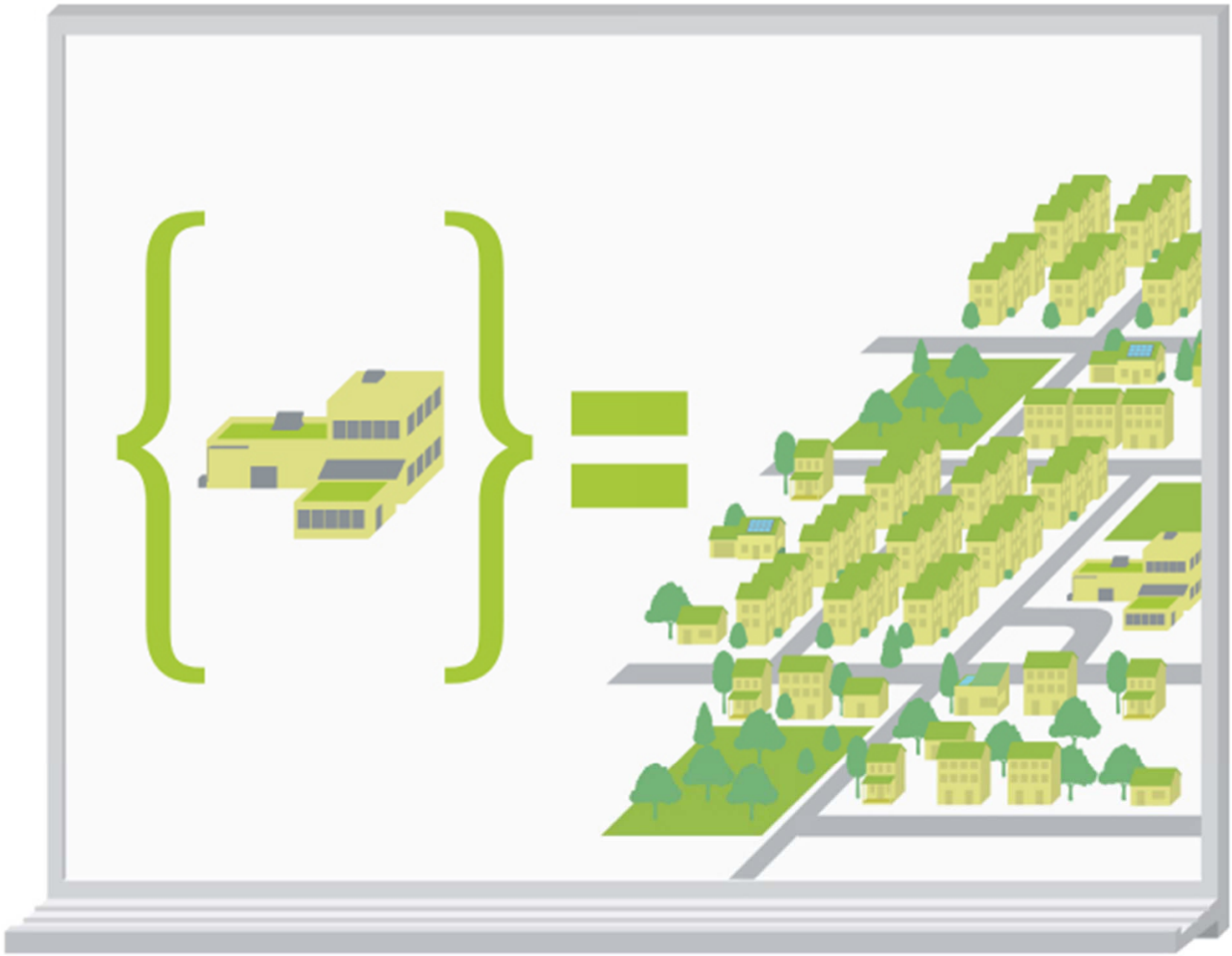
Whereas, green schools use significantly less energy compared to conventional schools;

Whereas, green schools cost less to operate, utilize durable materials, and greatly reduce water and energy use, which generates substantial financial savings;

Whereas, green schools provide an educational experience that transcends the classroom by creating a host of opportunities for curriculum innovation and hands-on, project based learning in which the building itself becomes an interactive teaching tool;

Therefore, be it resolved that:

Effective _____ (date), the district will register all facilities under the LEED for Existing Buildings: Operations & Maintenance rating system, or under a comparable system with requirements at least as equivalent to the LEED for Existing Buildings: Operation & Maintenance rating system. The district will pursue certification for each facility to the extent practicable.



Mayor Harold Rainwater – City of Wilmore, KY
USGBC Mayor's Alliance for Green Schools

Energy Management Mission

"The School Sustainability Program exists to promote a culture of conscientious stewardship in the use of our natural resources, to educate students, staff and community in the sustaining of an environmentally sensitive lifestyle, and to efficiently manage the district's energy and other resources resulting in savings that can be applied directly to the classroom."

1. Conserve Energy and resources and return savings to the classroom
2. Implement energy/sustainability education for staff and students
3. Bring awareness of energy/sustainability issues to the community

Educational Plans

- Include Wilmore Elementary School students
- Jessamine Career and Technology Center (JCTC) high school students – project for school credit

Color Your Tray
H.S.
Dumpster
Dive

H.S.
Dumpster
Dive

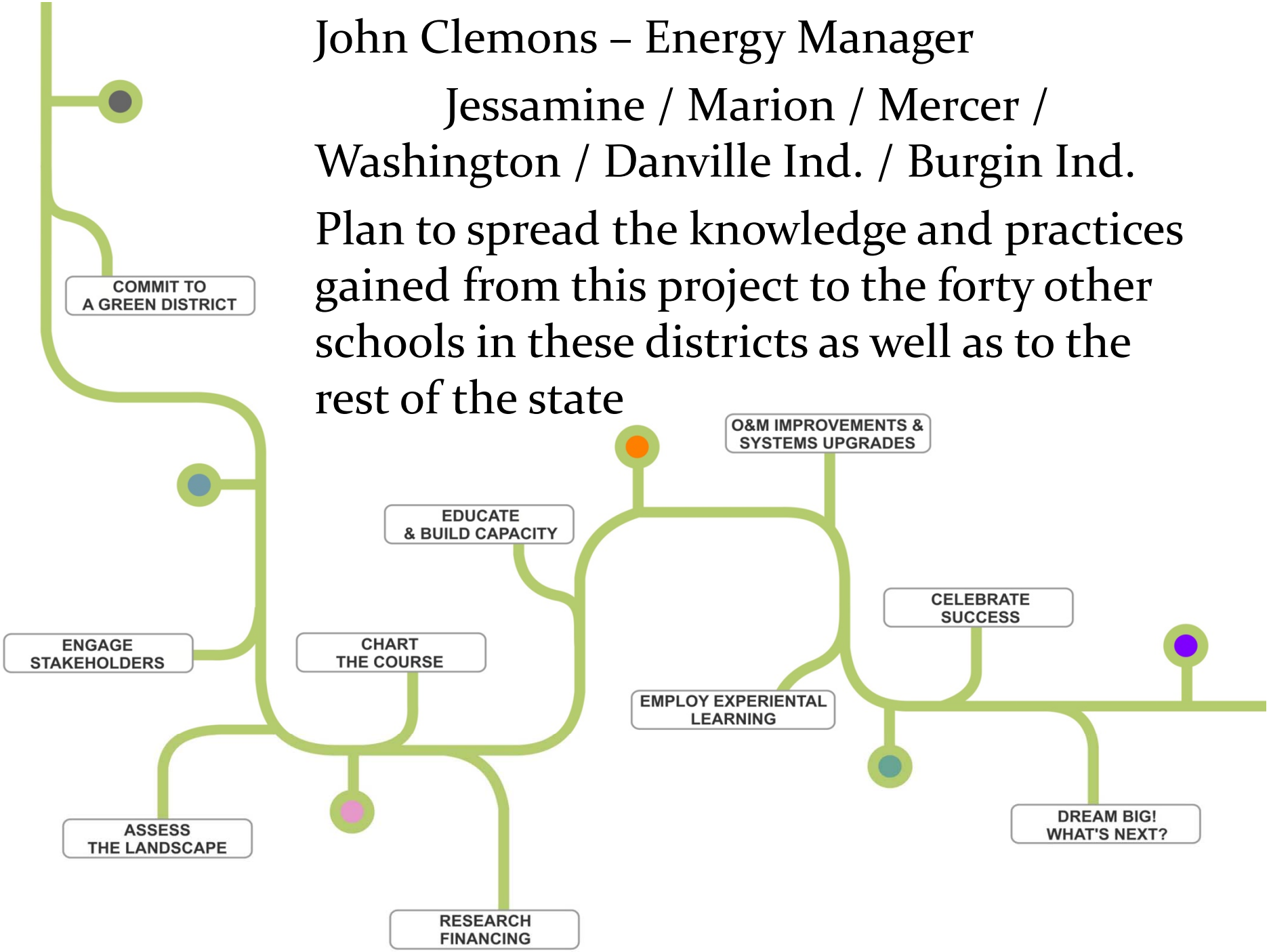
Differences Between LEED and Energy Star Certification

- Energy Star is great, but focuses solely on the energy consumption of a building
- It is possible to take energy conservation too far
- LEED looks at energy but also takes a more holistic approach; looking at sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and giving points for innovation in operations
- Buildings can be LEED certified but not qualify for Energy Star and vise versa. Having both is great

John Clemons – Energy Manager

Jessamine / Marion / Mercer / Washington / Danville Ind. / Burgin Ind.

Plan to spread the knowledge and practices gained from this project to the forty other schools in these districts as well as to the rest of the state



What do all these classroom plug loads have in common?

TV

Apple Laptop

PC with CRT Monitor

Two Old Macs

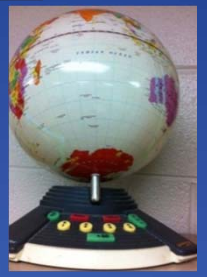
Projector and Desk lamp

Misc.DC adapters & Chargers

Scanner

Digital Clock

Coffee Pot


Electronic Globe

Pencil Sharpener & Electronic Air Freshener

2 GeoSafaries

Christmas Palm Tree with Lights

Shredder

Electronic Water Dispenser

Microwave

Popcorn Maker

Freezer

Fridge with food for sale

Treadmill

WII Guitar and 2nd TV for WII

Questions and Discussion

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Join KY USGBC Chapter

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