Energy at Tufts
Cummings School of Veterinary Medicine, Grafton
January 30, 2014

Photo Simulation
Energy and Utilities: Grafton Campus

Largest plants served by natural gas with fuel back-up
   LAH/SAH
   RBL

All other facilities served by natural gas except:
   • Captain O’Brien Road, #2 fuel
   • Remote areas, propane and #2 fuel

Main electrical distribution point near Wildlife Clinic
   • National Grid Electric
   • Nstar Gas
   • Grafton Water District
   • Graton Sewer Department

Switching to Natural Gas

Natural gas not available yet
Small houses on #2 fuel
## Solar Electricity in Grafton

<table>
<thead>
<tr>
<th>Site</th>
<th>System Size (kW DC)</th>
<th>System Size (kW AC)</th>
<th>Energy (kWh/year)</th>
<th>Area (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grafton Campus</td>
<td></td>
<td></td>
<td>11,325,421</td>
<td></td>
</tr>
<tr>
<td>Science Park</td>
<td>1,296</td>
<td>1,000</td>
<td>1,702,000</td>
<td>4.8</td>
</tr>
<tr>
<td>Knoll</td>
<td>2,580</td>
<td>2,000</td>
<td>3,380,000</td>
<td>14.00</td>
</tr>
<tr>
<td>Total</td>
<td>3,876</td>
<td>3,000</td>
<td>5,082,000</td>
<td>18.80</td>
</tr>
</tbody>
</table>

Grafton solar % Grafton Total: 45%

Grafton solar % University Total: 8%
Sites Selected for Development

- The Knoll
- Science Park Phase II
- The Knoll
A growing university…

Tufts University
Maintained Square Footage

Projected Growth

Grafton
Boston
Medford

Facilities Services
gets green
Electric Consumption per GSF

Fiscal Year


kWh per GSF

Medford
Grafton
Boston

Tufts Facilities gets green
Emissions vs. Energy “All University”

Emissions vs. Fossil BTUs

Reduce to 1990 levels by 2010

At least 10% below 1990 levels by 2020

75-85% below 2001 levels by 2050
Categories of Emissions Released by Fuel Used 2012 (short tons of CO2)

- Electricity
- Gas
- #6 Oil
- #2 Oil
- Propane
- Purchased Steam
- Gasoline on campus
- Gasoline commuters
- Diesel

2012 Emissions “All University”
Consumption and Costs “All University”

Energy Consumption by Campus with Cost
Excludes Transportation

- Grafton
- Boston
- Medford
- Total Cost

Fiscal Year
2008 2009 2010 2011 2012 2013

Dollars (in millions)
$0 $5 $10 $15 $20 $25

BTUs (in millions)
0 100,000 200,000 300,000 400,000 500,000 600,000 700,000 800,000

Tufts Facilities Services gets green
Heating and Cooling Controls

- Manual control valves
  (heating only)

- Thermostats

- Energy Management System
Electricity Reduction

Occupancy sensors are common (except BRPH)
- Classrooms, conf. rooms, offices, washrooms, library stacks, some corridors, some labs

Energy Management System
- Site lighting
- HVAC controls tied to occupancy sensor
- Lab ventilation controls

Daylight sensing/dimming, lighting & controls

Ongoing technology updates include LED lighting
- 1,500 LED lamps provided at no cost by MA utility programs for all three campuses
- A19 LEDs provided to all incoming students
Lighting Controls

- Light switch

- Occupancy sensors

- Energy Management System

Tufts gets green
Green Buildings

LEED Certification

– Sophia Gordon Hall, Gold

– School of Dental Medicine, Vertical Expansion, Silver
– School of Dental Medicine, Level 2 Renovation, Gold
– School of Medicine, Sackler Building Renovation, Certified

– Biology Labs at 200 Boston Avenue, Gold
On-going Building Envelope Improvements

Before

New windows:
- Biomedical Research and Public Health building (formerly M&V Complex)
- Dental Building

After
A day in the life...

Tufts gets green
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)
- Space heaters only if provided by Facilities because building heat is not available
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 Facilities 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”
http://operations.tufts.edu/facilities
https://fsrequest.tufts.edu

Call if it is an emergency!

Tufts UNIVERSITY

Facilities Services - Online Service Request System

You are here to report routine repair, non-urgent maintenance service requests. Service requests will be processed during normal business hours.

If this request is an emergency during business hours, please contact your Facilities Services Department:

Boston: (617) 636-3535 - 8:00 am to 5:00 pm
Grafton: (508) 839-7921 - 7:00 am to 5:00 pm
Medford: (617) 627-3496 - 7:30 am to 5:00 pm

If this request is an emergency during off business hours, please call your University Police:

Boston: (617) 636-6610
Grafton: (508) 887-4900
Medford: (617) 627-3030

Please enter your Tufts UTLN and password:

UTLN [ ] Password [ ]

Submit
Questions?

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