Energy on the Medford Campus

Betsy Isenstein, Energy Manager
What energy do we use in Medford?

- Electricity
- #6 Oil
- #2 Oil
- Natural Gas
How do we get?

• Power?
• Heat?
• Air Conditioning?
Energy Systems at Tufts – Medford/Somerville

- Heating
  - District steam plants
    - Central, Tilton, Jackson
  - Stand alone boiler plants
    - Michael Pearson, 4 Colby Street, 80 George Street

- Cooling
  - Chiller systems
    - Tisch, 4 Colby Street, Granoff
  - Package units and split systems
  - Window units

- Purchased electricity
How We Control Heat and Cooling

• Manual control valves (heating only)

• Thermostats

• Energy Management System
How We Control Lighting

• Light switch

• Occupancy sensors

• Energy Management System
Current Trends

- Oil and natural gas prices volatile
- Natural gas pricing tending down
- Electric pricing following gas pricing
- External factors
  - Forward Capacity Market = “tariff” for high demand
How are we doing?

Energy Consumption

Institutions Ordered By: Tech Rating

- Bentley University
- Babson College
- Brandeis University
- Trinity College
- University of Massachusetts - Boston
- Wellesley College
- Wesleyan University - Summary

Medford Campus

- Propane
- #2 Fuel
- Natural Gas
- #6 Fuel
- Water/Sewer
- Electric

FY01 FY02 FY03 FY04 FY05 FY06 FY07 FY08 FY09 FY10

BTU/GSF

0 20,000 40,000 60,000 80,000 100,000 120,000 140,000 160,000 180,000 200,000

0 $0 $2,000,000 $4,000,000 $6,000,000 $8,000,000 $10,000,000 $12,000,000

Average 120,181

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Medford Campus
Medford Electricity

**Medford Campus Annual Electrical Usage**
(Not Adjusted for July '02 Power Outage)

**Medford Campus Annual Electrical Costs**
Four Parts of the Puzzle

- Projects to conserve
- Procurement for the best price
- Policy
- Personal Action
Projects

- Energy management
- *High efficiency condensing boilers* at 4 Colby Street, Sophia Gordon Hall, 80 George Street, 58 Winthrop Street.
- **Specific Building Projects**
  - Science and Technology Center retro-commissioning
  - Pearson Chemistry
  - The Fletcher School
- Comprehensive lighting retrofits and controls.
  - Lighting in gymnasiums and machine shops
  - LED lights
- Steam trap replacement program
- Vending Misers
- Front load washing machines
Results
Science and Technology Center
4 Colby Street

- Lighting / controls retrofit: September 2002
- Retro commissioning: February 2004
- Hot water temperature lowered in preparation for new boilers: November 2005
- Condensing boilers installed: November 2006
- HVAC Chiller retrofit complete: April 2008
How Medford Utility Dollars are Spent

- Fuel
- Gas & Propane
- Elec
- Water & Sewer
Procurement Issues

- Price stability
- Lowest Price
- Reliability
- Emissions
- Terms
- Risk
Current Fixed Price Contracts

- **Electricity Supply:** TransCanada
  - Through 12/31/2014
  - All campuses, all accounts

- **Oil**
  - #6 fuel purchased through June 2011
  - Can purchase 24 months out
  - Prices volatile, trending up at the moment

- **Natural Gas Supply:** HESS
  - Through 10/31/2011
  - All campuses, most accounts
Policy Options

- Temperature policy established
  - Lower heating temperatures – target 68°F
  - Higher cooling temperatures – target 78°F
  - Expectations during off hours
- Space heaters
- Window air conditioners
- Heating system on/off dates
- Design standards – currently in development
Expectations

- Turn off computer at night
- Enable power management
- Buy a flat screen or laptop
- Turn off your lights
- Shut your fume hood sash
- Turn up/down thermostat (if available)
- Ban space heater
Frequently Asked Questions

• Can I use a space heater?
• Why is it so hot on those nice spring/fall days?
• Why is it too hot/too cold?
• What should I do about that?
• Who do we call to report a problem?
• Should I open the window?
Common Misconceptions

• Heating/cooling systems go on with the “flip of a switch”.
• Chilly in the summertime means the most wasted energy.
• The campus energy management system controls everything – my thermostat does nothing.
• It doesn’t matter if I open the window.
• It doesn’t matter if I use a space heater.
• It is better to call someone in Facilities and skip the Work Control system
How to Help

• Report to Work Control:
  – Leaks, stuck windows etc.
  – Occupancy sensors that need adjustment
  – Extreme indoor temperatures
  – Be patient, but persistent

**Reporting is particularly important in areas where there is no “owner”**
Work Control

Linda

Maryellen
General Services – No Charge

- Interior and exterior repairs to all buildings.
- Exterior painting of all buildings and interior painting of public and common areas.
- Maintenance of building systems such as heating, ventilation, air conditioning, plumbing, electrical and lighting.
- Maintenance of utility distribution systems.
- Maintenance of building life safety and security alarm systems.
- Care of trees and shrubbery, lawns, sidewalks, streets and parking lots.
- Snow removal, road sanding and salting.
- Maintenance and repair of all door locks.
- Custodial services.
- Pest control.
- Residential Facilities.
- Recycling (see Recycling website)
Fee-Based Services – IDR Required

- Installation, service and repair of certain departmental equipment.
- Moving, storage, installation, and disposal of departmental furniture and supplies.
- Estimates for minor carpentry work (i.e. shelving and cabinets).
- Renovations required for departmental program changes not requiring a CEA. Painting beyond the planned maintenance cycle.
- Replacement of lost keys or additional keys and core changes.
- Installation, service, and repair of certain specialized laboratory equipment.
- Special Events Planning.

All fee-based services require that an Interdepartmental Requisition (IDR) be sent to us before the work can begin. Please contact us with questions.
Online Service Requests
http://www.tufts.edu/central/facilities/medford/index.html

Non-Emergencies ONLY
Welcome to the Facilities Department's On-Line Service Center

It is our goal to provide you with the best possible service. We hope that you will take advantage of the many benefits offered at the On-Line Service Center.

The On-line Service Center should never be used for emergency service requests. If you have a facilities related emergency please dial your local campus emergency number immediately.

NO CHARGE SERVICES: The following is an abbreviated list of the basic services provided to the Tufts community at no charge: interior and exterior repairs to buildings, exterior painting of buildings and interior painting of public and common areas exceeding 100 square feet, painting frequency, maintenance of building systems such as heating, ventilation, air conditioning, plumbing, electrical and lighting, maintenance of utility distribution systems, snow removal, basic landscaping, road and sidewalk repairs, basic custodial services, pest control and recycling services.

FEE BASED SERVICES REQUIRING AN INTERDEPARTMENTAL REQUISITION (IDR): It is not possible to identify all of the fee based services and circumstances that normally trigger an IDR. However, the following can be used as a general guide: installation and repair of certain specialized laboratory equipment, service and repair of certain department equipment, moving and storage, installation and disposal of department furniture and supplies, estimates for minor carpentry work, renovations, painting beyond the planned cycle, replacement of lost keys, additional keys and core changes, events and setups, custodial services beyond those defined in the contract specification.

For additional information and clarification about these services always contact your campus Facilities Department.

- No Charge Service Request
- Fee Based Service Request

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On-Line Service Requests
Facilities Emergencies

Monday – Friday 7:30am to 5:00pm
Call Extension 73496

After-hours
Call Public Safety 76911
Questions??

Betsy Isenstein
Extension 73704
Elizabeth.isenstein@tufts.edu