

GREEN+: THE KENTUCKY COMMUNITY AND TECHNICAL COLLEGE SYSTEM SUSTAINABILITY INITIATIVE



Kentucky Environmental Education
Interagency Subcommittee Presentation

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KCTCS MISSION

The mission of KCTCS is to improve the employability and quality of life of Kentucky citizens as the primary provider of:

- College and Workforce Readiness.
- Transfer Education.
- Workforce Education and Training.



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KCTCS VALUES

- Responsiveness to students, employers, and communities
- Access with innovative and flexible delivery
- Trust, respect, and open communication
- Continuous improvement
- Inclusion, multiculturalism, and engagement



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2010-16 KCTCS STRATEGIC GOALS

- Advance excellence and innovation in teaching, learning, and service
- Cultivate diversity, multiculturalism and inclusion
- Increase student access, transfer, and success
- Enhance the economic and workforce development of the commonwealth
- Expand the recognition and value of KCTCS



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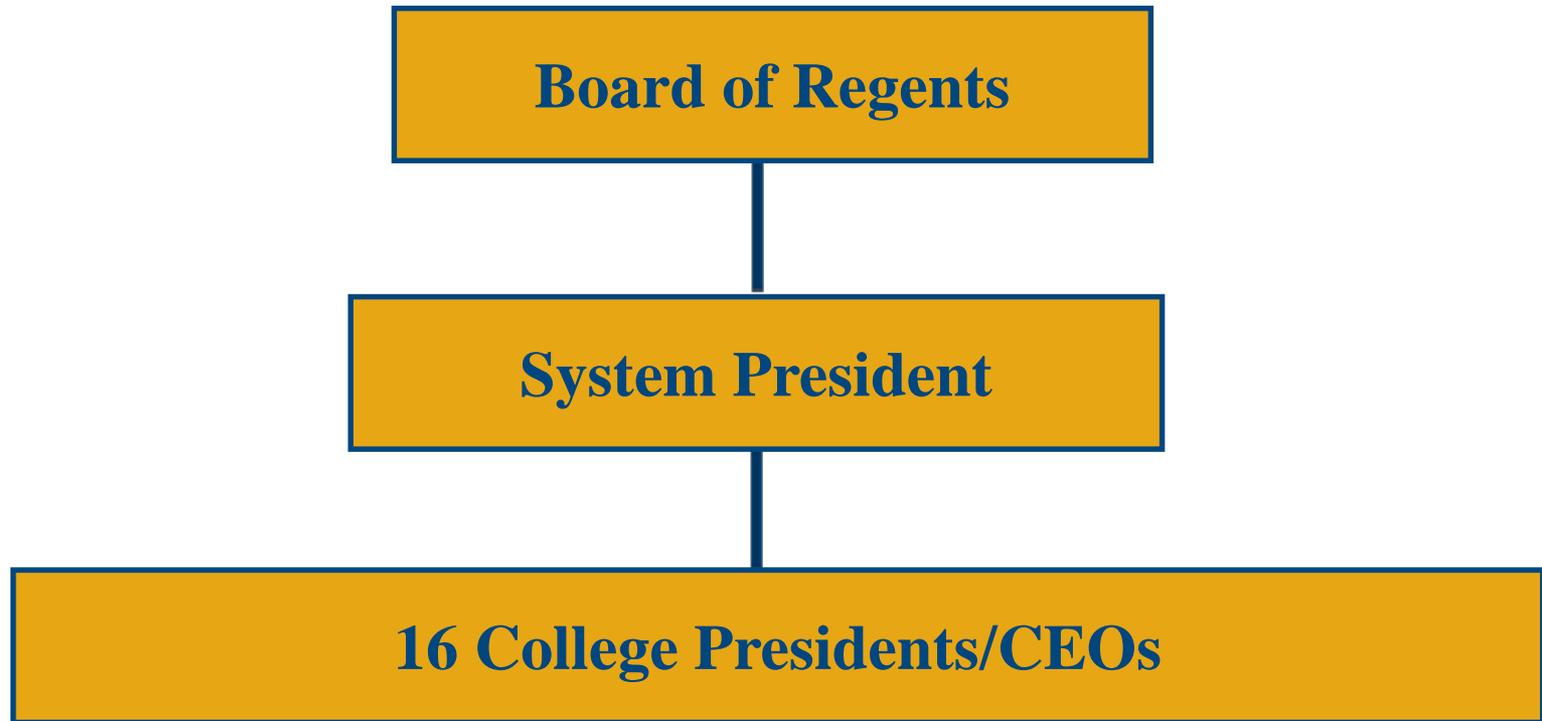
KCTCS PROFILE

- Created in 1997
- 16 colleges; 73 campuses/locations
- KY's largest provider of postsecondary education
 - 600 credit program options
 - 92,365 credit-seeking students fall 2013, an approximate 75% increase since 1999
 - ~ 92% of students receive financial aid, totaling \$242 million (fall 2011)
 - ~10,000 Full and part time employees



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KCTCS ORGANIZATIONAL STRUCTURE



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KCTCS PHYSICAL PLANT

KCTCS infrastructure totals 8.7 million gross square feet:

- KCTCS-owned space
 - Totals approximately 7.7 million gross square feet
 - Education and program space owned comprises approximately 7.5 million square feet in 358 buildings
- KCTCS free or leased space
 - Totals approximately 1.0 million gross square feet in 298 buildings
 - Education and program space free or leased comprises approximately 0.5 million square feet



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KCTCS PHYSICAL PLANT

Since inception in 1997, authorization received for 45 new state funded construction projects or major renovation projects, totaling approximately \$500 million

- 33 projects completed between 1998 and 2008, having approximate total scope of \$276 million
- 11 projects completed during the 2008-10 biennium, having approximate total scope of \$200 million
- 1 project completed in the 2012-14 biennium



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OPPORTUNITIES

“Every single social and global issue of our day is an opportunity in disguise.”

(Peter Drucker)



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DEFINITION

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Social Criteria:

Socially desirable (equitable)

Psychologically nurturing

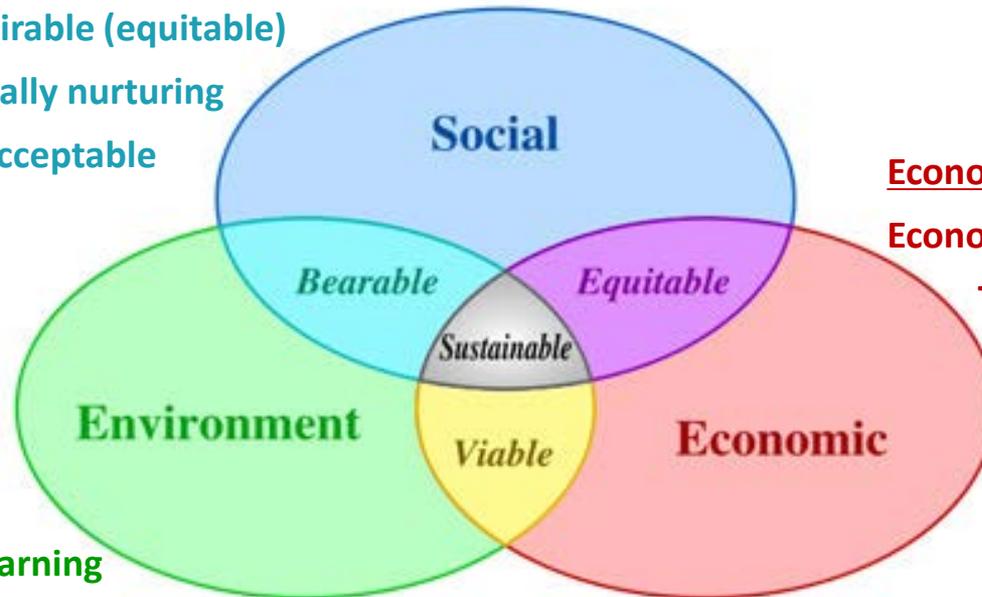
Culturally acceptable

Environmental Criteria

Environmentally robust

Generationally sensitive

Capable of continuous learning



Economic Criteria

Economically sustainable

Technologically feasible

Operationally viable

Definition Source: *Our Common Future: Report of the World Commission on Environment and Development also known as the Brundtland Report*), United Nations, 1987.

Graphic Source: Johann Dréo and translated by User:Pro_bug_catcher, March 2006/ Translated January 2007 and Accessed October 21, 2010, at http://en.wikipedia.org/wiki/File:Sustainable_development.svg#file



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DRIVING FORCES

- **Economics**

- Sustainable economic development – **Green Jobs**
- Budget

- **Environment**

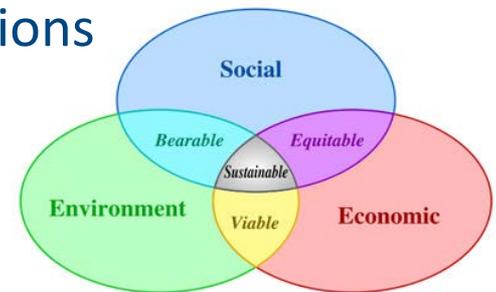
- Indoor
 - Air quality
 - Learning environment
 - Productive work environment
- Outdoor
 - Pollution
 - Landfill capacity
 - Ecological stewardship
 - Resource management

- **Energy**

- Electric utilities (rate structures)
- Limitation of nonrenewable energy
- Global energy demand

- **Stakeholders**

- Customers
- Vendors
- Government
- Future generations



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RELATED STATE STATUTES – SELECT EXAMPLES

Area	Kentucky Revised Statute
Energy Efficiency	KRS 56.770, KRS 56.777, KRS 56.782, KRS 164A.580, KRS 56.775, KRS 45A.615, KRS 45A.351, KRS 45A.352
Energy	KRS 42.580 to KRS 42.588 and KRS 152.710 to 152.720
Green Purchasing	KRS 45A.645, KRS 45A.500 to KRS 45A.540
Pollution	KRS 224.46-305, KRS 224.46-310, KRS 224.46-315, KRS 224.46-320, KRS 224.46-325, KRS 224.46-330, KRS 224.46-335, KRS 224.46-510, KRS 224.46-520
Recycling	KRS 224.10-650, KRS 224.10-660, KRS 224.10-620, KRS 45A.520, KRS 160.294, KRS 141.390
Education	KRS 157.900, KRS 157.905, KRS 157.910, KRS 157.915

SUSTAINABILITY TRIPLE BOTTOM LINE

Social/Ethical performance

Economic *performance*

+ **Environmental** *performance*

Sustainable Communities

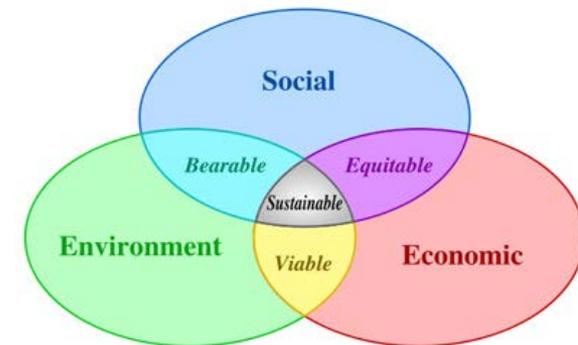


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SUSTAINABILITY

Sustainability is multifaceted and Green +

- Touching every area of a college
- Demonstrating responsible stewardship of social, economic, and environmental resources
- Improving efficiencies and effectiveness in a socially equitable manner
- Facilitating cultural change to enhance the well-being of people
- Balancing the social, environmental, and economic criteria of the sustainability triple bottom line to obtain sustainable communities inside, across, and outside of KCTCS



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So, how do we achieve the
triple bottom line?

Easy
Button

IT'S ABOUT BALANCE!

Social

Economic

Environmental

**Operations Curriculum/
Workforce
Development Outreach
and Service Student
Opportunities Faculty
and Staff
Development Administration**

**Sustainable
Communities**

OPPORTUNITIES

David Cooperrider, former faculty at Case Western University and the creator of the Appreciative Inquiry methodology, asked:

“How do we turn the social and global issues of our day into bona fide business opportunities?”

We ask:

“How do we turn the social and global issues of our day into bona fide ~~business~~ EDUCATIONAL opportunities?”



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SUSTAINABILITY FRAMEWORK

- Affords each college and the System Office to develop plans unique to their characteristics and culture
- Promotes sustainability goals of particular importance to KCTCS and Kentucky (e.g., Kentucky Proud, energy efficiency and management, LEED building and operations, etc.)
- Maximizes flexibility while establishing systemwide metrics to communicate KCTCS sustainability achievements.
- Allows for national benchmarking using internationally recognized postsecondary sustainability metrics, facilitating recognition of KCTCS as a global sustainable development leader among peer institutions



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KCTCS GREEN+ SUSTAINABILITY FRAMEWORK DEVELOPMENT SUMMARY

**2011-12 Sustainability Workgroup of College
Sustainability Contacts Developed Framework**

**2012 System Office President / President's Leadership
Team Approves Framework**

**2012-13 Colleges Develop
Local Sustainability Plans**

**2013 Local Sustainability Plans Presented
to KCTCS Board of Regents**

**2013-14 Local Sustainability Plans Implemented by
Sustainability Committee or Green Team**



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SUSTAINABILITY FRAMEWORK COMPONENTS

- Purpose
- Sustainability Definition
- Sustainability Vision
- Sustainability Aim
- Sustainability Objectives
- Sustainability Focus
- Sustainability Strategy
- Sustainability Local Plan Components



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KCTCS PROPOSED NO SILO SUSTAINABILITY APPROACH



- Inter-unit partnerships
- Inter-department partnerships
- Intercollege partnerships
- Community partnerships

KCTCS GREEN+ VISION

Consistent with the KCTCS Vision to be the nation's premier community and technical college system, be a leader in practices, educational and workforce training opportunities, and community engagement related to sustainable development or sustainability



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KCTCS GREEN+ SUSTAINABILITY AIM

Demonstrate responsible stewardship and facilitate cultural change to:

- Enhance the well-being of people and KCTCS in a socially equitable manner
- Focus on being Green Plus by balancing the social, environmental, and economic criteria of the sustainability triple bottom line
- Obtain sustainable communities inside, across, and outside of KCTCS



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KCTCS GREEN+ SUSTAINABILITY OBJECTIVES

- Facilitate cultural change to balance the social, environmental, and economic criteria of the sustainability triple bottom line across KCTCS
- Enhance the efficiency and effectiveness of KCTCS
- Protect Kentucky's natural resources and environment
- Embrace and practice social justice across KCTCS
- Benchmark progress toward sustainability using nationally recognized sustainability metrics



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KCTCS GREEN+ STRATEGY

Promote sustainable communities inside and outside of KCTCS, using an all-encompassing, no-silo approach, through adoption of sustainable development goals for each KCTCS focus area



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KCTCS GREEN+ INITIATIVE SIGNIFICANT EVENTS

1997-2010

- Authorization received for 45 new state funded capital construction projects or major renovation projects, totaling approximately \$500 million
 - 33 projects completed between 1998 and 2008, having approximate total scope of \$276 million
 - 11 projects completed during the 2008-10 biennium, having approximate total scope of \$200 million
 - 1 project completed in the 2012-14 biennium

2004

- Became the second Kentucky postsecondary institution to enter into an Energy Savings Performance Contract (Jefferson and Elizabethtown)
- Incorporated Leadership in Energy and Environmental Design (LEED) standards into building and design



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KCTCS GREEN+ INITIATIVE SIGNIFICANT EVENTS

2008-09

- KCTCS Chancellor appointed to the American Association of Community Colleges Sustainability Task Force that developed a sustainability strategic plan and Green Mission for its member colleges

2010

- Participated, KCTCS Chancellor, on the American Association of Community College Sustainability Task Force
- Became partner in Commonwealth Energy Management and Control System (CEMCS) pilot project with the Finance and Administration Cabinet (<http://kyenergydashboard.ky.gov/#/Home>)
- Hired a Director of Capital Construction and Sustainability Initiatives (August)
- Hired a Sustainability Project Manager (November)
- Appointed Sustainability Contacts at each KCTCS College (December)



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KCTCS GREEN+ INITIATIVE SIGNIFICANT EVENTS

2011

- Met with Sustainability Contacts to identify current sustainability initiatives and to gather input for the KCTCS initiative (February to March)
- Obtained KCTCS President's Cabinet approval of proposed framework development process (April)
- Developed the [KCTCS Green+\[read "plus"\]](http://www.kctcs.edu/About_KCTCS/System_Administration/Sustainability.aspx) website
(http://www.kctcs.edu/About_KCTCS/System_Administration/Sustainability.aspx)
- Assigned, President's Leadership Team (PLT), initiative to the KCTCS PLT Services Transformation Team (June)
- Began work on draft comprehensive sustainability framework for college and System Office use in developing local sustainability plans (July)



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KCTCS GREEN+ INITIATIVE SIGNIFICANT EVENTS

2011, continued

- Appointed System Office Sustainability Team (July)
- Rolled-out initiative at the System Office, including expansion of recycling and elimination of disposable cups in employee break rooms (July)
- Presented proposed framework development strategy to the PLT Services Transformation Team (November)
- Invited to be a White House/Department of Energy inaugural partner in President Obama's *Better Buildings Challenge* (<http://www4.eere.energy.gov/challenge/>), committing to reduce energy consumption across KCTCS 20 percent by 2020 (December)



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KCTCS GREEN+ INITIATIVE SIGNIFICANT EVENTS

2012

- Incorporated Leadership in Energy and Environmental Design (LEED) standards into building and design of the Newtown Campus of Bluegrass Community and Technical College (Ongoing)
- Entered into a fifth ESPC, resulting in all 16 KCTCS participating in energy savings performance contracts with anticipated total savings for all five contracts exceeds \$28 million and 22.9 million KWH, .28 million KGALS, and 1.6 million THERMS) (January)
- Met with the Kentucky Environmental Education Council to discuss partnership opportunities to promote environmental education across the Commonwealth (January)



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KCTCS GREEN+ INITIATIVE SIGNIFICANT EVENTS

2012, continued

- Piloted Campus Conservation National competition with Madisonville Community College, becoming the first community and technical college to participate in the national energy and water efficiency competition (February)
- Piloted Green Genome Sustainability Self-Assessment for the AACC SEED Center (April to June)
- Became first state to have all community colleges join the American Association of Community Colleges (AACC) Sustainability Education and Economic Development (SEED) Center (May)



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KCTCS GREEN+ INITIATIVE SIGNIFICANT EVENTS

2012, continued

- Obtained PLT approval of the Comprehensive Sustainability Framework to guide implementation of sustainability across KCTCS (June/July)
- Partnered with the AACCC SEED Center Mentor Connect Program to inform implementation of sustainability into KCTCS curriculum and programs (June 2012 to February 2013)
- Met with KCTCS Colleges' Sustainability Teams to discuss local sustainability plan development (September through December)
- Partnered with the Kentucky Chapter of the USGBC
 - Green Apple Day of Service (September)
 - LEED EB Project with Wilmore Elementary School, Wilmore, Kentucky (September to current)



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KCTCS GREEN+ INITIATIVE SIGNIFICANT EVENTS

2012, continued

- Invited to join the Kentucky University Partnership for Environmental Education (KUPEE) (September)
- Presented Sustainability Framework to the KCTCS Board of Regents (December)
- Offered Hybrid Technology Workshop
 - Collaboration with the AACCC SEED Mentor Connect Program and with Automotive Research and Design, LLC.
 - Attended by 11 of 16 KCTCS Colleges, resulting in more than half of KCTCS automotive faculty being certified in Hybrid Technology (December)



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KCTCS GREEN+ INITIATIVE SIGNIFICANT EVENTS

2013

- Co-Sponsored Sustainability Workshop focused on integrating sustainability in the curriculum (February)
 - Collaboration with AACC SEED Center and two community colleges in North Carolina (Wake Technical College and Davidson)
 - Attended by more than 30 participants, representing 15 of 16 KCTCS Colleges
- Expanded participation in the Commonwealth Energy Management Control System (<http://kyenergydashboard.ky.gov/#/Home>), adding Ashland Community and Technical College (Spring 2013) Added by General Assembly to KRS 157.915, given mandate to provide environmental education statewide (May)



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KCTCS GREEN+ INITIATIVE SIGNIFICANT EVENTS

2013

- Presented KCTCS College and System Office local sustainability plans to the KCTCS Board of Regents (June)
- Collaborated with the Kentucky Association for Environmental Education to host a statewide sustainability Symposium at Gateway Community and Technical College, Covington, Kentucky (June)
- Began implementation of local sustainability plans (July to current)
- **Partnered with the Kentucky Environmental Education Council and the Kentucky University Partnership for Environmental Education (KUPEE) to establish a KCTCS Center for Environmental and Sustainability Education and Workforce Solutions (Fall 2013)**
- Expanded CEMCS to an additional four KCTCS Colleges, bringing total KCTCS participation to six colleges (Fall 2013)



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CURRICULA

Question:

How do we incorporate sustainability across curricula, including general education courses, to meet the expectations of future students who will be required to meet environmental literacy requirements at the secondary level?



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CURRICULA

- Sustainability-Focused Courses
- Sustainability-Related Courses
- Sustainability Course Identification



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CURRICULA

Definition of sustainability in the curriculum that distinguishes between courses that are:

- Sustainability-focused
- Sustainability-related



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Sustainability-focused courses

- Focus or concentrate on the concept of sustainability throughout the course
- Include its social, economic, and environmental dimensions, or examine an issue or topic using sustainability as a lens
- Grounds in the concepts and principles of sustainability.
- Educate students about how different dimensions of sustainability relate to and support each other in theory and practice
- Equip students with the skills to weave together disparate components of sustainability in addressing complex issues

Source: Association for the Advancement of Sustainability in Higher Education Sustainability Tracking and Assessment and Reporting (STARS) Technical Manual Version 1.2, February 2012.



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Sustainability-related courses

- Incorporate sustainability as a distinct course component or module or concentrate on a single sustainability principle or issue
- Help build knowledge about a component of sustainability or introduce students to sustainability concepts during part of the course
- May complement sustainability-focused courses by providing students with or broadening their:
 - Knowledge of a particular aspect or dimension of sustainability (such as the natural environment)
 - Focus area (such as renewable energy) for their sustainability studies
 - Understanding of sustainability from within different disciplines

Source: Association for the Advancement of Sustainability in Higher Education Sustainability Tracking and Assessment and Reporting (STARS) Technical Manual Version 1.2, February 2012.



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CURRENT CURRICULA

- Sustainability-related components in at least one general education course at 60 percent of KCTCS colleges
- Areas reported as having sustainability-related components:*
 - Advanced Integrated Industrial Technology
 - Applied Physics
 - Applied Technologies
 - Biotechnology
 - Chemistry
 - Communications
 - Construction
 - Energy
 - Health
 - Industrial Maintenance
 - Industrial Technology
 - Manufacturing and Trades
 - Sociology
 - Nursing
 - Occupational Technical Studies
 - Political Science/American Government
 - Natural Science
 - Statistics

** Reported by the colleges as part of the December 2011 KCTCS Board of Regents Report*



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KCTCS GREEN+ INITIATIVES

Ashland Community and Technical College

- Grayson Lake Cleanup
- City of Ashland Recycling

Big Sandy Community and Technical College

- Mayo Campus Park Construction
- Community Garden Partnership with Growing Warriors and other community groups

Bluegrass Community and Technical College

- Newtown Campus Classroom Building
- International student outreach
- Latino Leadership and Experience Camp

Elizabethtown Community and Technical College

- Commonwealth Energy Management Control System (CEMCS)
- Business and Industry Professional Development, “3 Rs of Sustainability”



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KCTCS GREEN+ INITIATIVES

Elizabethtown Community and Technical College

- Commonwealth Energy Management Control System (CEMCS)
- Workforce Development offers a Professional Development course, “3 Rs of Sustainability” for business and industry

Gateway Community and Technical College

- Living Lab Opportunities
- Bicycle Friendly designation

Hazard Community and Technical College

- Office of community Engagement and Volunteer Services and Student Group
- Computer Savings Software

Henderson Community College

- Art of Recycling Exhibit at the Henderson Fine Arts Center
- 30 in 13 Campaign to reduce paper usage and environmental impact



Mayo Campus Park Dedication and Ribbon Cutting Ceremony, October 1, 2013, Paintsville, Kentucky



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KCTCS GREEN+ INITIATIVES

Hopkinsville Community College

- STARS Bronze Rating – First KCTCS College to receive STARS rating
- Installation of a 25 KW solar array and complementing dashboard

Jefferson Community and Technical College

- Environmental Youth Summit
- Partnership for Green City

Madisonville Community College

- Energy Management Program and MOA with Everblue
- Installation of wind turbines and solar array

Maysville Community College

- Disc golf course
- Fish stocking collaboration with Kentucky Department of Fish and Wildlife Resources and local school district
- Wetlands Living Lab



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KCTCS GREEN+ INITIATIVES

Owensboro Community and Technical College

- National Science Foundation Grant to offer scholarships in STEM areas, including Biotechnology and Mechatronics
- Sponsored reading to explore India's culture, social justice, and other sustainability issues

Somerset Community College

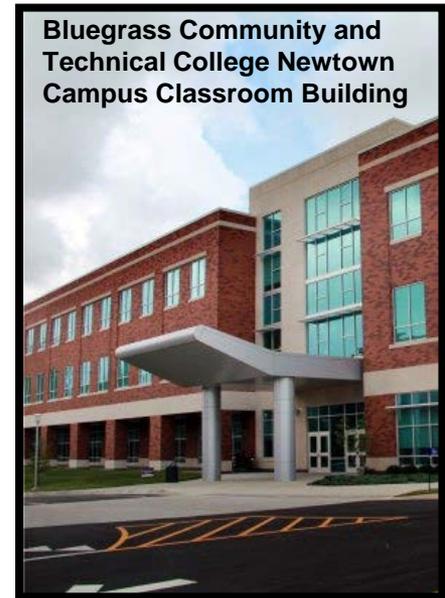
- Annual Earth Day
- Wind turbine research

Southcentral Community and Technical College

- Geothermal heating and cooling
- Recycling initiative

Southeast Kentucky Community and Technical College

- Faculty and staff email competitions
- Experiential education related to water runoff at local industrial park



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KCTCS GREEN+ INITIATIVES

West Kentucky Community and Technical College

- Going Green Grant to build a Green Energy Auditing Simulator for Emerging Technology
- Construction of new Sculpture Building for Paducah School of Art and Design

KCTCS Initiatives

- Better Buildings Challenge, U.S. Department of Energy
<http://www4.eere.energy.gov/challenge/partners>
- Commonwealth Energy Management Control System
<http://kyenergydashboard.ky.gov/#/Buildings>
- KCTCS Center for Environmental and Sustainability Education and Workforce Training
- Kentucky University Partnership for Environmental Education
<http://www.kupee.eku.edu/INDEX.HTM>
- KCTCS Green+ Website
http://www.kctcs.edu/en/About_KCTCS/System_Administration/Sustainability.aspx



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KCTCS GREEN+ INITIATIVE

Resources

KCTCS Green+ Initiative Website

http://www.kctcs.edu/About_KCTCS/System_Administration/Sustainability.aspx

American Association of Community Colleges (AACCC) Seed Center

<http://www.theseedcenter.org/default.aspx>

Association for the Advancement of Sustainability in Higher Education (AASHE)

<http://www.aashe.org/>

Better Buildings Challenge, U.S. Department of Energy

<http://www4.eere.energy.gov/challenge/partners>

Commonwealth Energy Management Control System (CEMCS)

<http://kyenergydashboard.ky.gov/#/Buildings>



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OPPORTUNITIES

*“Our chief usefulness to humanity rests on our combining power with high purpose.”
(Teddy Roosevelt)*



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KCTCS PROPOSED NO SILO SUSTAINABILITY APPROACH



- Inter-unit partnerships
- Inter-department partnerships
- Intercollege partnerships
- Community partnerships



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