



Stony Brook University Hospital
Environmental Assessment:
MOU SemiAnnual Report
September 26, 2013



Environmental Protection Agency
Region 2

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Accomplishments

Reductions of 11,362 MTCO₂e



Memorandum of Understanding

On August 26, 2009, Stony Brook University Hospital signed a Memorandum of Understanding (MOU) pledging to become an environmental steward by implementing a number of green initiatives that would reduce its carbon footprint and further improve our planet's environment. This partnership with the United States Environmental Protection Agency (EPA) and Stony Brook University Hospital has resulted in reducing energy, water and solid waste production across campus operations.

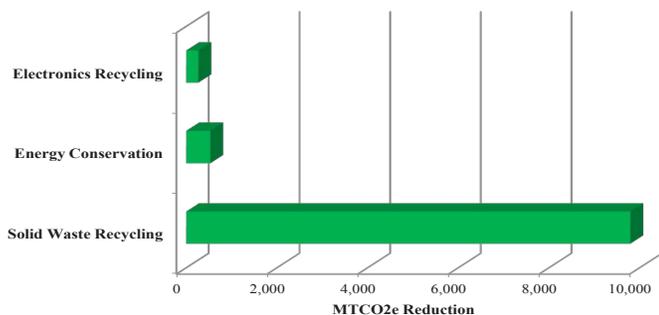
Reduction in Environmental Footprint

In the last three and a half years, Stony Brook University Hospital has provided seven updates documenting its green initiatives. The EPA has analyzed the submitted information and generated an environmental footprint for the organization. Due to the progressive green efforts of the organization, the hospital has managed to reduce its carbon footprint by 11,362 MTCO₂e* and saved an estimated \$307,000 in operating expenses.

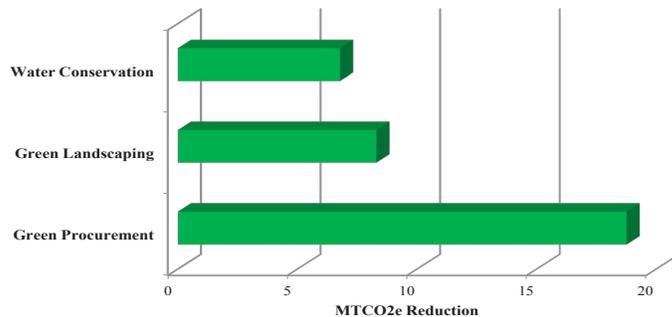
Environmental Metrics	Total Sector (MTCO ₂ e)	Cost Saving (est.)
Energy Conservation	600.2	\$142,862
Water Conservation	8.2	\$3,256
Solid Waste Recycling	10,212.8	\$153,172
Green Procurement	18.8	\$1,432
Green Landscaping	12.3	\$2,460
Electronics Recycling	510.5	\$3,869
Total (MTCO ₂ e)	11,362.7	\$307,051

*Metric Ton Carbon Dioxide Equivalent

Primary Initiatives



Secondary Initiatives



Measurement and Continuous Improvements

EPA uses these environmental conversion models to calculate metric tons of carbon dioxide equivalents:

Greenhouse Gas Equivalencies (GHG) Calculator converts GHG reductions into scenarios that can be easily communicated to the public.

eGRID Version 1.1 (2007) and the EPA Pollution Prevention (P2) GHG Conversion Tool which convert standard metrics for electricity, green energy, fuel use, chemical use, water use, and sustainable materials management into MTCO₂e.

The EPA WARM Model which helps calculate GHG emission reductions from several different waste management practices, including source reduction, recycling, combustion, composting and landfilling.

The EPA Pollution Prevention (P2) Cost Calculator that estimates cost savings associated with GHG reductions.

Certain environmental data points cannot be converted to MTCO₂e because scientific models do not currently exist.

As methodologies improve, environmental assessments will be updated to include any new GHG reduction estimates.

Accomplishments

Reductions of 11,362 MTCO₂e

Greenhouse Gas Equivalencies

What does the reduction of 11,362 MTCO₂e represent ?

The organization's effort is equivalent to any one of the following:

- Annual greenhouse gas emissions from 2,367 vehicles



- Carbon dioxide emissions from 1,273,845 gallons of gasoline



- Carbon dioxide emissions from 26,425 barrels of oil consumed



- Carbon dioxide emissions from the energy use of 568 homes for one year



- Carbon dioxide emissions from 473,446 propane tanks used for home barbeques



- Carbon dioxide emissions from gasoline carried by 150 tanker trucks



- Carbon dioxide emissions from burning 48.8 railcars' worth of coal (nearly 3/4 of a mile long)





Environmental Metrics	MOU thru Aug 2010 Update	Feb 2011 Update	Aug 2011 Update	Feb 2012 Update	Aug 2012 Update	Feb 2013 Update	Aug 2013 Update	Total Conversion (MTCO ₂ e)	Cost Saving (Est.)
Energy Conservation/Energy Star									
Total Savings (MTCO₂e)	192.6	65.6	65.8	68.1	69.1	69.1	69.9	600.2	\$142,862
Miscellaneous Energy Conservation									
Virtual Servers	317,331 kwh	105,777 kwh	105,777 kwh	105,777 kwh	105,777 kwh	105,777 kwh	105,777 kwh	577.9	\$137,563
Energy Savings Pilot Unit 14S				3,684 kwh	3,684 kwh	3,684 kwh	3,684 kwh	9.0	\$2,129
Motors and Transformers									
Lighting Project Fixtures (Bulbs and Ballast)									
High Temp Hot Water Pipe Replacement									
HVAC, Chiller & Electrical									
Bulb Replacement (CFLs)									
Bulb Replacement (LEDs)		72 bulbs	81 bulbs	81 bulbs	133 bulbs	133 bulbs	175 bulbs	13.3	\$3,170
Gas Savings									
Fuel Oil Savings									
Steam Savings									
Alternative Energy									
Total Savings (MTCO₂e)									
On-Site Solar									
On-Site Wind									
On-Site Geothermal									
On-Site Combined Heat and Power									
Purchase of Green Energy/Green Power									
Water Conservation/WaterSense									
Total Savings (MTCO₂e)	1.0	1.0	1.1	1.1	1.1	1.4	1.4	8.2	\$3,256
Miscellaneous Water Conservation									
Low Flow/Hands Free Faucets (81 total)	5,000 gal	11,000 gal	16,000 gal	16,000 gal	16,000 gal	20,250 gal	20,250 gal	0.2	\$263
Low Flow Toilets (43 total)	12,000 gal	36,000 gal	76,000 gal	76,000 gal	76,000 gal	86,000 gal	86,000 gal	0.9	\$1,126
Low Flow Shower Heads (13 total)	11,500 gal + 1500 kwh	11,500 gal + 1500 kwh	11,500 gal + 1500 kwh	11,500 gal + 1500 kwh	11,500 gal + 1500 kwh	14,950 gal + 1950 kwh	14,950 gal + 1950 kwh	7.1	\$1,867
Low Flow Urinals									
Waterless Urinals									
Solid Waste Recycling									
Total Savings (MTCO₂e)	3,581.3	881.5	894.6	1,073.1	1,417.8	1,110.5	1,254.6	10,212.8	\$153,172
Mixed Recyclables (includes Wastewise)									
Pallets Waste Avoided/Wood Recycled	313 tons	127 tons	37 tons	13.47 tons	150.7 tons	129.66 tons	4 tons	1,906.1	\$30,993
Steel Recycled during Deconstruction									
Concrete / Asphalt Recycled									
Ceiling Tile Recycled									
Carpet Recycled	1 ton							2.4	\$40
Recycled C&D Waste (masonry/wood/sheetrock/fines)	104 tons	35 tons	24 tons	259 tons	11.2 tons	6.11 tons		109.0	\$17,572
Cardboard (construction/non-construction/sharp containers)	111 tons	69.8 tons	94 tons	82.44 tons	108.78 tons	80.5 tons	99.72 tons	2,009.8	\$25,850
Mixed Metal (construction/non-construction)	245 tons	66 tons	20 tons	55.8 tons	2.0 tons	4.39 tons	59 tons	1,795.2	\$18,088
Paper, Mixed	351 tons	5 tons	78 tons	108.21 tons	179 tons	108.21 tons	185 tons	3,570.8	\$40,577
Plastic, Mixed (construction/non-construction/sharp containers)	152 tons	28 tons	25 tons		28 tons	35.05 tons	20.44 tons	282.7	\$11,540



Environmental Metrics	MOU thru Aug 2010 Update	Feb 2011 Update	Aug 2011 Update	Feb 2012 Update	Aug 2012 Update	Feb 2013 Update	Aug 2013 Update	Total Conversion (MTCO2e)	Cost Saving (Est.)
Blue Wrap	18 tons			2 tons	2 tons		5.6 tons	27.1	\$1,104
Can/Bottle Recycling	6 tons	5 tons	16 tons	13.78 tons		13.78 tons		269.3	\$2,182
Mixed Organics									
Food Donation	3 ton		1.25 tons	1 ton	1 ton	1 ton	.75 tons	1.6	\$320
Biosolids & Food Waste Recycling / Composting									
Fluorescent Bulbs	4 ton	.44 tons	2 tons	1 ton	0.5 tons	0.9 tons	1.6 tons	1.3	\$418
Waste Oil Recycled									
Magazines/ThirdClass Mail									
Newspaper									
Office Paper									
Textbooks			3 tons					9.3	\$120
Phonebooks									
Dimensional Lumber									
Fly Ash									
Aluminum Cans									
Glass		1 ton				0.81 tons		0.5	\$72
HDPE / LDPE / PET									
Appliances									
Non-Ferrous Metals									
Fats, Oils, Grease			10 tons	7 tons	8.5 tons	8 tons	6.5 tons	120.0	\$1,600
Recycled Mixed Waste (medical equipment)	20 tons	7 tons	5 tons	16 tons	8 tons	9 tons	2.4 tons	107.8	\$2,696
Green Procurement									
Total Savings (MTCO2e)		17.3				1.5		18.8	\$1,432
Re-Use/Purchase of Materials with Recycled Content									
Purchase / Use of Compost Socks									
Purchase of EPEAT Products									
Use of Recycled Steel during Construction									
Use of Recycled Iron during Construction									
Use of Recycled Plastic during Construction									
Use of Recycled Aluminum during Construction									
Use of Recycled Concrete / Asphalt during Construction		33 tons				2.81 tons		18.8	\$1,432
Construction Recycling - Glass									
Use of Coal Combustion Products									
Green Landscaping									
Total Savings (MTCO2e)	3.9			0.2	0.2	4.0	4.0	12.3	\$2,460
Green Roofs									
Porous Pavement									
Grass									
Low/no mow area	Yes								
Re-use of Collected Stormwater									
On-Site Re-use of Compost / Mulch	2 tons							0.4	\$80
Moisture Sensing Sprinklers									
Number / Acres of Trees									
Reflective Roof									



Environmental Metrics	MOU thru Aug 2010 Update	Feb 2011 Update	Aug 2011 Update	Feb 2012 Update	Aug 2012 Update	Feb 2013 Update	Aug 2013 Update	Total Conversion (MTCO2e)	Cost Saving (Est.)
Synthetic Turf									
Native Plants									
Leaves Composted									
Placing Mulch over plants' root zone at ACP	17.5 tons			1 ton	1 ton	20 tons	20 tons	11.9	\$2,380
Electronics/EPEAT									
Total Savings (MTCO2e)	91.2	52.8	28.8	26.4	188.8	45.7	76.8	510.5	\$3,869
Recycling of Electronics	23 tons	6 tons	3 tons		4 tons	2.2 tons	5 tons	69.1	\$1,728
Re-Use/Donation of Used Computers									
Toner/Ink Recycling and Use of Recycled Ink	2 ton	2 tons	1 ton	1 ton	9.5 tons	1.71 tons	3 tons	388.0	\$808
Battery Recycling	10 tons	3 tons	3 tons	4.5 tons		5.83 tons	7 tons	53.3	\$1,333
Mass Transit									
Total Savings (MTCO2e)									
Miles Avoided									
Transportation									
Total Savings (MTCO2e)									
Hybrid Vehicles									
Electric Vehicles									
Biodiesel Vehicles									
Clean Construction Vehicles									
LNG Vehicles									
Alternate Fuel Vehicles (Zipcar)									
Smartway Transporters									
Bike Racks	4	4	4	4	4	4	4		
LEED Projects									
Total Savings (MTCO2e)									
Silver - 10%									
Gold - 17%									
Platinum - 20%									
Misc. - Further Clarification									
Total Savings (MTCO2e)									
NOX (equipment only)									
NOX (includes vehicles)									
MTCO2e Savings									
Total Savings (MTCO2e)	3,870.1	1,018.2	990.3	1,168.9	1,677.0	1,232.1	1,406.7	11,362.7	\$307,051
Energy	192.6	65.6	65.8	68.1	69.1	69.1	69.9	600.2	\$142,862
Water	1.0	1.0	1.1	1.1	1.1	1.4	1.4	8.2	\$3,256
Solid Waste	3,581.3	881.5	894.6	1,073.1	1,417.8	1,110.5	1,254.6	10,212.8	\$153,172
Green Procurement	0.0	17.3	0.0	0.0	0.0	1.5	0.0	18.8	\$1,432
Green Landscaping	3.9	0.0	0.0	0.2	0.2	4.0	4.0	12.3	\$2,460
Electronics	91.2	52.8	28.8	26.4	188.8	45.7	76.8	510.5	\$3,869



2013

Stony Brook University Hospital Additional Green MOU Accomplishments and Cost Savings

Virtual Servers Enhancements

Removed 19 physical Servers as SBUH continues to migrate to Virtual Servers

Chiller Replacement Upgrade for the East Campus

Design done and in review – went out to bid in July

Energy Initiatives Underway

- Currently monitoring energy usage of the MMP Spaces for electric and thermal usage
- In the process of installing meters in the hospital for monitoring electrical usage house-wide
- Installed LEDs lighting in the loading dock area from metal halite
- Going forward all renovation/new construction projects will be designed to utilize LEED technology i.e. Burn Unit, Data Expansion, CTICU
- Working with New York Power Authority for Energy Audit

Upcoming Energy Initiatives

- Replacing and installing obsolete equipment with new high efficiency HVAC units in various areas in FY 2013/14
- Installing a state-of- the-art efficient OR chiller in FY 2013/14
- Renovation, new construction and maintenance projects will include energy efficiency components
- Conduct thermal meter readings for the entire hospital to establish a baseline
- Installation of a new curtain wall with a gasket system that will significantly reduce air/water infiltration