Green Laboratory Practices

DEQ Green Labs Initiative Workshop
July 31, 2013

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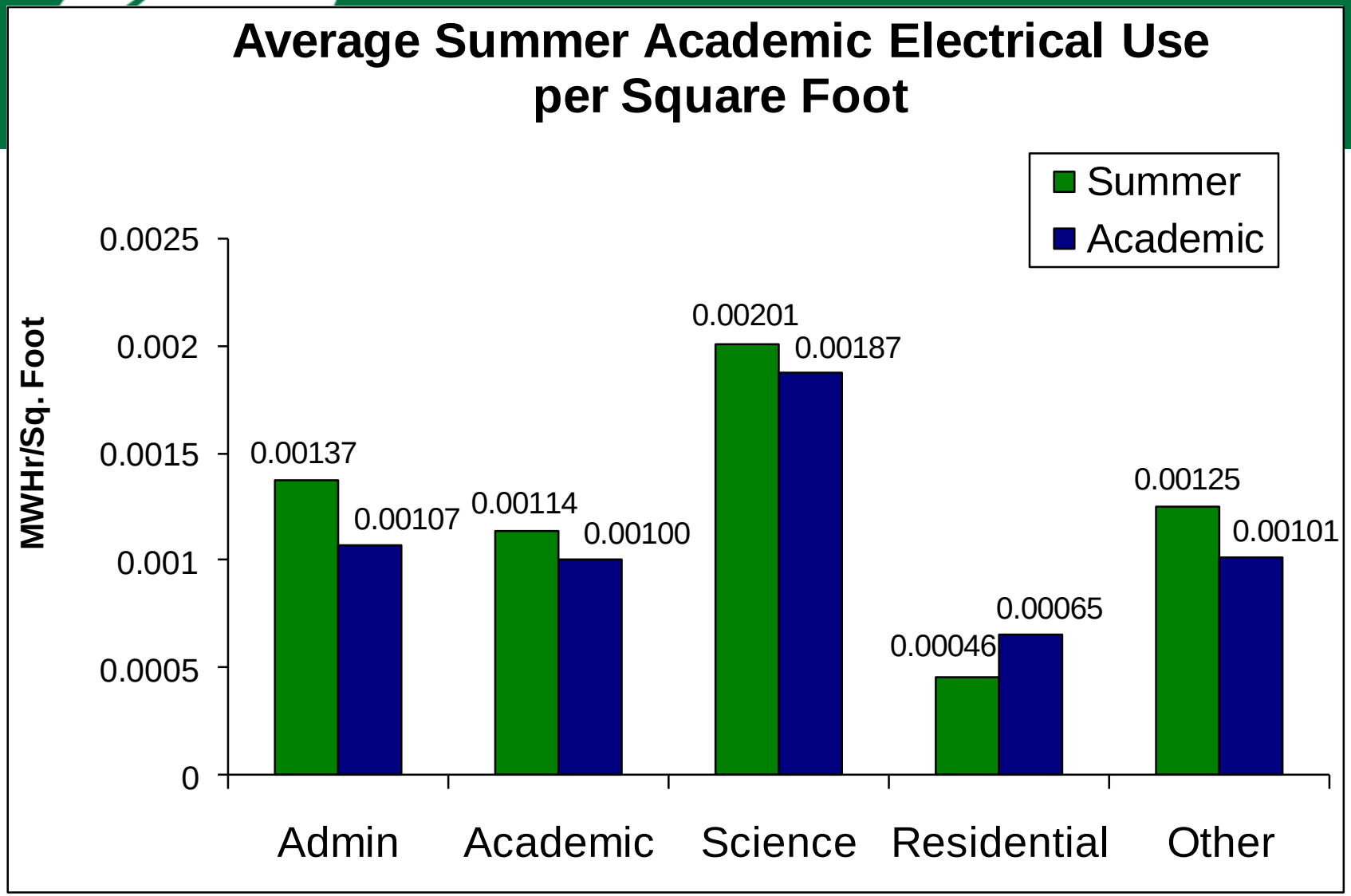
Average Summer Academic Electrical Use per Square Foot



Source: Kayla Coleman, 2011

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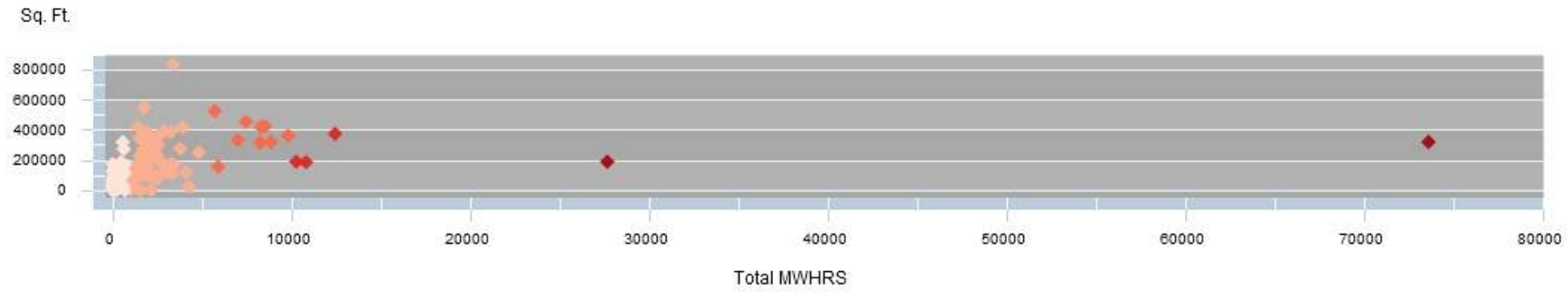
Highest Electrical Energy Users

Building	MWHRS	Rooms	Sq. Ft.
T.B. SIMON POWER PLANT COMPLEX	73563.16	266	321751.9
CYCLOTRON	27656.11	419	192100.1
BIOMEDICAL PHYSICAL SCIENCES BUILDING	12438	731	377208.3
PLANT BIOLOGY LABORATORIES	10818	455	189550.5
DIAGNOSTIC CENTER FOR POPULATION AND ANIMAL HEALTH COMPLEX	10272.24	359	192007.8
PLANT & SOIL SCIENCES BUILDING	9807	809	364111.3
CHEMISTRY	8845.5	565	321901.2
VETERINARY MEDICAL CENTER COMPLEX	8527	1021	426564.7
ENGINEERING BUILDING	8289	897	425404.2
ANTHONY HALL	8240	599	319176.4



Source: www.gis.msu.edu/begreen 2012

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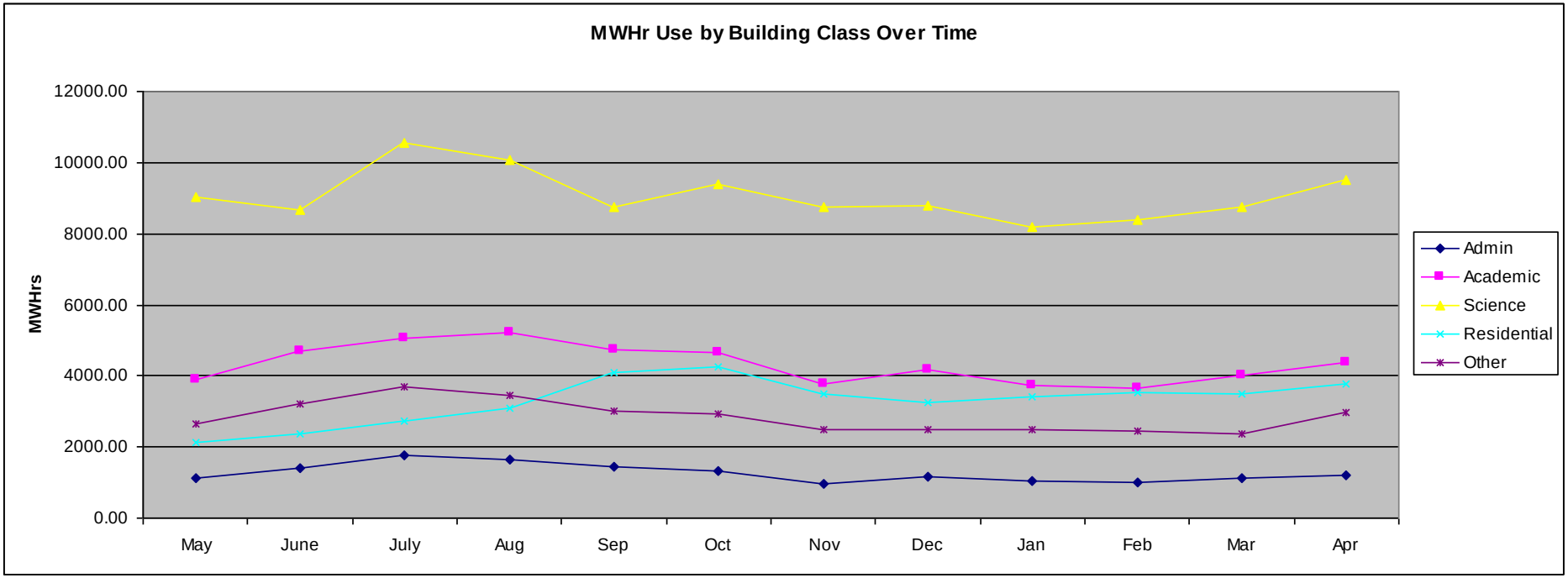
Energy users by type



Study from May 2007 to April 2008, lead by Prof. David Skole.

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Cost example- Chemistry

- Shutting the sash whenever possible will increase safety and energy savings
- Maximum cost:$1,608,246.64
- Minimum cost: $746,392.15
- Potential savings: $861,854.49
  - $0.0095 per Kcfm
  - 1/3 Max use, 2/3 minimum use

Source:
Infrastructure and Facilities Planning, Sue Atchinson, John Phillipich, Lynda Boomer 2009

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Fully Closed Sash

- 350 cfm
- 1 year: $1,743.04
- 5 years: $8,715.20

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Sash open halfway

- 900 cfm
- 1 year: $4,406.70
- 5 years: $22,033.50

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Sash bypass

- 1800 cfm
- 1 year: $8,813.48
- 5 years: $44,067.40

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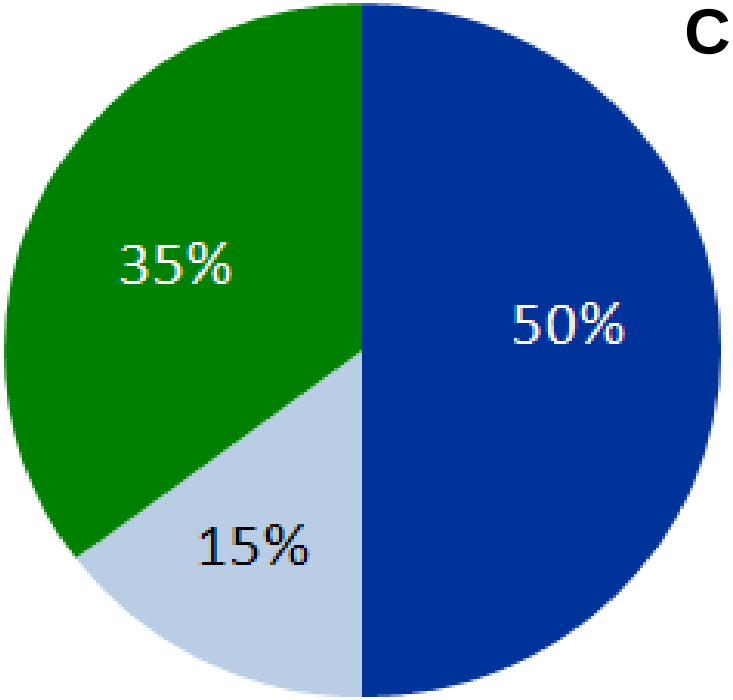
Total References for Receptivity to Change



Cannot change: due to the nature of science, current technology, lack of energy efficient alternatives

Do not need to change: the respondent's perceived impact indicates that their particular lab and/or science labs in general are not to blame for inefficiencies

Open to change: positive reflection towards potential laboratory changes for energy efficiency

Source: Kayla Coleman, 2011

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Green Certification

A program to create the best practices, incentivize, and recognize units who are implementing sustainable practices.

Application Period	Number of approved applications
2009-2010	14
2010-2011	1
2011-2012	18
2012-2013	3

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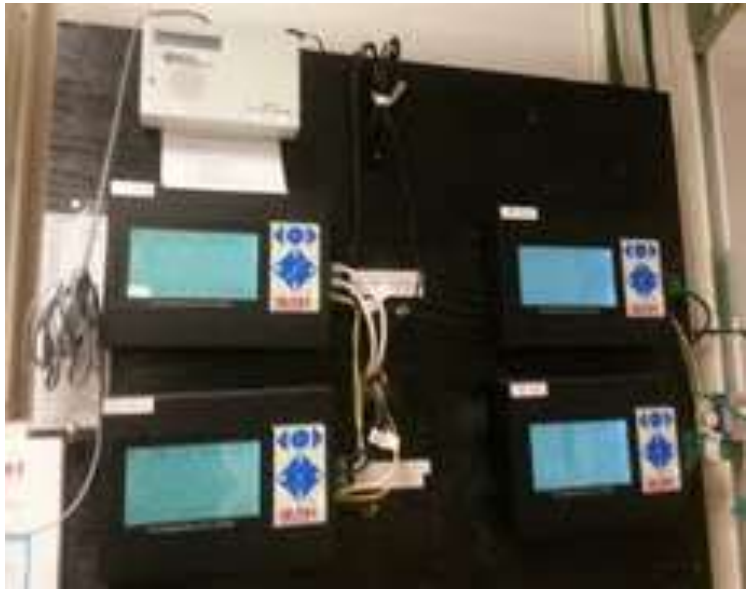
Purchasing

- Combining purchases to order in bulk, save shipping costs
- Recycling styrofoam containers
- Reuse of cold packs
- Automated controls on refrigerators to ensure savings



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Sustainability @ MSU

www.bespartangreen.msu.edu

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