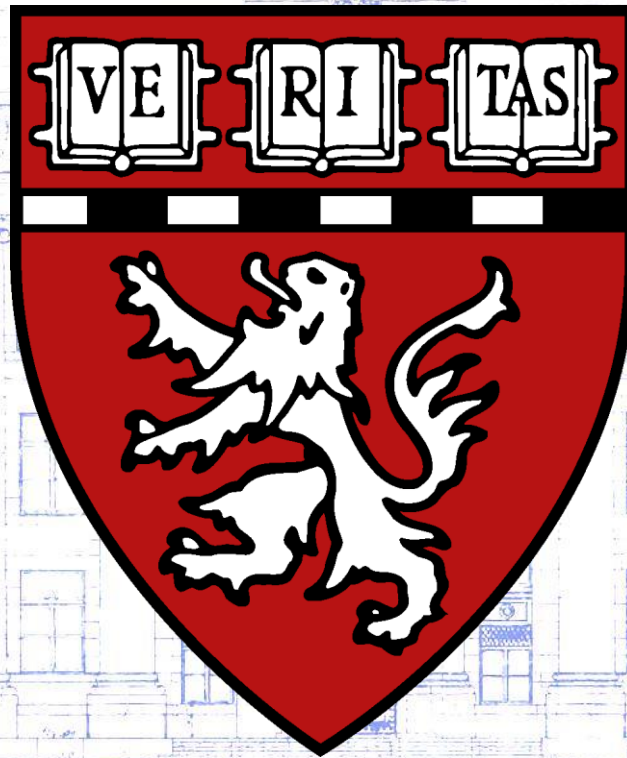


ADMINISTRATION BUILDING
HARVARD UNIVERSITY MEDICAL SCHOOL

HARVARD



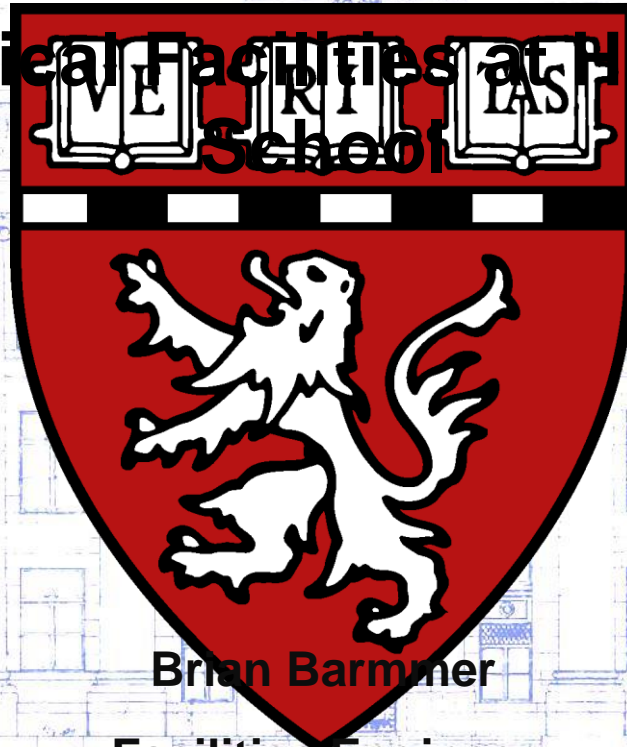
MEDICAL SCHOOL

SOUTH WEST ELEVATION
SCALE 3/8" = 1'-0"

ADMINISTRATION BUILDING
HARVARD UNIVERSITY MEDICAL SCHOOL
BOSTON
SOUTH WEST ELEVATION
SCALE 3/8" = 1'-0"

HARVARD

Managing Critical Facilities at Harvard Medical School



Brian Barmmer

Facilities Engineer

brian_barmmer@hms.harvard.edu

MEDICAL SCHOOL

About Harvard Medical School

“To create and nurture a diverse community of the best people committed to leadership in alleviating human suffering caused by disease.”

- Harvard University
 - Founded 1636
- 10 Academic Units
 - Colleges, Schools, Institutes
- Medical School
 - Established September 19th, 1782
- 290 Entering Students Annually
 - MD, MD – PhD, PhD, Dental Medicine



About Harvard Medical School

Facilities Department

- Longwood Medical Area
 - 58,000 People 213 Acres
 - 51% Of All Hospital Visits
- 2 Miles From Downtown Boston
- 17 Buildings



About Harvard Medical School

Facilities Department

- 2.8 Million Square Feet
- 80% Wet Research Space
- 70k Sq Ft of Vivarium
- Mix of Harvard Occupied and Tenants
- \$44.5 Million Operation Budget
 - \$25 Million Annual Utilities
- Full Time Contracted Staff of 60
 - 37 Technicians and Trades people



Harvard Medical School

Facilities Department

- **Facilities Management**
 - 18,000 Maintainable Assets, 24/7 Call Center, 200 Node BMS
- **Energy Usage**
 - 15 Mw Electric, 70K lbs/hr Steam, 10k+ Tons Chilled Water
- **Research Support**
 - Research Trending, Infrastructure Changes, Alarm Monitoring



Harvard Medical School

Facilities Management

- Maximo CMMS
 - SQL Based



Via PI ODBC
Driver



New WO
Created



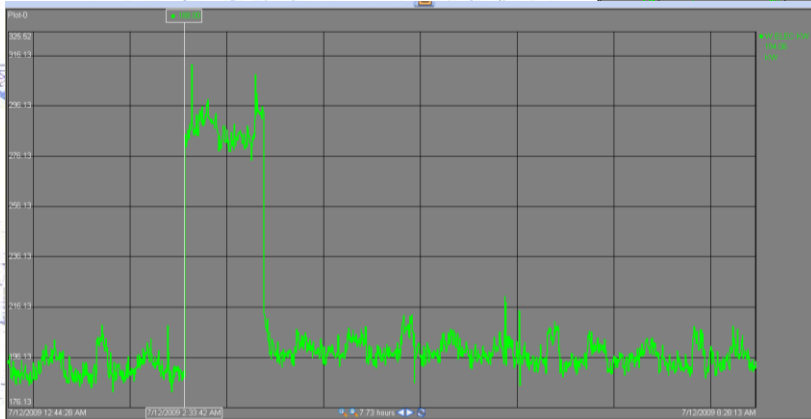
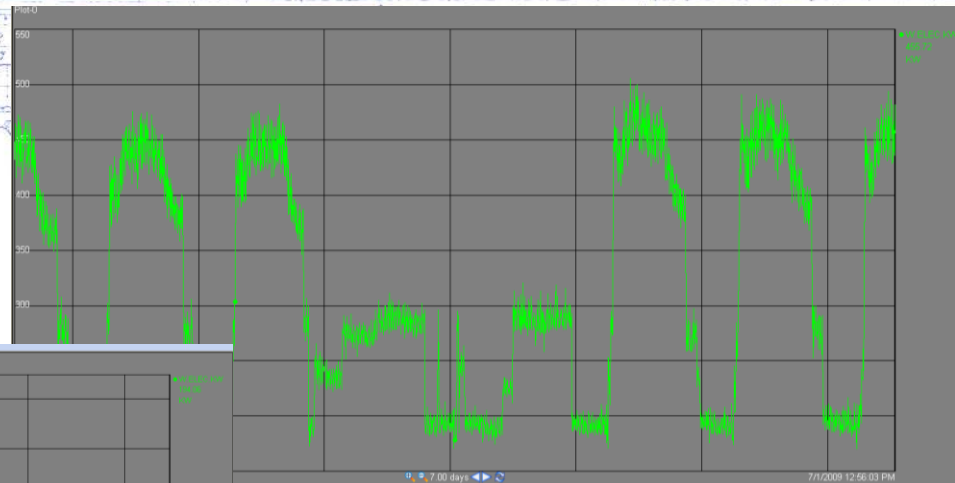
“SELECT value FROM picomp WHERE tag in ('diffpressure', 'runtime', 'totalgallons')
and time = DATE('*')”



Harvard Medical School

Facilities Management

- Event Analysis



Harvard Medical School

Sustainability and GHG

- Approx. 60 Primary Meters
- Approx. 112 Tenant and Sub-meters
- 172 Total CHW / Steam / Electric / Air



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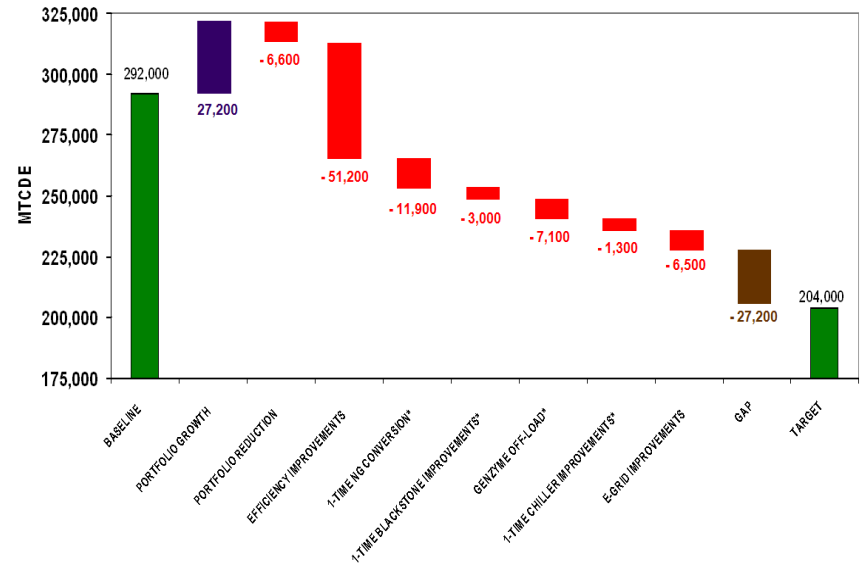
Sustainability and GHG

- 2006 57,266 MTCDE
- 2008 57,592 MTCDE
- 2016 40,086 MTCDE

Goal

30 % GHG Reduction

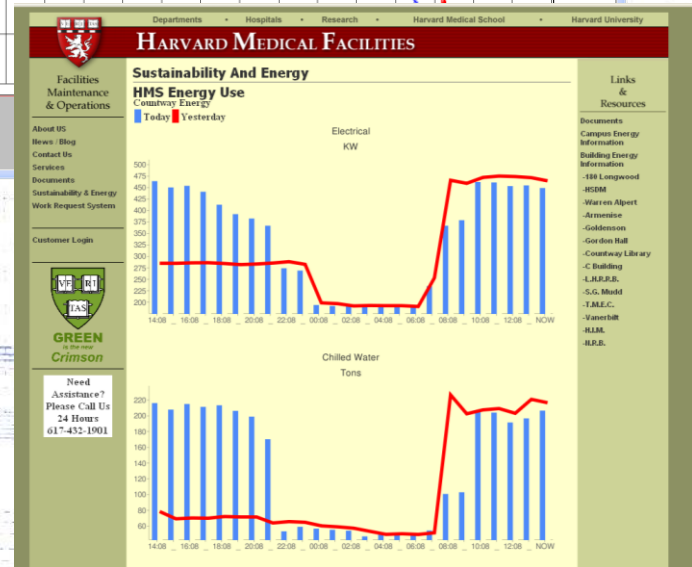
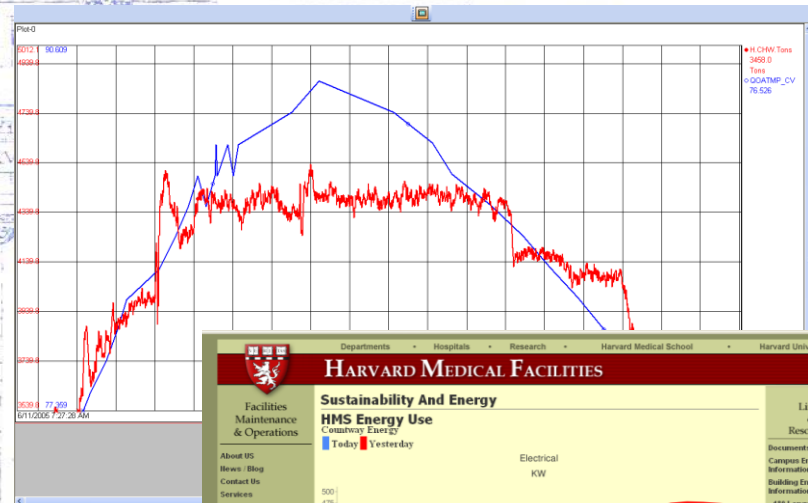
HARVARD GHG REDUCTION PLAN 2006 - 2016



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Sustainability and GHG

- Automated Load Shedding
- Real Time Energy Use on Web for Public



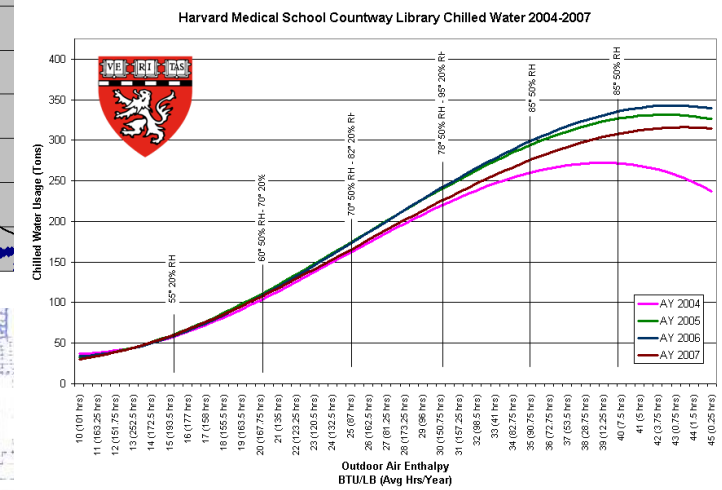
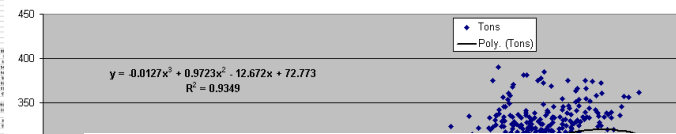
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Sustainability and GHG

- Analyze Energy Usage
- Model Building Performance
- Trend 'Creep'

Date	Location	Value 1	Value 2	Value 3	Value 4	Value 5	Value 6	Value 7	Value 8	Value 9	Value 10
11/11/07	Countway	11	11	11	11	11	11	11	11	11	11
11/12/07	Countway	12	12	12	12	12	12	12	12	12	12
11/13/07	Countway	13	13	13	13	13	13	13	13	13	13
11/14/07	Countway	14	14	14	14	14	14	14	14	14	14
11/15/07	Countway	15	15	15	15	15	15	15	15	15	15
11/16/07	Countway	16	16	16	16	16	16	16	16	16	16
11/17/07	Countway	17	17	17	17	17	17	17	17	17	17
11/18/07	Countway	18	18	18	18	18	18	18	18	18	18
11/19/07	Countway	19	19	19	19	19	19	19	19	19	19
11/20/07	Countway	20	20	20	20	20	20	20	20	20	20
11/21/07	Countway	21	21	21	21	21	21	21	21	21	21
11/22/07	Countway	22	22	22	22	22	22	22	22	22	22
11/23/07	Countway	23	23	23	23	23	23	23	23	23	23
11/24/07	Countway	24	24	24	24	24	24	24	24	24	24
11/25/07	Countway	25	25	25	25	25	25	25	25	25	25
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11/43/07	Countway	43	43	43	43	43	43	43	43	43	43
11/44/07	Countway	44	44	44	44	44	44	44	44	44	44
11/45/07	Countway	45	45	45	45	45	45	45	45	45	45

Countway FY 2007

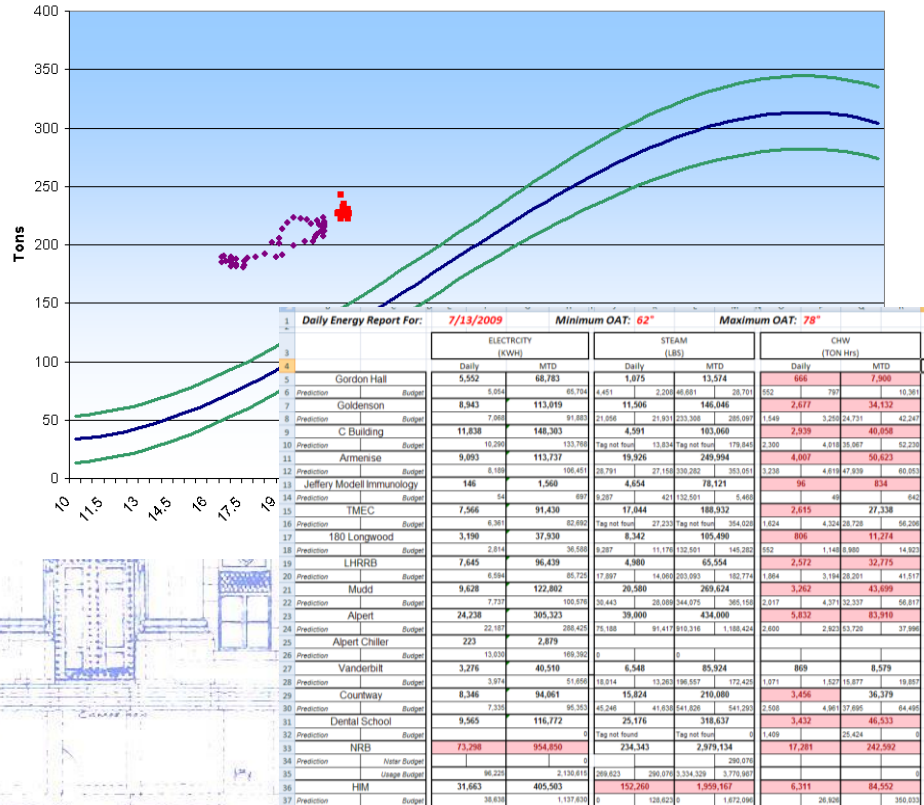


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Sustainability and GHG

- View Impact of Sequence / Strategy Change
- Daily Energy Report

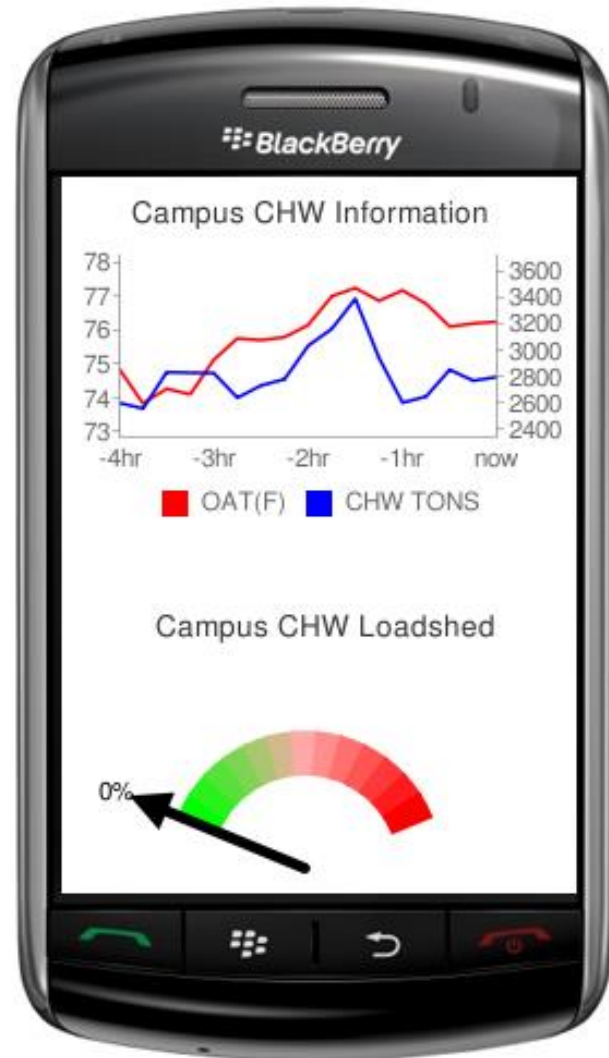
Countway Chilled Water
Last 3 Hours



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Sustainability and GHG

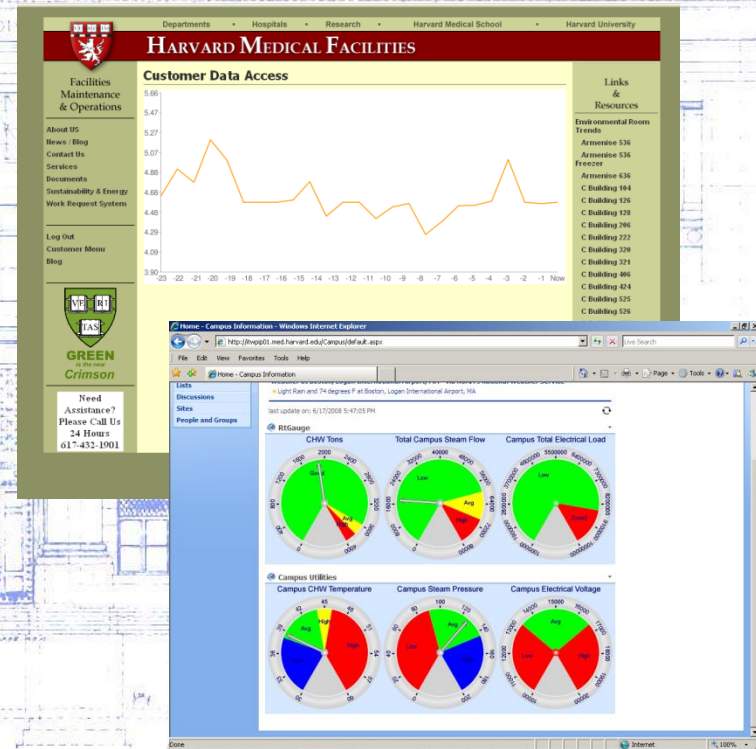
- Live Data on Blackberry for monitoring critical situations



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Research Support

- Science Trending
 - Reliable Long-term Historical Data
 - Instant Reports
- Certification Data
 - Trending for Compliance
 - Vivarium Staff Use
- Custom Trending
 - Gas Monitoring



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PI Value for Operations

- Increased O&M efficiency by providing key operational data effectively to managers and technicians
- Reliable science trending helps researchers reach their goals
- PI system foundation HMS energy management process



ADMINISTRATION BUILDING
HARVARD UNIVERSITY MEDICAL SCHOOL
BOSTON
BUSHNET AVENUE AND CORCORAN, ARCHT.
1910

Thank You

- Q & A ?

Brian Barmmer

Brian_Barmmer@hms.harvard.edu

SOUTH WEST ELEVATION
SCALE 3/8" = 1'-0"

