



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 10,676 MTCO_{2e}



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.

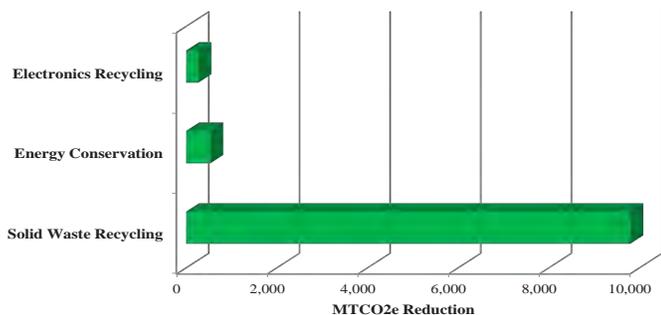
Reduction in Environmental Footprint

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 10,676 MTCO_{2e}* and saved an estimated \$272,000 in operating expenses.

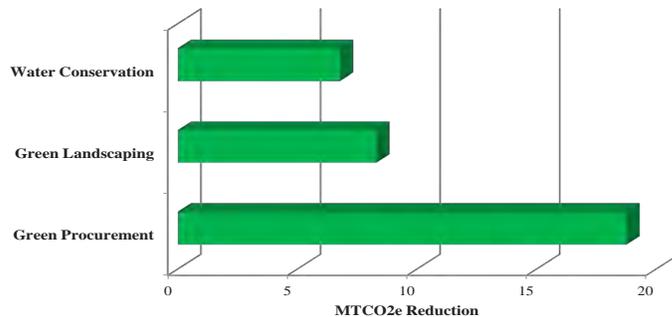
*Metric Ton Carbon Dioxide Equivalent

Environmental Metrics	Total Sector (MTCO _{2e})	Cost Saving (est.)
Energy Conservation	530.3	\$126,223
Water Conservation	6.8	\$2,670
Solid Waste Recycling	9,796.7	\$137,839
Green Procurement	18.8	\$1,432
Green Landscaping	8.3	\$1,660
Electronics Recycling	315.8	\$2,998
Total (MTCO _{2e})	10,676.6	\$272,822

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 MTCO_{2e}.

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 MTCO_{2e} 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 10,676 MTCO₂e

Greenhouse Gas Equivalencies

What does the reduction of 10,676 MTCO₂e represent ?

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

- Annual greenhouse gas emissions from 2,224 vehicles



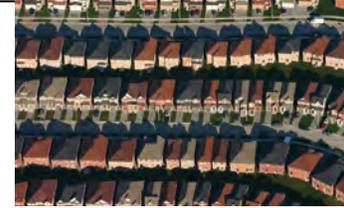
- Carbon dioxide emissions from 1,196,928 gallons of gasoline



- Carbon dioxide emissions from 24,829 barrels of oil consumed



- Carbon dioxide emissions from the energy use of 549 homes for one year



- Carbon dioxide emissions from 444,858 propane tanks used for home barbeques



- Carbon dioxide emissions from gasoline carried by 141 tanker trucks



- Carbon dioxide emissions from burning 45.9 railcars' worth of coal (7/10 of a mile long)





Environmental Metrics	Feb 2010 Update	Aug 2010 Update	Feb 2011 Update	Aug 2011 Update	Feb 2012 Update	Aug 2012 Update	Feb 2013 Update	Total Conversion (MTCO2e)	Cost Saving (Est.)
Energy Conservation/Energy Star									
Total Savings (MTCO2e)	64.2	64.2	65.6	65.8	68.1	69.1	69.1	530.3	\$126,223
Miscellaneous Energy Conservation									
Virtual Servers	105,777 kwh	105,777 kwh	105,777 kwh	105,777 kwh	105,777 kwh	105,777 kwh	105,777 kwh	513.7	\$122,278
Energy Savings Pilot Unit 14S					3,684 kwh	3,684 kwh	3,684 kwh	6.7	\$1,597
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	9.9	\$2,348
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	6.8	\$2,670
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	0.2	\$212
Low Flow Toilets (43 total)		12,000 gal	36,000 gal	76,000 gal	76,000 gal	76,000 gal	86,000 gal	0.7	\$910
Low Flow Shower Heads (10 total)		11,500 gal + 1500 kwh	14,950 gal + 1950 kwh	5.9	\$1,548				
Low Flow Urinals									
Waterless Urinals									
Solid Waste Recycling									
Total Savings (MTCO2e)	2,271.6	882.0	1,000.3	973.3	1,188.1	1,436.5	1,169.2	9,796.7	\$137,839
Mixed Recyclables (includes Wastewise)									
Pallets Waste Avoided/Wood Recycled	102 tons	114 tons	127 tons	37 tons	13.47 tons	151.5 tons	129.66 tons	1,898.2	\$30,865
Steel Recycled during Deconstruction									
Concrete / Asphalt Recycled									
Ceiling Tile Recycled									
Carpet Recycled		1 ton						7.2	\$40
Recycled C&D Waste (masonry/wood/sheet-rock/fines)		104 tons	35 tons	24 tons	259 tons	15.9 tons	6.11 tons	110.1	\$17,760
Cardboard (construction/non-construction/sharp containers)	49 tons	60 tons	69 tons	93 tons	82.44 tons	108.78 tons	80.5 tons	1,682.4	\$21,709
Mixed Metal (construction/non-construction)	185 tons	21 tons	66 tons	20 tons	55.8 tons	2.0 tons	4.39 tons	2,123.2	\$15,728
Paper, Mixed	199 tons	49 tons	5 tons	78 tons	108.21 tons	179 tons	108.21 tons	2,911.3	\$33,177
Plastic, Mixed (construction/non-construction/ sharp containers)	80 tons	33 tons	28 tons	25 tons		28 tons	35.05 tons	402.1	\$10,722



Environmental Metrics	Feb 2010 Update	Aug 2010 Update	Feb 2011 Update	Aug 2011 Update	Feb 2012 Update	Aug 2012 Update	Feb 2013 Update	Total Conversion (MTCO ₂ e)	Cost Saving (Est.)
Blue Wrap	13 tons	5 tons			2 tons	2 tons		33.0	\$880
Can/Bottle Recycling	2 tons	4 tons	5 tons	16 tons	13.78 tons		13.78 tons	412.2	\$2,182
Mixed Organics									
Food Donation	2 tons	1 ton		1.25 tons	1 ton	1 ton	1 ton	1.5	\$290
Biosolids & Food Waste Recycling / Composting									
Fluorescent Bulbs	2 tons	1 ton	.44 tons	2 tons	1 ton	0.5 tons	0.9 tons	1.1	\$354
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	100.5	\$1,340
Recycled Mixed Waste (medical equipment)	10 tons	6 tons	7 tons	5 tons	16 tons	8 tons	9 tons	104.0	\$2,600
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	8.3	\$1,660
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									



Environmental Metrics	Feb 2010 Update	Aug 2010 Update	Feb 2011 Update	Aug 2011 Update	Feb 2012 Update	Aug 2012 Update	Feb 2013 Update	Total Conversion (MTCO2e)	Cost Saving (Est.)
Reflective Roof									
Synthetic Turf									
Native Plants									
Leaves Composted									
Placing Mulch over plants' root zone at ACP		17.5 tons			1 ton	1 ton	20 tons	7.9	\$1,580
Electronics/EPEAT									
Total Savings (MTCO2e)	52.4	33.2	55.2	30.0	27.6	61.7	47.8	315.8	\$2,998
Recycling of Electronics	14 tons	5 tons	6 tons	3 tons		4 tons	2.2 tons	61.1	\$1,528
Re-Use/Donation of Used Computers									
Toner/Ink Recycling and Use of Recycled Ink	1 ton	1 ton	2 tons	1 ton	1 ton	2.71 tons	1.71 tons	212.6	\$417
Battery Recycling	6 tons	3 tons	3 tons	3 tons	4.5 tons		5.83 tons	42.1	\$1,053
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 - 10%									
Gold - 17%									
Platinum - 20%									
Misc. - Further Clarification									
Total Savings (MTCO2e)									
NOX (equipment only)									
NOX (includes vehicles)									
MTCO2e Savings									
Total Savings (MTCO2e)	2,388.2	984.3	1,139.4	1,070.2	1,285.1	1,568.6	1,292.9	10,676.6	\$272,822
Energy	64.2	64.2	65.6	65.8	68.1	69.1	69.1	530.3	\$126,223
Water	0.0	1.0	1.0	1.1	1.1	1.1	1.4	6.8	\$2,670
Solid Waste	2,271.6	882.0	1,000.3	973.3	1,188.1	1,436.5	1,169.2	9,796.7	\$137,839
Green Procurement	0.0	0.0	17.3	0.0	0.0	0.0	1.5	18.8	\$1,432
Green Landscaping	0.0	3.9	0.0	0.0	0.2	0.2	4.0	8.3	\$1,660
Electronics	52.4	33.2	55.2	30.0	27.6	61.7	47.8	315.8	\$2,998



2013

Stony Brook University Hospital Additional Green MOU Accomplishments and Cost Savings

Virtual Servers

Over the past 3 years, StonyBrook University Hospital has installed 280 virtual servers for energy savings. This period, 15 physical Servers were replaced – eliminating the power consumption used by them.

Boiler Replacement East Campus Heating and Cooling Plant

Seven existing boiler are being replaced. Construction on one has been completed and it will be online in April 2013. The new boilers will be significantly more efficient than the existing units. SBUH will report on the amount of energy saved in the future Green MOU status reports.

Rooftop Garden / Farm

A collaborative effort of the Nutrition Division, Department of Family Medicine at Stony Brook University School of Medicine, Stony Brook University Hospital Food Service, and Stony Brook University's Sustainability Studies Program, the farm supplements the nutrition and food offerings to hospital patients. This year's crop has produced more than 500 pounds with 33 varieties of vegetables and herbs harvested.

The Stony Brook Heights Rooftop Farm is supported by a New York State Department of Health Healthy Heart Program Grant through 2014. The farm is located on the roof of the fourth floor of Stony Brook's Health Sciences tower and is managed by staff nutritionists, dietetic interns, and Sustainability Studies students. All of the food grown, which includes vegetables such as tomatoes, string beans and zucchini, is served to hospital patients.

Stony Brook's Nutrition Division partners with other organizations in the development of community gardens. The Stony Brook Heights Rooftop Farm is a model for each of the 10 community gardens throughout Suffolk County, which are also supported by the New York State Department of Health grant.

The farm has expanded to 2,200 square feet from the original 800 and they hope to produce enough in 2013 to donate a portion of the harvest to organizations that need fresh food.