

Energy Conservation in Healthcare Facilities

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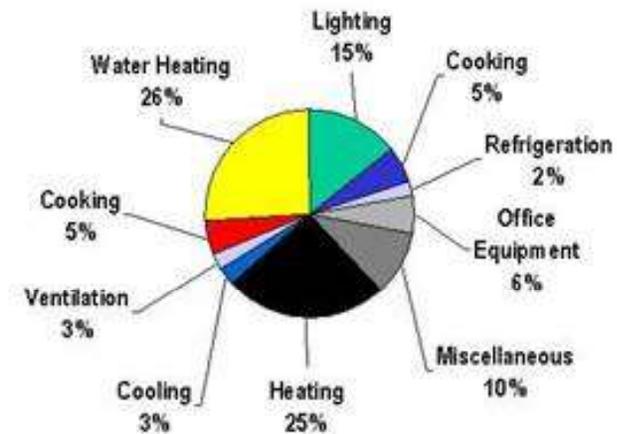
- Ranked #1 in NYC
- Ranked 6th in Nation
- 2,600 Beds
- Columbia University Medical Center
- Weill Cornell Medical Center
- Morgan Stanley Children's Hospital
- Allen Hospital
- Lower Manhattan Hospital
- Westchester Division
- Over 12 million square feet
- 4 Regional Hospitals



NYP 2015 Energy Data

- Top 2% Energy User in NYC
- 150 million kWh Electricity
- 1.5 million MMBTU Fuel
- 1 million CCF Water
- Combined Peak Demand 40 MW
- \$60 million Energy Budget
- 30,000 ton Total Chiller Plant Capacity
- Over 1 million PPH Steam Capacity
- 7.5 MW Gas Turbine Generator

Energy Use in Hospitals (averaged across climate zones)



Source: *Managing Energy Costs in Hospitals*

NYP Energy Program (2010 – 2015)

- 50 million kWh annual reduction electricity
- 500,000 MMBTU annual reduction in fuel
- Reduction \$13 million from utility budget
- ***HOW???***
- \$6 million from cogen plant operation
- \$7 million energy conservation programs

THE FUTURE
WILL BE
EVEN MORE
AMAZING.

NYP Energy Program (2010 – 2015)

Concentrated on largest energy consumers first:

- Chiller Plants
- Boiler Plants
- HVAC Systems
- Major Equipment Replacements
- Lighting



Chiller Plants

- CHW Temperature Reset
- CW Temperature Reset
- Cooling Tower Fan Sequence
- Variable CHW Pumps
- Compressed Air Leak Surveys
- Utilivisor Chiller Plant Oversight
 - 2010 baseline performance
 - Real time monitoring
 - Data collection
 - Continuous refinement
 - Operational savings



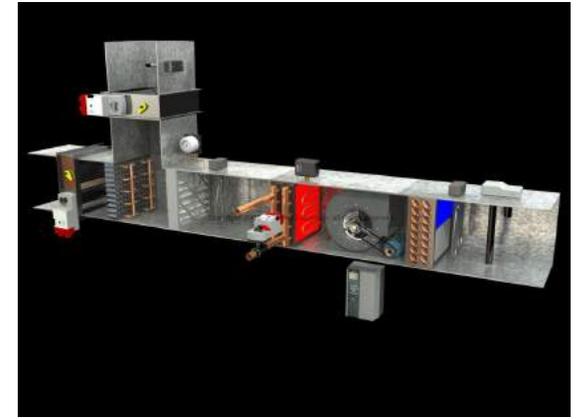
Boiler Plants

- Header Pressure Reduction
- Boiler Efficiency Testing/Tuning
- Boiler Loading Schedule
- Boiler Economizer Installation
- Boiler Control Upgrades
- Increased Condensate Returns
- Chemical Treatment & Proper Blowdown
- Pipe Insulation/Steam Leak Repairs
- Steam Trap Testing
- Utilivisor Boiler Plant Oversight



HVAC Systems

- Retro-commissioning Program
- Reduce \$4.6 million in 5 years (HERCULES)
- Air Distribution
 - Air handler controls
 - Scheduling
 - Dampers
 - Duct leakage repair
 - Balancing
- Hydronic Systems
 - Balancing
 - Variable flow
 - Controls



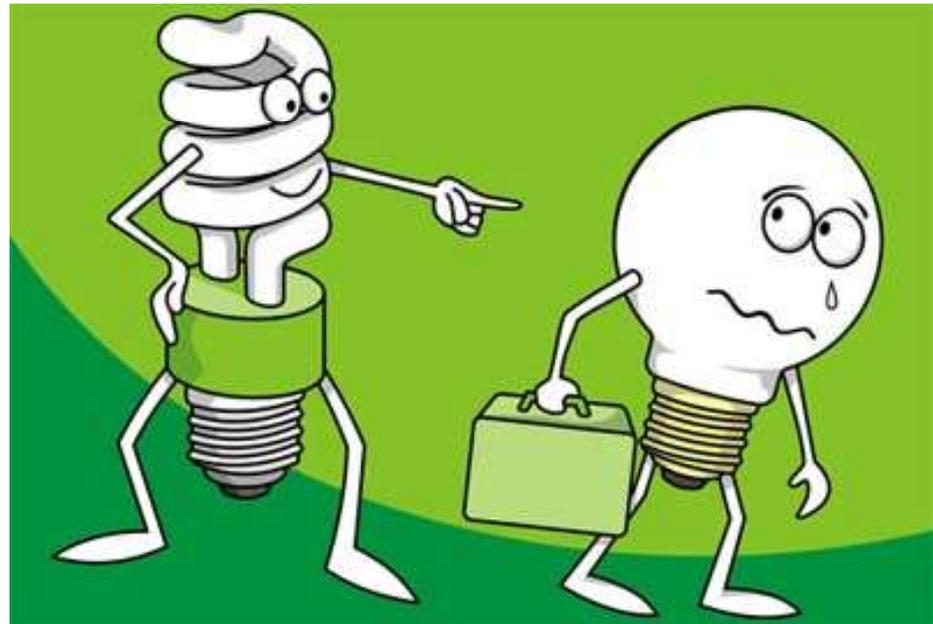
Major Equipment Replacements

- Energy savings due to higher efficiencies
- Projects focused on:
 - Fire/Life Safety
 - Ensuring Continuous Reliable Utilities
 - All Other MEP
 - Energy
- Replacements included:
 - Air handler units
 - Pumps
 - Motors
 - Chillers
 - Boiler controls



Lighting Retrofits

- Egress lighting upgrades
- Stairwell lighting replacement and sensors
- Outdoor lighting
- LED lighting upgrade
- LED exit lights



Other Programs

- Intelligent Peak Load Reduction Program
- Energy Procurement
- Demand Response (3-4 MW bid)



Currently Pursuing

- Unoccupied Operating Room Air Change Reduction
- Fuel Cells



Energy Program Goals

- Reduce Energy Use Intensity (EUI)
 - Currently 294 kBtu/SF
 - Benchmark 253 kBtu/SF
- DOE Better Buildings Challenge
 - 20% EUI by 2020
- EPA Energy Star annual 2% kBtu reduction
- PlaNYC GHG 30% reduction by 2018
- Support Green Initiative and Sustainable Practices
 - David H. Koch Center LEED Gold

Awards & Recognition

- ASHE Energy to Care 2014 Recognition
 - +10% EUI reduction since 2009
- Energy Star Partner of the Year Award
 - 2005-2008
- Energy Star Sustained Excellence in Energy Management
 - 2010 - 2015
- Energy Star Climate Communications Award 2014
- NYP WCMC Energy Star Certified Building 2011
- EPA Combined Heat and Power Award for total plant efficiency
- Practice Greenhealth Environmental Excellence
- 2016 Practice Greenhealth Partner for Change Award
 - Recognizes superior performance in environment sustainability for the healthcare sector

NYP *green*

BE THE DIFFERENCE

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