Sustainability

Leading by Example

Sustainability -he *Why*

Global Warming

- Last two decades hottest of past 400 years, possibly of past several millennia
- emps in Alaska, western Canada and Russia are rising at twice the global average
- Mount Glacier National Park has 27 remaining glaciers of the 150 in 1910
- Arctic region may experience an ice-free summer by 2040 if emissions continue unabated
- 2500 scientists in 130 countries agree on human cause

World Water Crisis

- Humans have access to less than 0.08% of Earth's ater
- Currently one in five lack access to safe drinking ater
- 95% of U.S. fresh water is underground
- Irrigation practices are depleting the largest aquifer y a volume equivalent to the annual flow of 18 Colorado Rivers

Source: BBC News 2007

The *What*

President' Climate Commitment

- A voluntary higher education initiative that recognizes that global warming is real and largely caused by humans.
- Participating schools declare a commitment to pursue climate neutrality
- Exercise leadership in their communities and throughout society by modeling ways to minimize global warming missions
- Provide the knowledge and the educated graduates to achieve climate neutrality

• Executive Order 484 (issued 4/07)

- The Governor's mandate for the creation of a Leading by Example Program for all state agencies to reduce their environmental impact.

- uch efforts shall include:

Promoting energy conservation
Clean energy practices
ste reduction and recycling
Water conservation

oxics use reduction
ustainable transportation

Environmentally Preferable Procurement (EPP)

Open space and natural resource protection

Improved compliance practices

E. O. 484 Energy Targets for 2012

- Reduce potable water use by 10%
- Reduce Greenhouse Gas (GHG) emissions by 25%
- Reduce overall energy consumption by 20%

The *Water Challenge*

Reduction goal

500 **thousand gallons**

Conservation Measures

Irrigation systems

Auto-off faucets

Water source heat pumps

The *GHG/Energy Challenge*

Reduction Goal 873 Tons of CO_2

What does that mean?

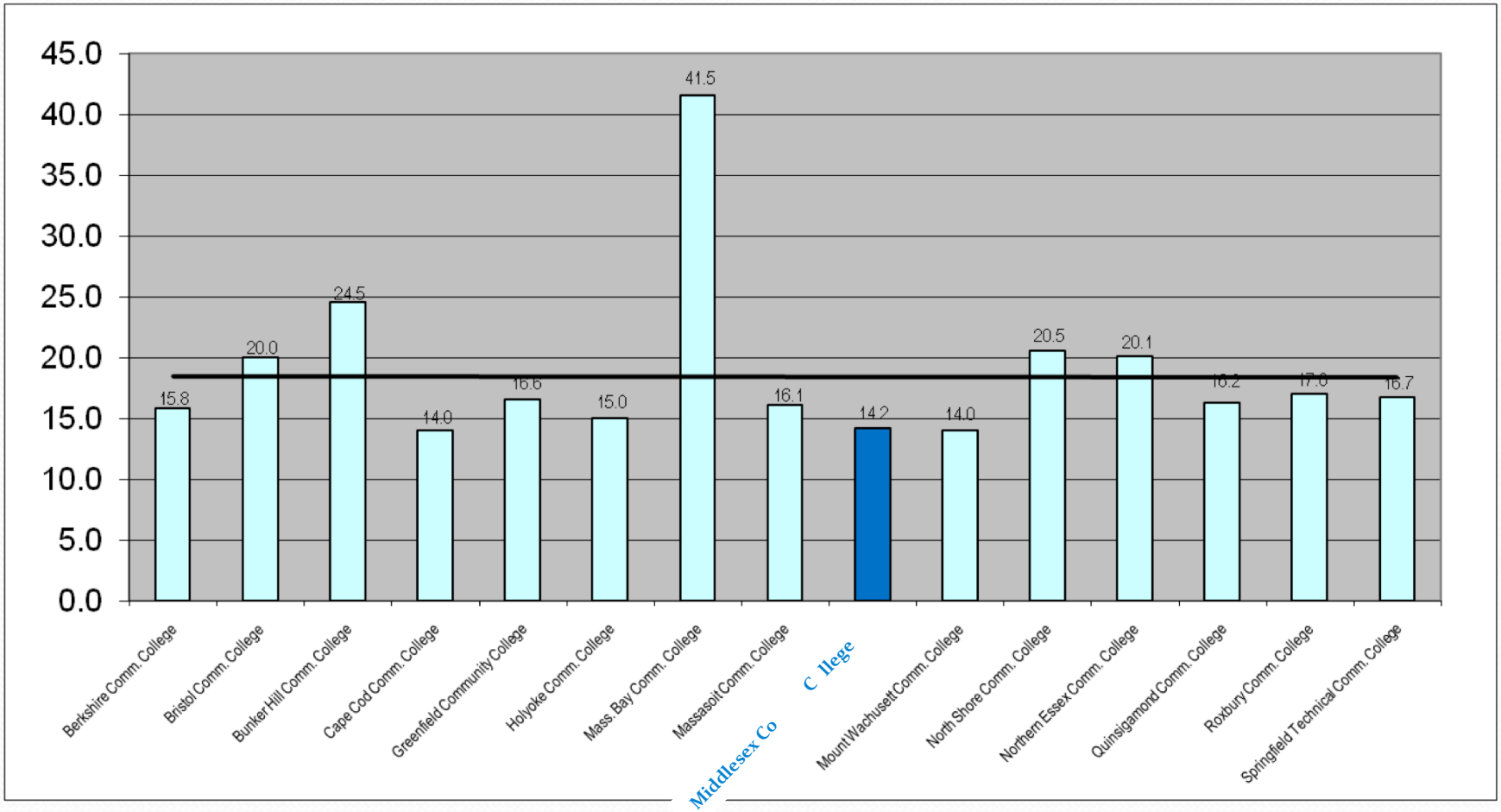
- Turning off every light in every building for one year
- Shutting down every third building
- 10 months energy use of the City Building

MCC CO2 Footprint

	Co2 Tons	% of total
fy '06 -	3043	100%
• **Electricity**	**2284**	**75%**
• Natural Gas	680	22%
• Gasoline and Diesel	79	3%

Fuel Type	Amount / Unit	Equivalent lbs CO_2
Electricity (NE Region)	1 KWH	.98
Natural Gas	100 ft3	12.6
Gasoline & Diesel	1 gallon	21

Community Colleges: lbs of CO2/Sq Ft



FY 2006

Mass EoEEA Sustainability Program Data 05/06

The *How*

Established Policies

- High Efficiency Equipment Replacement Policy
- ight-sizing Equipment Policy
- hermal Comfort Standards: 68 ^{o} winter, 76° summer
- Leadership in Energy and Environmental Design (LEED) Plus Construction Policy
- ecycling (mixed paper, cardboard, bulbs, ballasts,

oil, batteries, computers, paint, carpet)

- Environmental Preferable Purchasing Policy (EPP)
- Energy Star Office Equipment Purchasing Policy
- ccupancy Sensors and Building Automation Systems

Current Activities

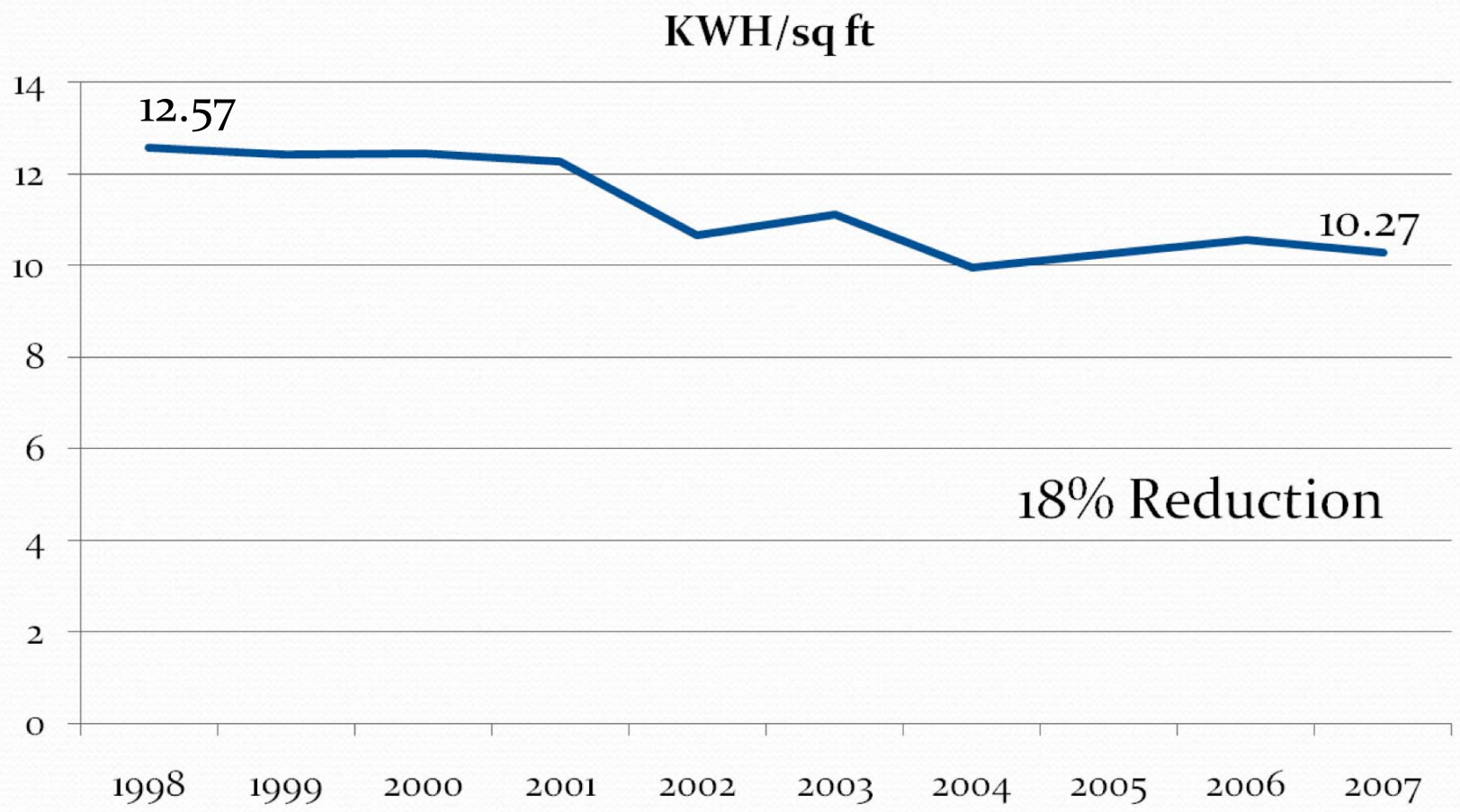
- ustainability Plan
- ustainability Advisory Committee
- Expanded Recycling Initiatives
- Building Electrical Sub-metering
- etro-commissioning building systems
- Large On-site Renewables Initiative
- Linking of environmental controls to occupancy schedule (R25)

Investment Examples

Completed in Previous 18 Months	Total Cost	CO_2 Tons Reduced	Projected Annual savings
Energy related Upgrades & Replacements	$ 265,400	196	$ 50,100

- Lighting Retrofit – mpus-wide
- Right-sized City Bldg cooling tower w/ high efficient unit
- Replaced HVAC units w/ right-sized, high efficient units
- eather-stripping

Results


KWH/sq ft
14
12
10
8
6
4
2
0
12.57
10.27
18% Reduction
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007

- Sustainability efforts to date have resulted in:
  - Nearly $125,000 in cost avoidance in 2007
  - Over $500,000 cost avoidance in last 7 years

The *Plan*

The traditional educational framework:

The 3 Rs

- Reduce
- Reuse
- Recycle

The *Plan*

- Continued implementation of policies and practices to further reduce, reuse and recycle
- Expand awareness throughout the College to both ucate and inspire
- Take next big step with Onsite Renewables
- Pursue insulation, envelope and energy efficiency improvements of existing buildings
- Implement water conservation measures

What's Next

- Monitor and evaluate use of personal space heaters
- Consider implementing Energy Star computer settings
- Evaluate lighting use, quality and controls
- RideShare
- Increase Recycling effort

What more can we do?

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