Illini Energy Dashboard

ENVIRONMENTAL CHANGE INSTITUTE | ILLINOIS

IMPLEMENTING BEHAVIOR CHANGE FOR ENERGY EFFICIENCY
UNIVERSITY OF ILLINOIS
MAY 22, 2012

HTTP://WWW.ILLINIENERGY.ILLINOIS.EDU/

Our agenda today

The Illini Energy Dashboard

- Our Planning Process
- The Funding Support
- Implementation Plan
  - Phase One – develop website
  - Phase Two – replace via priority listing of out dated meters with digital

Sponsors

- **Environmental Change Institute** http://eci.illinois.edu/

The Environmental Change Institute helps focus the unique educational, outreach, and research capabilities of the University of Illinois to advance our understanding of global environmental change and support solutions that enable society to mitigate or adapt to its effects.

- **Student Sustainability Committee** http://sustainability.illinois.edu/ssc/

The Student Sustainability Committee receives fees from students and allocates these resources to fund campus sustainability projects and initiatives.

- **Facilities & Services** http://www.fs.illinois.edu/

Facilities & Services supports the academic enterprise at Illinois by planning, constructing and maintaining the campus physical environment with a commitment to sustainability as well as regulatory compliance.

History of the project

- November 2012
  - After a visit from Ron Dembo, Founder and CEO of Zerofootprint, project team established by ECI to discuss development, implementation and timeline of a dashboard for the University of Illinois campus to communicate to campus and beyond energy usage
- December 2011
  - Test Server Launch at ECI Fall Symposium
- March 2011
  - Begin discussions with F & S staff about data management and software
  - Establish Instep, Inc. connections
- January 2012
  - Beginning of year one with three campus buildings

The Environmental Change Institute

ENVIRONMENTAL CHANGE INSTITUTE

ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

When it comes to the changing global environment, most people want to know three things: What's going on? How does it affect me? And what can I do about it? Here at the Environmental Change Institute, we pursue answers to these questions, uniting theoretical research with real-world tools. To question and to challenge. To research and resolve. To think. And to become *agents* of change.

What is the Point?

Dashboard Project has threefold effect

- Provide real time information to develop awareness and cultural/behavioral changes in how energy is used (not only in the buildings featured but in all aspects of life).
- Provide information for faculty and students in research
- Provide details for building staff to better use resources and energy, and make plans for building adaption in ways that may decrease usage over time

Welcome to Illini Energy!

What is Illini Energy?

The Illini Energy provides clearly visible understandable information data and information to students and staff of selected University buildings describing energy consumption rate (electrical, chilled water and steam) so that users can make educated choices about the way they can affect energy consumption and conservation.

What is our Carbon Footprint?

- Our Carbon Footprint is a measure of the impact we have on global climate change via the greenhouse gas (GHG) emissions we generate.
- The largest contributor to our campus carbon footprint is the coal and natural gas burned to produce the electricity and steam which powers and heats our buildings.
- Other contributions include gasoline and diesel burned in campus vehicles, transportation of food to campus, and agrochemicals, especially fertilizer, used on our fields.

What is displayed?

- The gauges on the each building page displays real-time energy use data by building for heating, cooling and electricity
  - Electricity - Electricity is used for lights, office and lab equipment, heating and air conditioning, appliances, and air quality equipment such as fume hoods in laboratories.
  - Heating - Steam is used to heat campus buildings and power some equipment
  - Cooling - Chilled water is used to cool campus buildings and lab equipment

Future Plans

- Phase one: Launch of website and student, student, staff & faculty awareness
- Addition and connection to meters of more buildings across campus
  - Resident Halls
  - Labs
  - Classroom buildings
  - Recreational buildings
  - Office and other use buildings
- Phase two
  - Installation of real time meters

Buildings

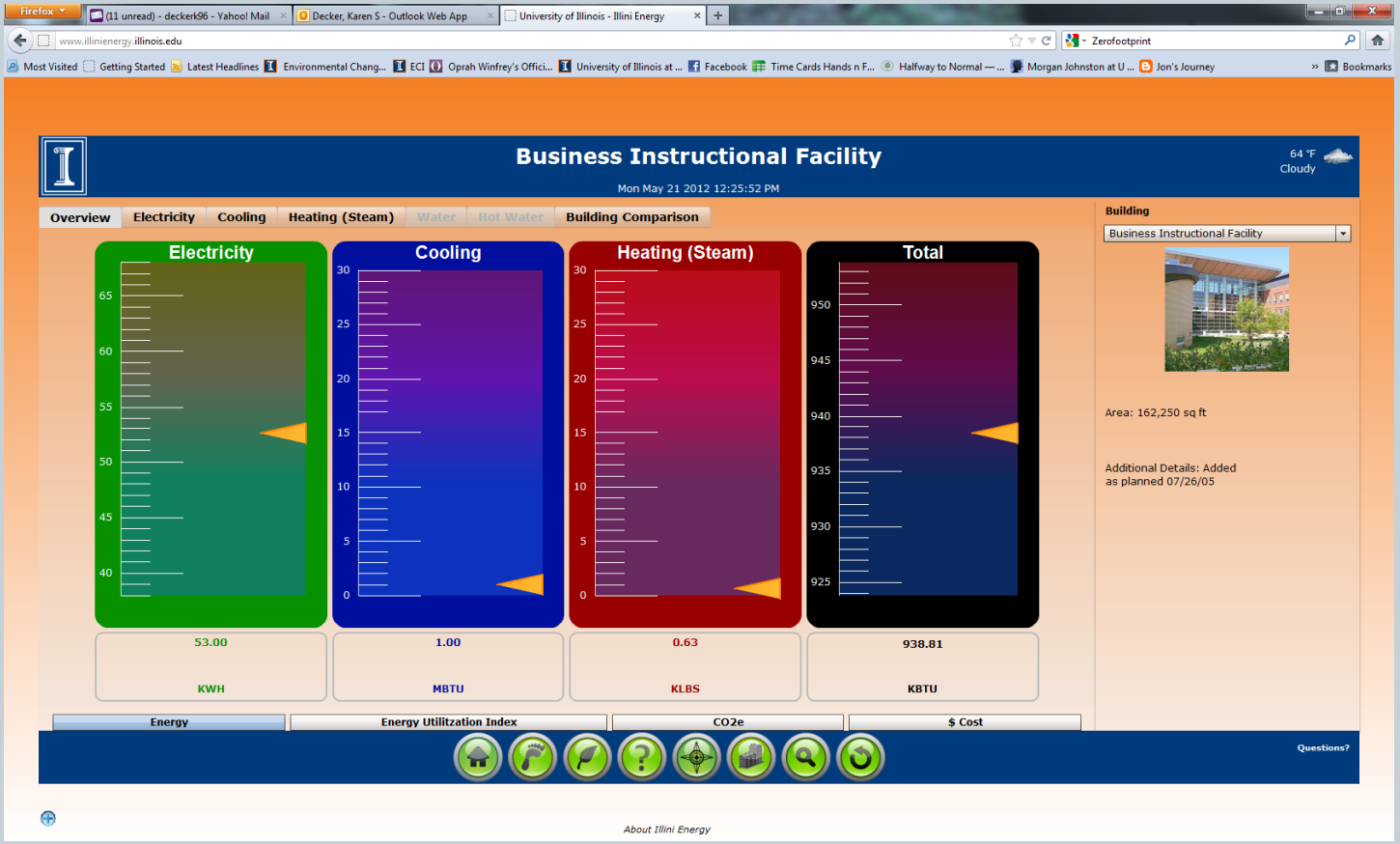
Lincoln Avenue Residence Hall

English Building

Business Instructional Facility

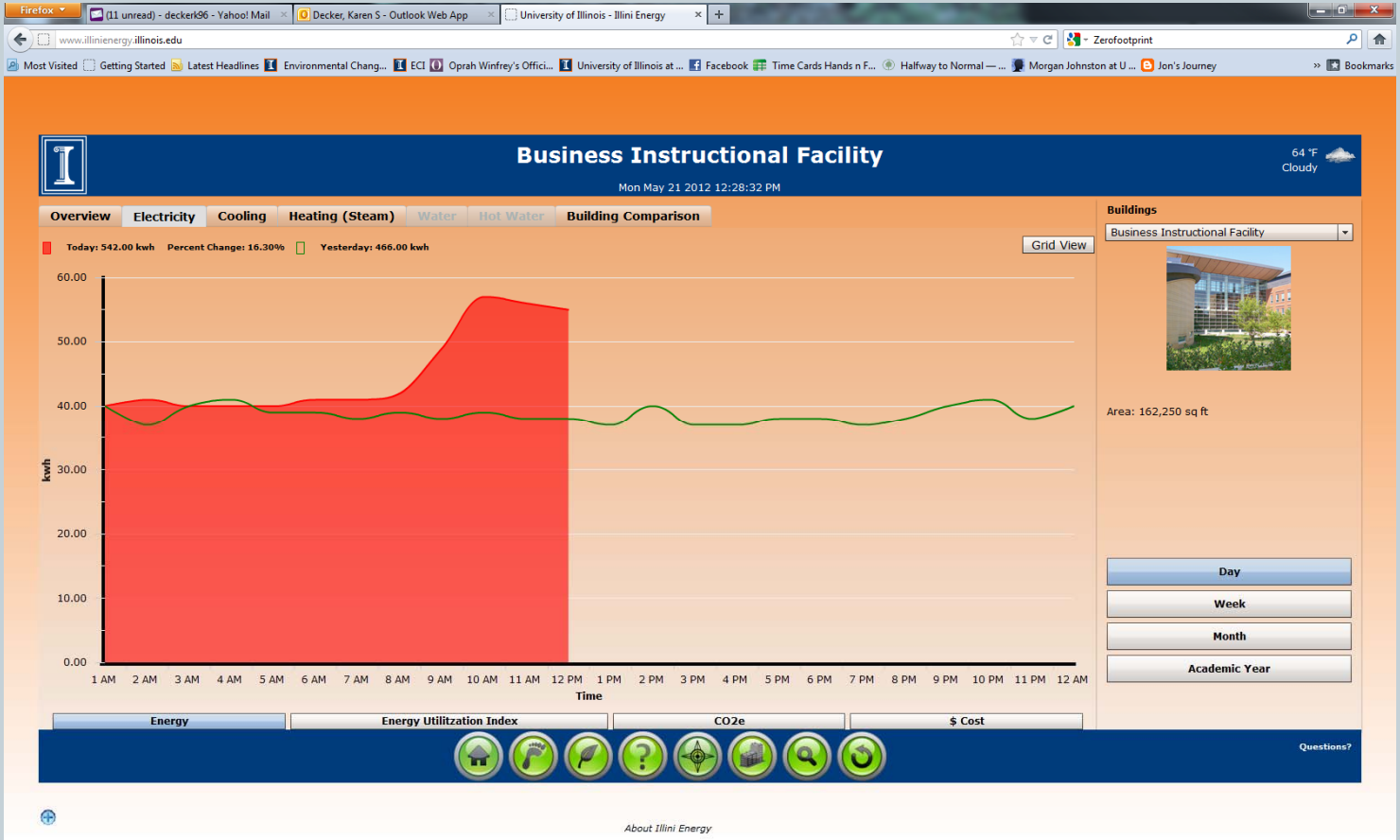
Business Instructional Facility

Overview on May 21, 2012 at 12:27 p.m.



Electricity use at BIF

May 21, 2012 at 12:29 p.m.



Personal Conservation Tips

- Use task lighting or natural light to reduce energy consumption.
- Turn off computer monitors when not in use, and shut down computers when leaving for the day.
- Think before you print. Save paper by proofreading on your screen before printing. Print double-sided when possible and only print the pages that you need.
- Park your car on the periphery of campus and utilize active transportation – bus, bike, or walk.
- Unplug infrequently used appliances or electronic devices.
- Wash your clothes and dishes only when you have a full load.
- Replace disposable products - razors, plates and utensils, water bottles - with reusable ones.

Thanks!

- Students, staff and faculty who have served over the last 2 years on the ECI project team
- To the Student Sustainability Committee for the funds for this project
- In addition, the announcement of matching funds from the campus for phase two
- The teams of people in the Utilities & Energy Services and IT at Facilities and Services who have been working with InStep to install the website

Student Sustainability Committee

Vision for Funding

- The Student Sustainability Committee (SSC) is accepting proposals to fund sustainability, energy efficiency, and renewable energy projects on campus. The funding for these proposals is provided by the Clean Energy Technology Fee ($2/semester) and the Sustainable Campus Environment Fee ($14/semester). These student fees generate approximately $1,150,000 annually to support sustainability on the University of Illinois Urbana-Champaign campus.
- This is an open and competitive process.

Who is allowed to apply for the money?

- All are welcome to apply – students, faculty, staff, university departments, and registered student organizations. Community members and businesses may also partner with a university affiliate. All projects must fit within the fee mandates outlined in “Funding Categories” on the website.

What are some examples projects?

- See a listing of projects found on SSC website at:

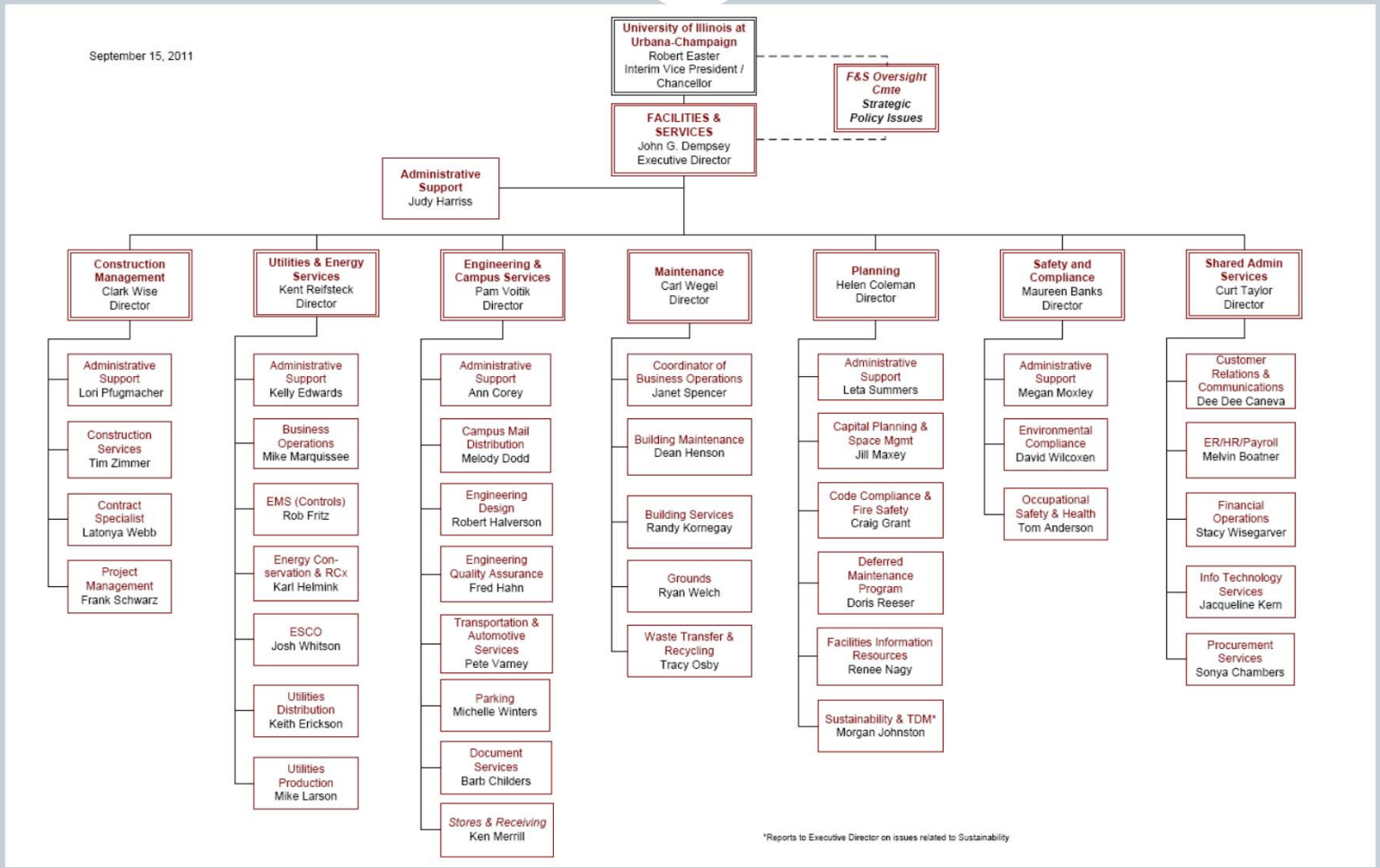
http://ssc.union.illinois.edu/projects.shtml

Who can I contact?

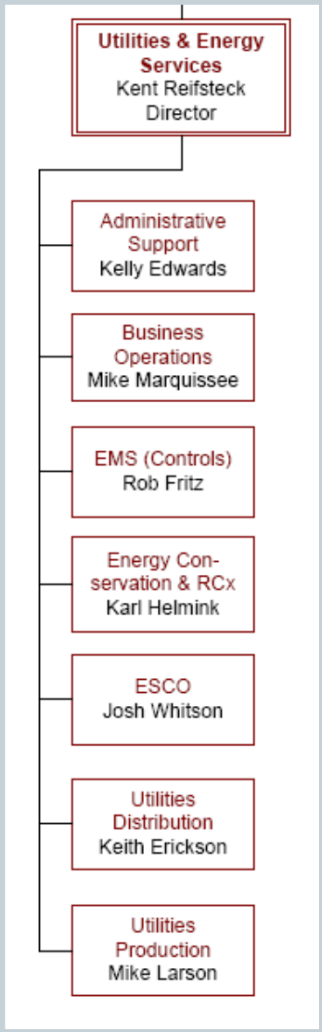
- You can contact via email at sustainability-committee@illinois.edu. If you are unsure that your project fits our criteria or in need of consulting, a committee member would be happy to meet with you.

Facilities & Services

Facilities & Services



F&S Energy Services



Forecast	Campus Load • Historical • Limited Normalization	Asset Availability Policy Budget Maintenance/Repair Regulatory	NICOR • Monthly •Daily BAI MISO • Daily • Real Time
Data Collection	Building EBS (Monthly) Illinienergy.illinois.edu	EDNA • Collection • Monetary • Analysis • Report	
Control	Building DDC • Siemens • Johnston • Andover* } *Schneider Electric* • Invensys* } MACS Pneumatic	Production DCS • Emerson Delta Equipment PLC PMCS	Demand Response TES
Data Sources	Building Load Meters • Real Time • Manual Meters (need upgrade) Room Data	Production Metering	Market Prices Physical Hedge Financial Options Day Ahead Real Time

Implementation

- Educational tool and access to historical data
- Complex chain of connections and software from real-time meters to the dashboard
- Not “revenue-grade meters”
- F&S Energy Services will continually monitor the site and work to correct meter issues in a timely fashion

Please Review

- If you are interested in reviewing the website and responding with comments and critique, please send to:

Karen Decker

karend@illinois.edu

Questions?

- Karen Decker

Phone: 217-333-0548

Email: karend@illinois.edu

- Mckenzie Beverage

- Marcus Ricci

- Morgan Johnston