

Energy at Tufts

Health Sciences Campus, Boston

January 15, 2014



Utilities: Boston Campus

Purchased steam from Veolia's Kneeland Street facility and cogenerated steam from Kendall Station in Cambridge

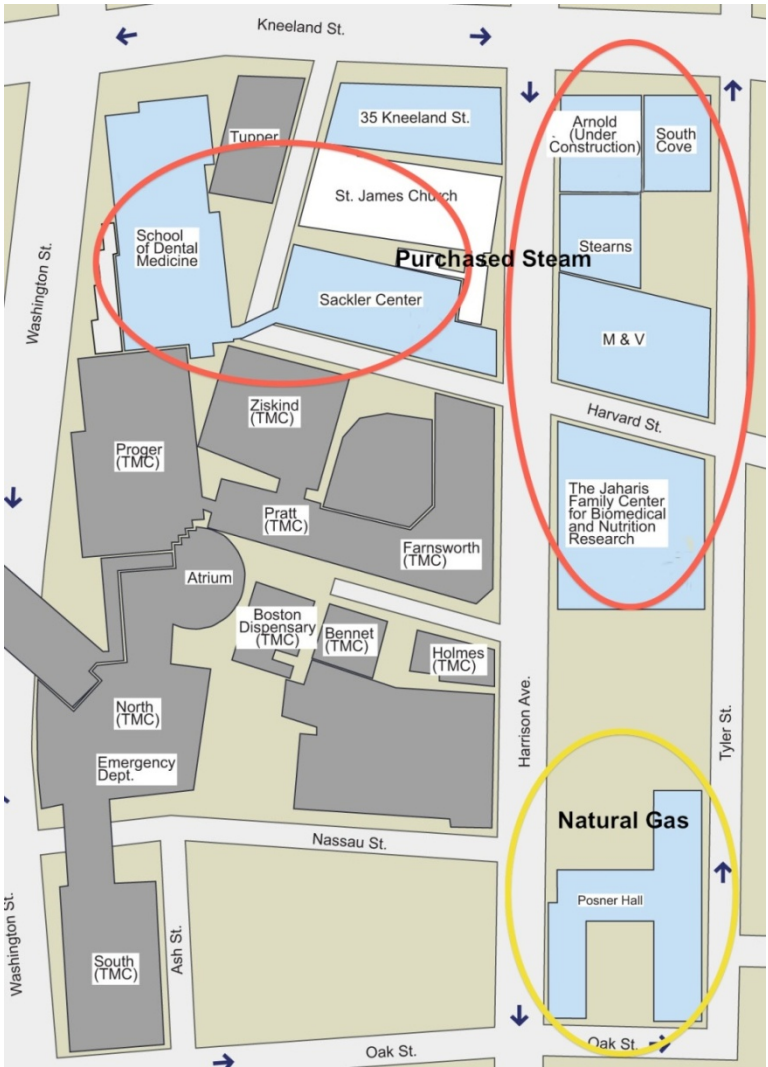
Nstar is local electric distribution company

TransCanada is electricity supplier

National Grid is local natural gas distribution company

Hess is natural gas supplier

Boston Water and Sewer from MWRA

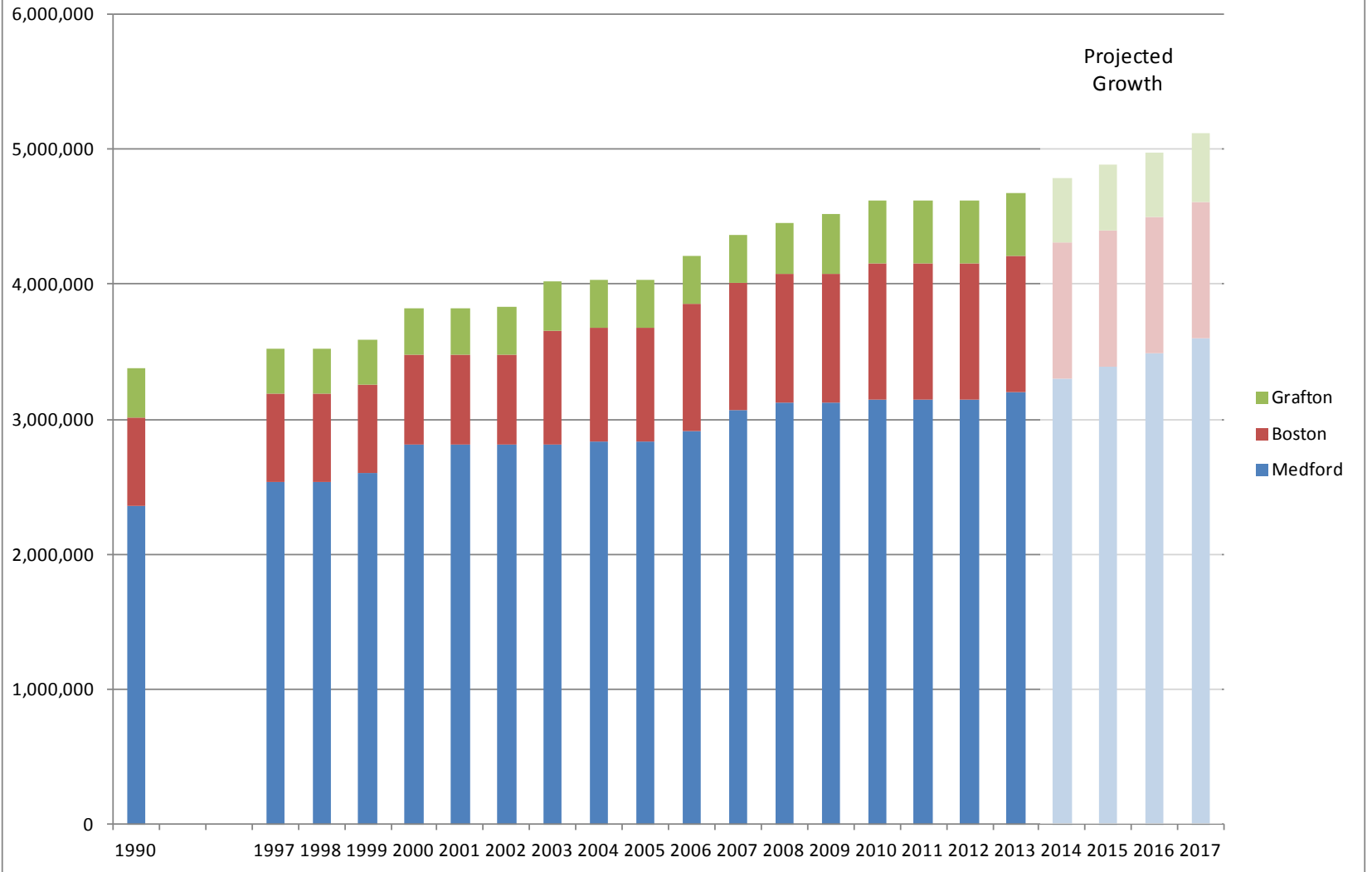


Energy Systems

Boston Campus

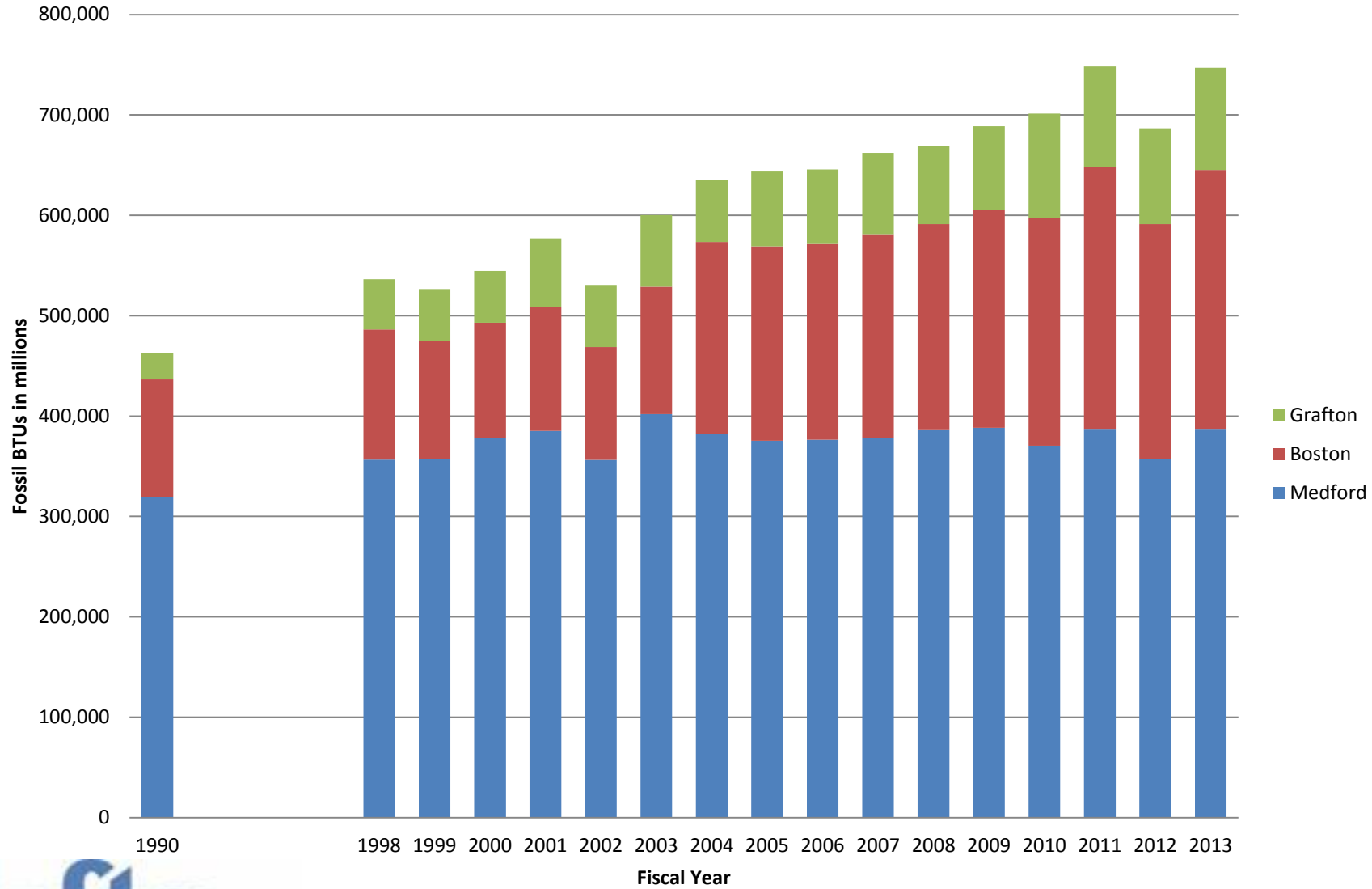
- Heating and Process Steam
 - District steam plant owned by Veolia
 - “ingredients” for steam: cogenerated steam, natural gas, #6 fuel
 - Stand alone gas fired boiler plant
 - HNRCA and Posner
- Cooling
 - Electric chiller systems
 - Steam absorption chiller systems
 - Window units (Posner only)

Tufts University Maintained Square Footage

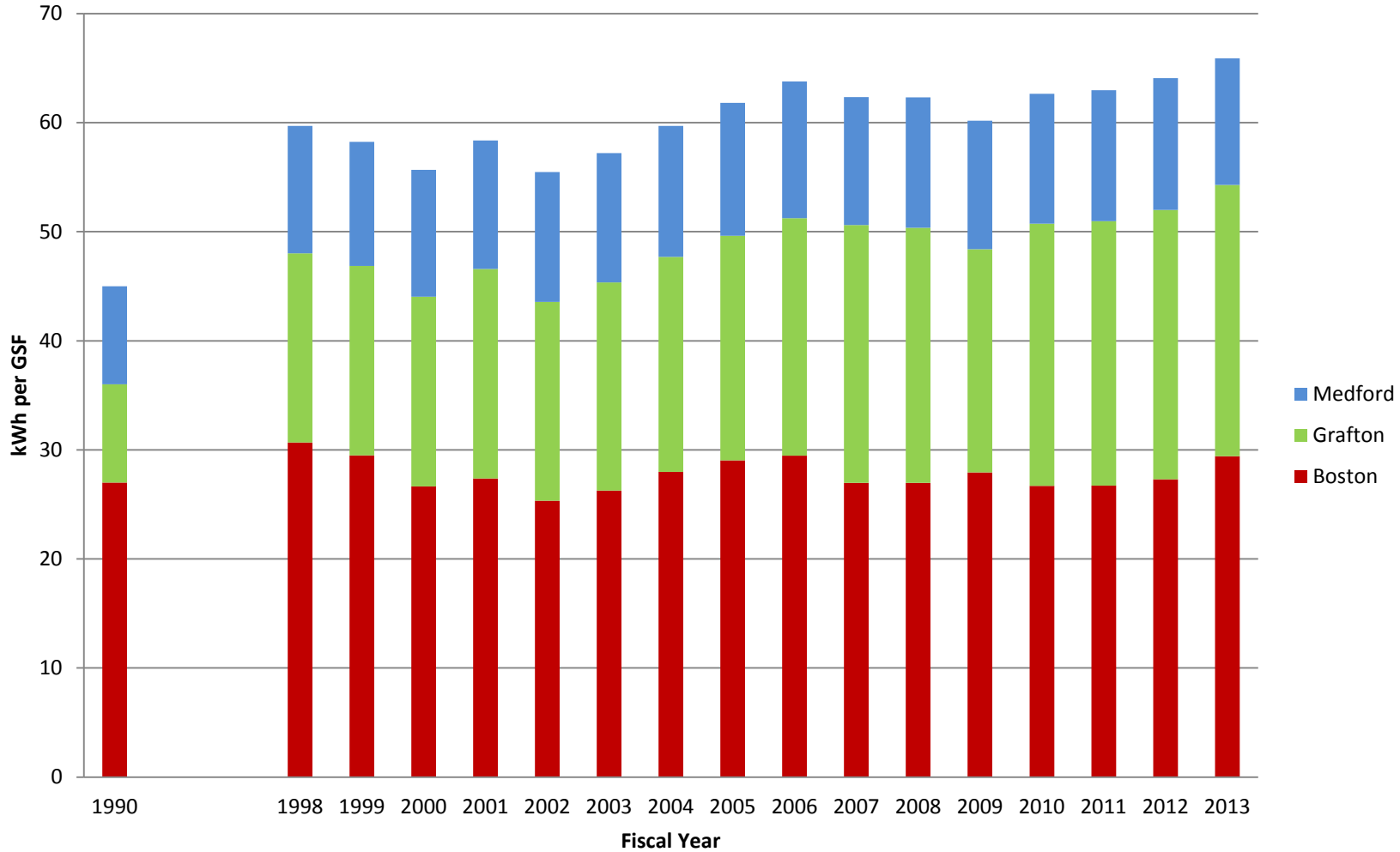


Energy Consumption

Includes Transportation Fuels

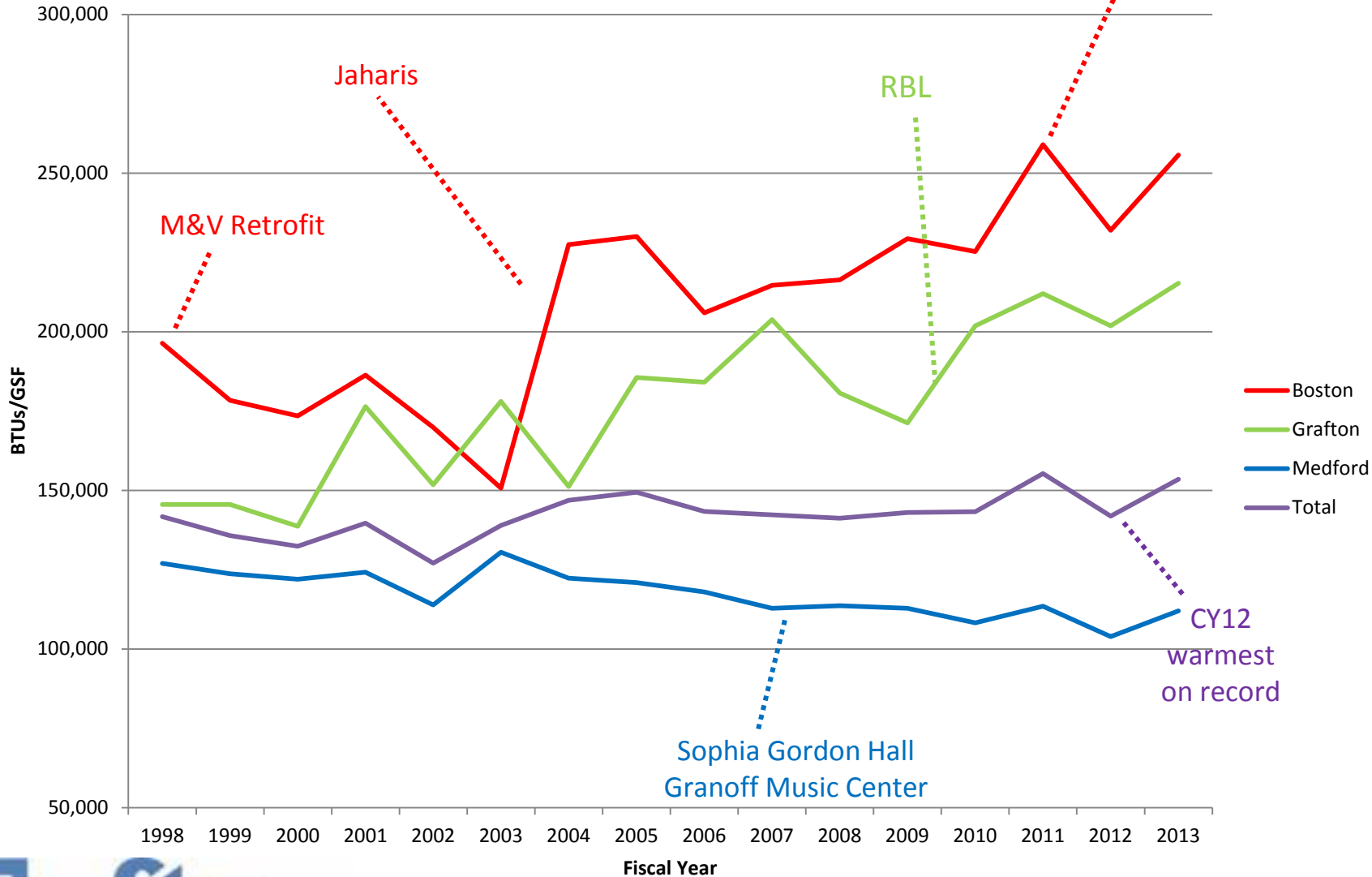


Electric Consumption per GSF



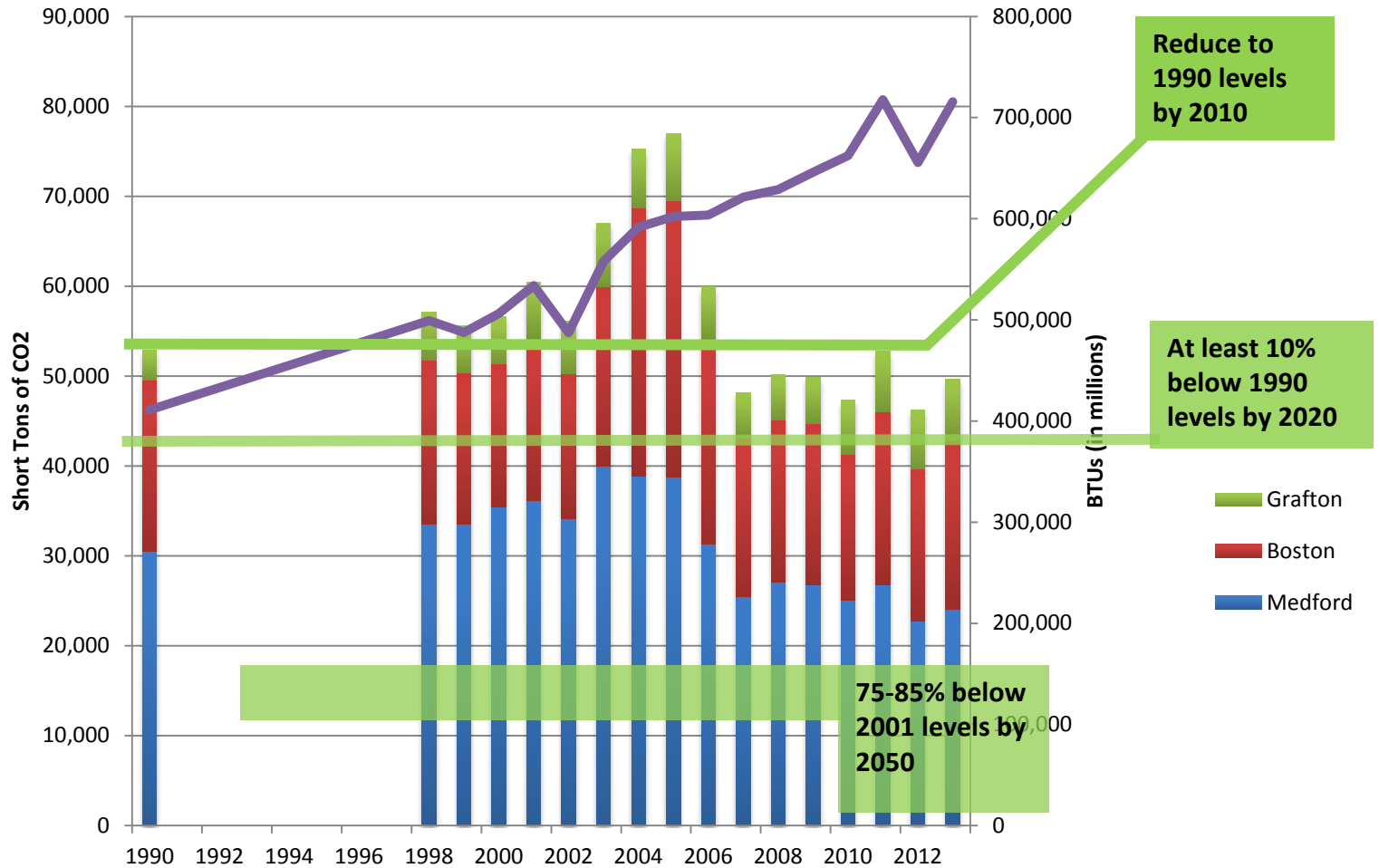
Energy Consumption

Excludes Transportation

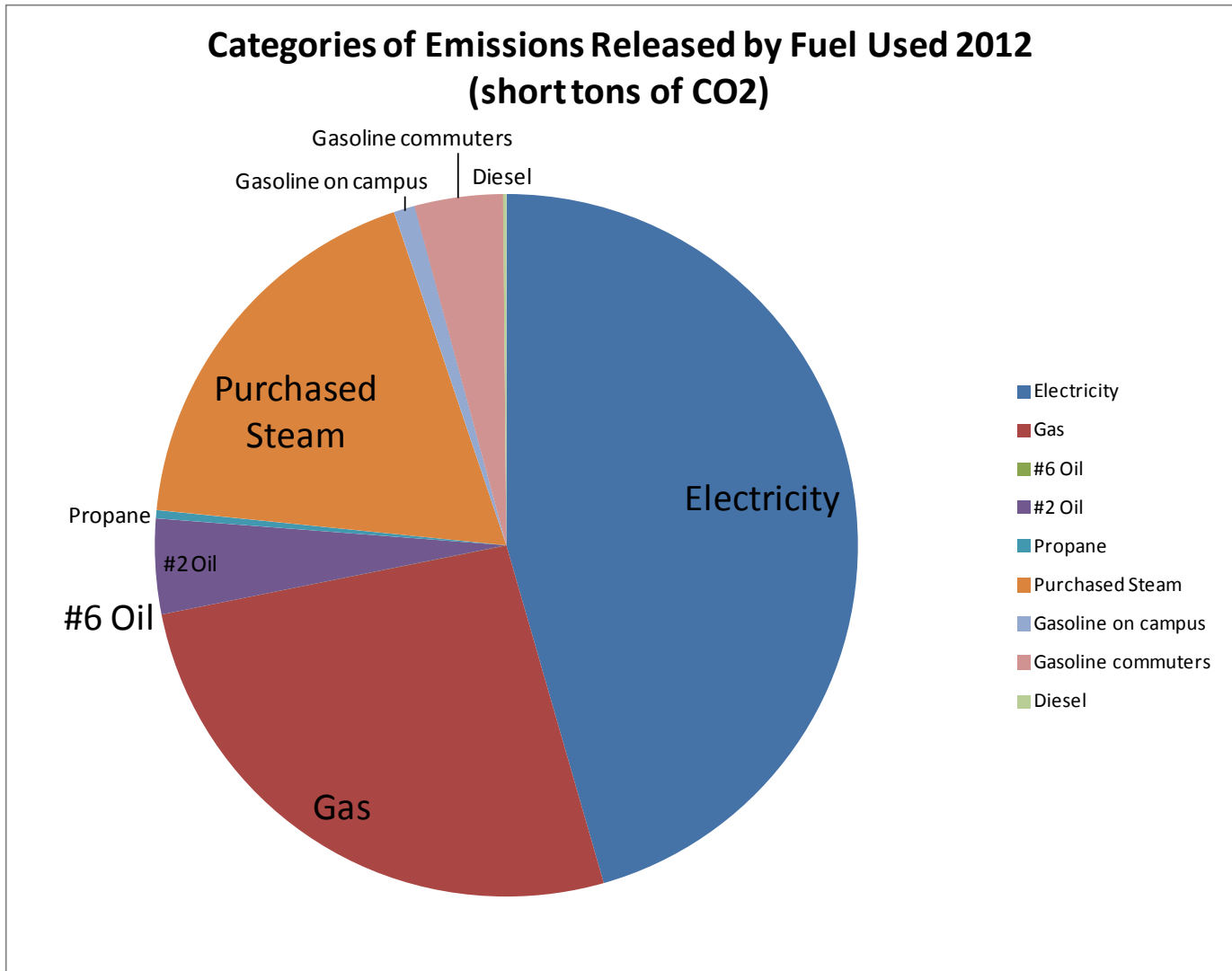


Emissions vs. Energy "All University"

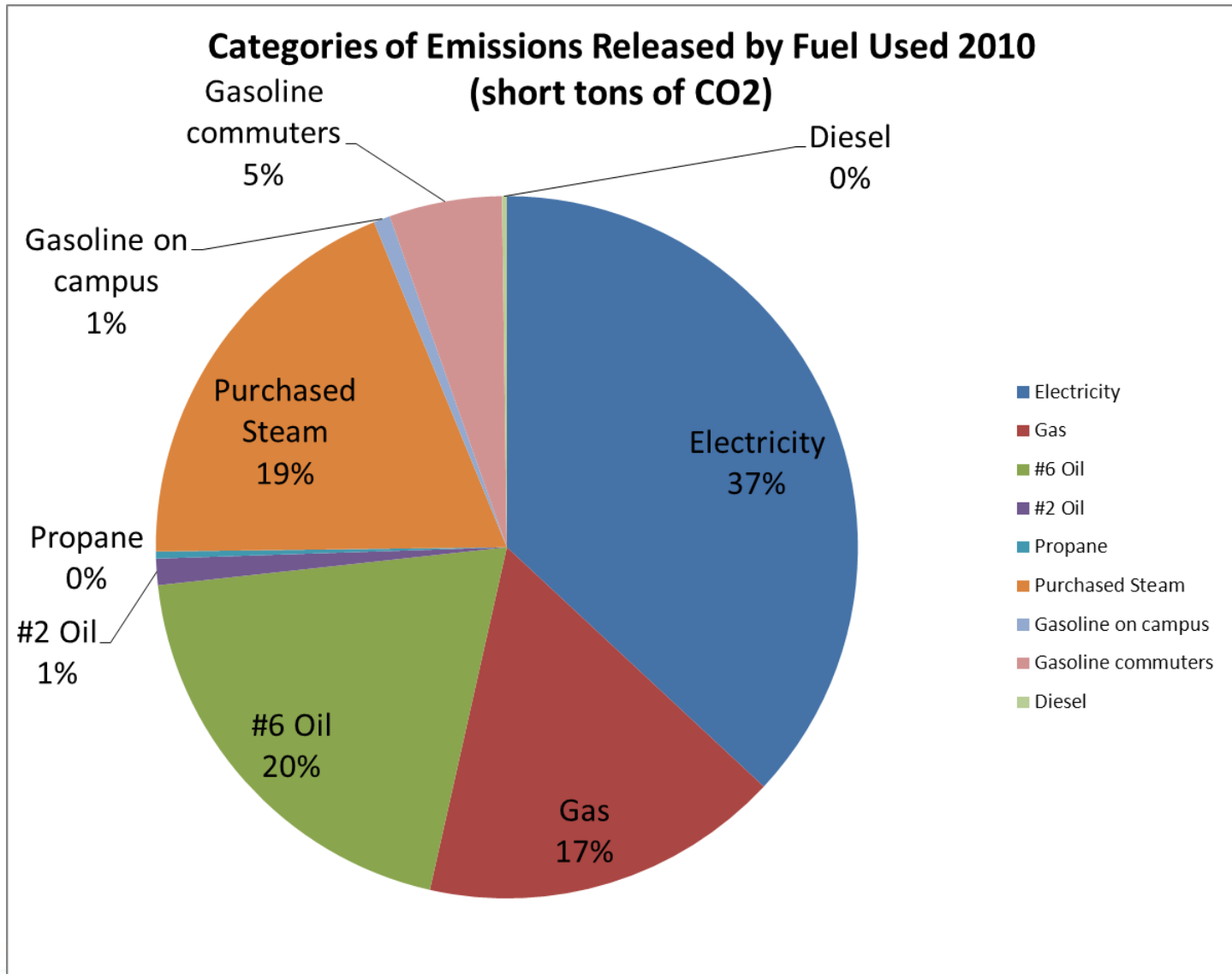
Emissions vs. Fossil BTUs



2012 Emissions “All University”



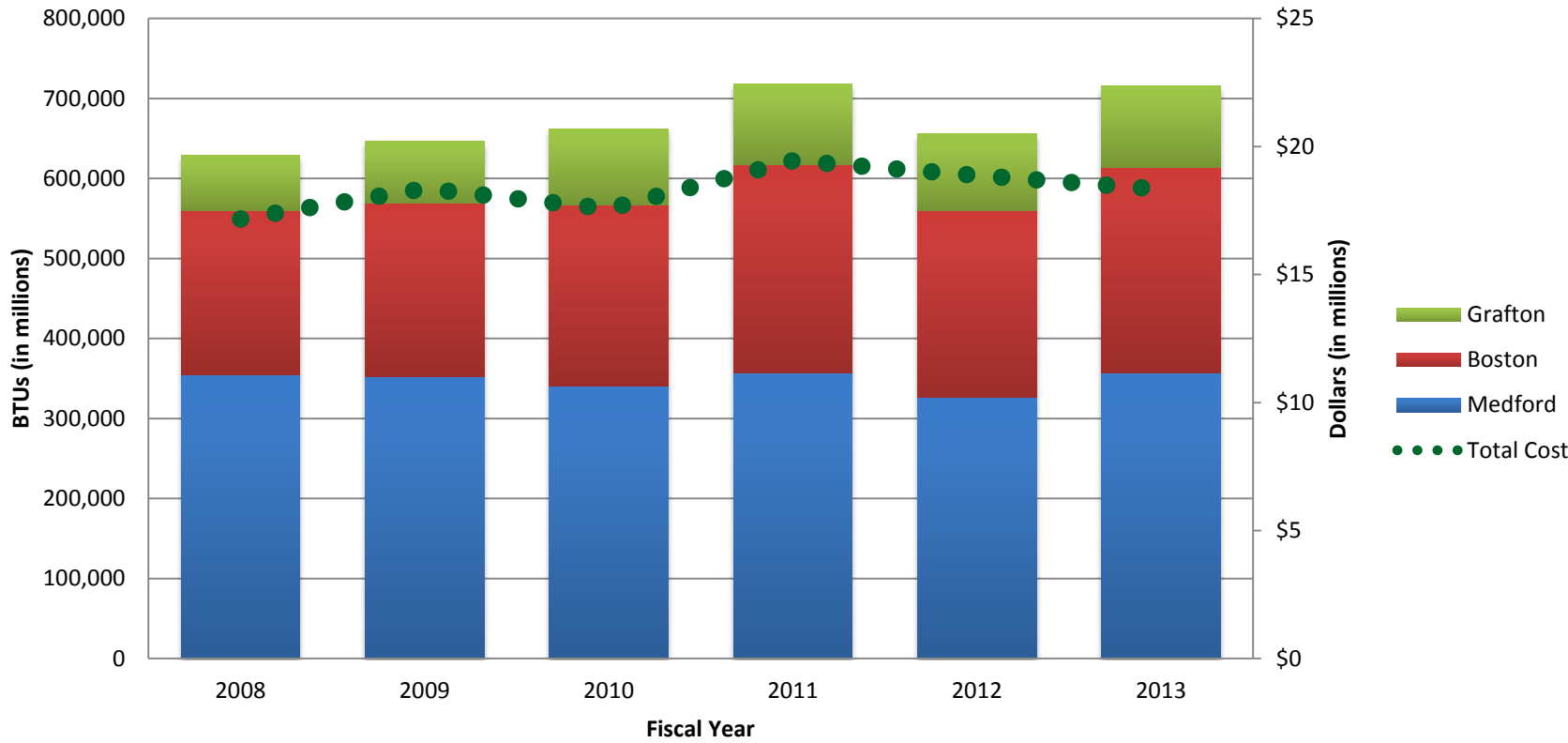
2010 Emissions "All University"



Consumption and Costs "All University"

Energy Consumption by Campus with Cost

Excludes Transportation



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



GREEN
SUSTAINABILITY IN ACTION
**HIGH EFFICIENCY
LIGHTING**

Light-emitting diodes (LEDs) installed in this garage reduce energy use and greenhouse gas emissions by 50% over standard lights.

This installation, the first in Massachusetts, is part of Tufts' ongoing commitment to environmental stewardship.



Corner mounted



Wall mounted



Ceiling mounted



Lighting Controls

- Light switch



- Occupancy sensors



- Energy Management System



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



Dental Vertical Expansion



On-going Building Envelope Improvements

Before



After



New windows:

Biomedical Research and Public Health
building (formerly M&V Complex)
Dental Building



On-going Projects

- BRPH utility master plan is studying:
 - Rooftop equipment consolidation
 - High efficiency replacement equipment
 - Redundancy for critical laboratory services
 - Heat recovery
- Recent lab renovations are optimizing the use of conditioned air in labs
 - Aircuity in Arnold



A day in the life...



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”

**Boston's Facilities Services is located at:
Posner Hall, 200 Harrison Avenue**



Work Control

<http://operations.tufts.edu/facilities>

The screenshot shows a Windows Internet Explorer browser window displaying the Tufts University Facilities Services Department website. The browser's address bar shows the URL <http://operations.tufts.edu/facilities/>. The website header features the Tufts University logo on the left, the title "Facilities Services Department" in the center, and a search bar on the right. Below the header is a navigation menu on the left with items like Home, Contact Info by Campus, Service Requests, Event Planning, Project Administration, Custodial Services, Shipping and Receiving Packages, Residential Facilities, Recycling, Mail Services, Keys and Locks, Expand All, and Collapse All. The main content area is titled "Home" and "Department Overview:", followed by a paragraph: "The Facilities Services department supports the Boston, Grafton and Medford/Somerville campuses with:". Below this is a bulleted list of services: "Operations and Maintenance – managing 5 million square feet of buildings and properties", "Project Administration – programming, design and project management of new buildings and grounds", and "Renovation – overseeing major renovations of facilities and". To the right of the main content is a "Quick Links" section with three links: "Paperless IDR", "Request a Recycling Bin", and "Submit a Service Request". The "Submit a Service Request" link is circled in red. The browser's taskbar at the bottom shows the Start button, several open applications including Microsoft PowerPoint, and the system tray with the date and time: Wednesday, 4/18/2012, 5:23 PM.

Tufts
Facilities
Services gets green

<https://fsrequest.tufts.edu>

Online Work Request

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

Call if it is an emergency!

Questions?

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