



Stony Brook University Hospital
Environmental Assessment:
MOU SemiAnnual Report
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Environmental Protection Agency
Region 2

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Accomplishments

Reductions of 17,840 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.

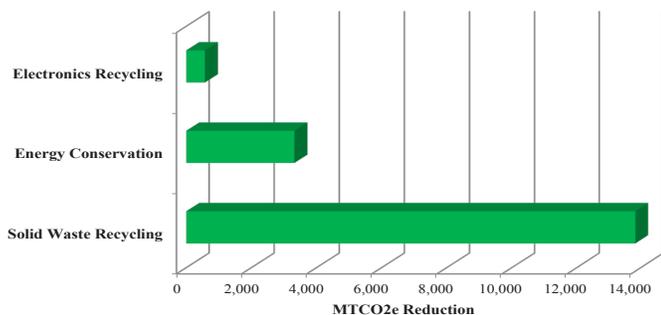
Reduction in Environmental Footprint

In the last several years, Stony Brook University Hospital has provided ten 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 17,840 MTCO₂e* and saved an estimated \$954,000 in operating expenses.

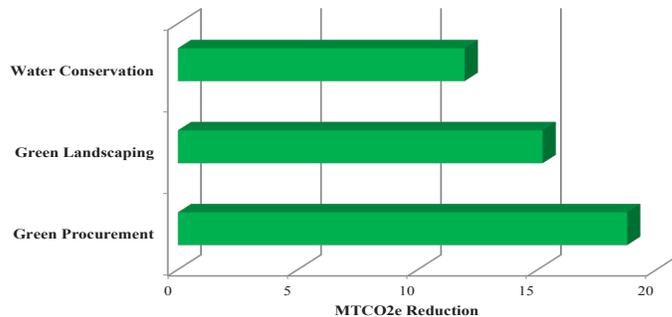
Environmental Metrics	Total Sector (MTCO ₂ e)
Energy Conservation	3,322.0
Water Conservation	12.0
Solid Waste Recycling	13,829.0
Green Procurement	18.8
Green Landscaping	15.2
Electronics Recycling	643.8
Total (MTCO ₂ e)	17,840.7

*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 17,840 MTCO₂e

Greenhouse Gas Equivalencies

What does the reduction of 17,840 MTCO₂e represent ?

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

- Annual greenhouse gas emissions from 3,756 vehicles



- Carbon dioxide emissions from 2,007,505 gallons of gasoline



- Carbon dioxide emissions from 41,490 barrels of oil consumed



- Carbon dioxide emissions from the energy use of 1,628 homes for one year



- Carbon dioxide emissions from 743,363 propane tanks used for home barbeques



- Carbon dioxide emissions from gasoline carried by 236 tanker trucks



- Carbon dioxide emissions from burning 95.7 railcars' worth of coal (nearly 1 1/2 miles long)





Environmental Metrics	Aug 2009 MOU	Feb/Aug 2010 Updates	Feb/Aug 2011 Updates	Feb/Aug 2012 Updates	Feb/Aug 2013 Updates	Feb 2014 Update	Aug 2014 Update	Total Conversion (MTCO2e)	Cost Saving (Est.)
Energy Conservation/Energy Star									
Total Savings (MTCO2e)	69.5	138.9	142.2	148.4	943.0	868.3	1,011.8	3,322.0	\$730,924
Miscellaneous Energy Conservation									
Virtual Servers	105,777 kwh	211,554 kwh	211,554 kwh	211,554 kwh	211,554 kwh	105,777 kwh	105,777 kwh	764.2	\$168,132
Energy Savings Pilot Unit 14S				7,368 kwh	7,368 kwh	3,684 kwh	3,684 kwh	14.5	\$3,194
Motors and Transformers									
Lighting Fixture Projects (723 total)					1,208,290 kwh	1,208,290 kwh	1,208,290 kwh	2,380.6	\$523,794
Lighting ECM Projects plus Quiet Hours Program							217,160.5 kwh	142.6	\$31,380
High Temp Hot Water Pipe Replacement									
HVAC, Chiller & Electrical									
Bulb Replacement (CFLs) other than Lighting Projects									
Bulb Replacement (LEDs) o/t Lighting Projects (176)			4972.5 kwh	6,955 kwh	8,645 kwh	4322.5 kwh	5,720 kwh	20.1	\$4,424
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)		1.1	2.3	2.4	3.1	1.5	1.5	12.0	\$4,428
Miscellaneous Water Conservation									
Low Flow/Hands Free Faucets (81 total)		5,000 gal	27,000 gal	32,000 gal	40,500 gal	20,250 gal	20,250 gal	0.3	\$364
Low Flow Toilets (43 total)		12,000 gal	112,000 gal	152,000 gal	172,000 gal	86,000 gal	86,000 gal	1.3	\$1,558
Low Flow Shower Heads (13 total)		11,500 gal + 1500 kwh	23,000 gal + 3000 kwh	23,000 gal + 3000 kwh	29,900 gal + 3900 kwh	14,950 gal + 1950 kwh	14,950 gal + 1950 kwh	10.3	\$2,506
Low Flow Urinals									
Waterless Urinals									
Solid Waste Recycling									
Total Savings (MTCO2e)	825.9	2,890.2	1,824.1	2,539.9	2,744.2	1,484.3	1,520.4	13,829.0	\$209,483
Mixed Recyclables (includes Wastewise)									
Pallets Waste Avoided/Wood Recycled	97 tons	216 tons	164 tons	164.17 tons	266.16 tons	136.5 tons	140 tons	2,912.2	\$47,353
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	59 tons	270.2 tons	6.11 tons	130.89 tons	182.22 tons	186.6	\$30,097
Cardboard		111 tons	163.8 tons	191.22 tons	180.22 tons	83.67 tons	88.87 tons	2,554.6	\$32,751
Mixed Metal (construction/non-construction)	39 tons	206 tons	86 tons	57.8 tons	63.39 tons	47 tons	52 tons	2,414.2	\$22,048
Paper, Mixed	103 tons	248 tons	83 tons	287.21 tons	293.21 tons	163 tons	162 tons	4,808.5	\$53,577
Plastic, Mixed	39 tons	113 tons	53 tons	28 tons	55.49 tons	42.86 tons	25.42 tons	367.5	\$14,271



Environmental Metrics	Aug 2009 MOU	Feb/Aug 2010 Updates	Feb/Aug 2011 Updates	Feb/Aug 2012 Updates	Feb/Aug 2013 Updates	Feb 2014 Update	Aug 2014 Update	Total Conversion (MTCO2e)	Cost Saving (Est.)
Blue Wrap		18 tons		4 tons	5.6 tons	0.8 tons	1 ton	30.3	\$1,176
Can/Bottle Recycling		6 tons	21 tons	13.78 tons	13.78 tons			276.6	\$2,182
Mixed Organics									
Food Donation		3 tons	1.25 tons	2 tons	1.75 tons	0.5 tons	0.5 tons	1.4	\$360
Biosolids & Food Waste Recycling / Composting									
Fluorescent Bulbs	1 ton	3 tons	2.44 tons	1.5 tons	2.5 tons	0.9 tons	1.16 tons	1.6	\$500
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	15.5 tons	14.5 tons	4.5 tons	2.6 tons	141.3	\$1,884
Recycled Mixed Waste (medical equipment)	4 tons	16 tons	12 tons	24 tons	11.4 tons	3.3 tons	5.6 tons	122.1	\$3,052
Green Procurement									
Total Savings (MTCO2e)			17.3	0.0	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			33 tons		2.81 tons			18.8	\$1,432
Construction Recycling - Glass									
Use of Coal Combustion Products									
Green Landscaping									
Total Savings (MTCO2e)		2.9	0.0	0.3	6.0	3.0	3.0	15.2	\$3,360
Green Roofs									
Porous Pavement									
Grass									
Low/no mow area									
Re-use of Collected Stormwater									
On-Site Re-use of Compost / Mulch		2 tons						0.3	\$80
Moisture Sensing Sprinklers									
Number / Acres of Trees									
Reflective Roof									



Environmental Metrics	Aug 2009 MOU	Feb/Aug 2010 Updates	Feb/Aug 2011 Updates	Feb/Aug 2012 Updates	Feb/Aug 2013 Updates	Feb 2014 Update	Aug 2014 Update	Total Conversion (MTCO2e)	Cost Saving (Est.)
Synthetic Turf									
Native Plants									
Leaves Composted									
Placing Mulch over plants' root zone at ACP		17.5 tons		2 tons	40 tons	20 tons	20 tons	14.9	\$3,280
Electronics Recycling									
Total Savings (MTCO2e)	8.0	83.2	81.6	215.2	122.5	61.3	72.0	643.8	\$4,782
Recycling of Electronics	4 tons	19 tons	9 tons	4 tons	7.2 tons	2 tons	5 tons	80.3	\$2,008
Re-Use/Donation of Used Computers									
Toner/Ink Recycling and Use of Recycled Ink		2 tons	3 tons	10.5 tons	4.71 tons	2.5 tons	3 tons	493.6	\$1,029
Battery Recycling	1 ton	9 tons	6 tons	4.5 tons	12.83 tons	6.3 tons	4 tons	69.8	\$1,745
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		
LEED Projects									
Total Savings (MTCO2e)									
Silver - 30%									
Gold - 40%									
Platinum - 45%									
Misc. - Further Clarification									
Total Savings (MTCO2e)									
NOX (equipment only)									
NOX (includes vehicles)									
MTCO2e Savings									
Total Savings (MTCO2e)	903.4	3,116.3	2,067.6	2,906.2	3,820.2	2,418.4	2,608.7	17,840.7	\$954,409
Energy	69.5	138.9	142.2	148.4	943.0	868.3	1,011.8	3,322.0	\$730,924
Water	0.0	1.1	2.3	2.4	3.1	1.5	1.5	12.0	\$4,428
Solid Waste	825.9	2,890.2	1,824.1	2,539.9	2,744.2	1,484.3	1,520.4	13,829.0	\$209,483
Green Procurement	0.0	0.0	17.3	0.0	1.5	0.0	0.0	18.8	\$1,432
Green Landscaping	0.0	2.9	0.0	0.3	6.0	3.0	3.0	15.2	\$3,360
Electronics	8.0	83.2	81.6	215.2	122.5	61.3	72.0	643.8	\$4,782



2014

Stony Brook University Hospital Additional Green MOU Accomplishments and Cost Savings

Virtual Servers Enhancements

19 physical Servers were removed as SBUH continues to migrate to Virtual Servers.

Chiller Replacement East Campus

The East Campus Chiller project is to expand and improve the efficiency of the chiller plant. The expansion is located in a new building adjacent to the east campus heating plant and will contain 3 – 1500 Ton electric chillers, pumps and associated equipment. The replacement is scheduled to be completed in mid-2015.

The project is approximately 40% complete.