



**Stony Brook University Hospital**  
**Environmental Assessment:**  
**MOU SemiAnnual Report**  
**June 8, 2016**

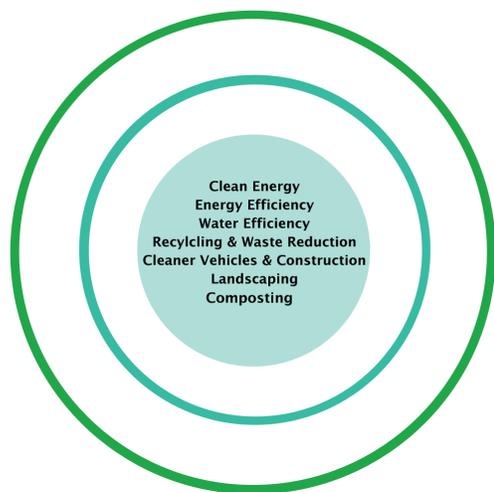


**Environmental Protection Agency**  
**Region 2**

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## Accomplishments

### Reductions of 21,835 MTCO<sub>2</sub>e



## 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.

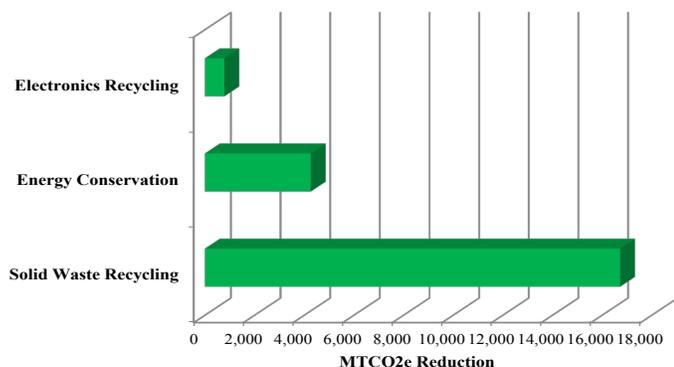
## Reduction in Environmental Footprint

In the last several years, Stony Brook University Hospital has provided eleven 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 21,835 MTCO<sub>2</sub>e\* and saved an estimated \$1,199,193 in operating expenses.

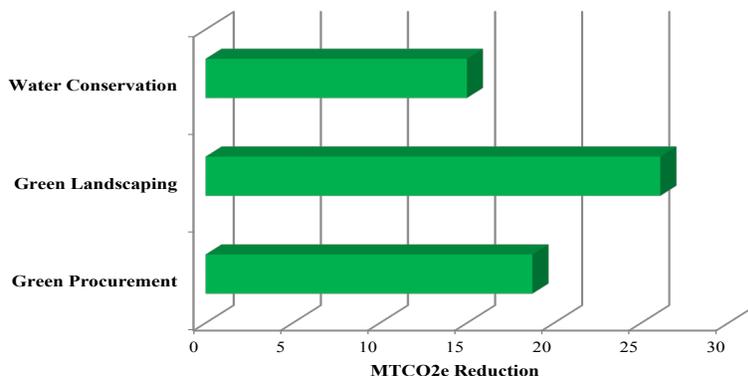
Environmental Metrics	Total Sector (MTCO <sub>2</sub> e)
Energy Conservation	4,264.9
Water Conservation	15.0
Solid Waste Recycling	16,728.0
Green Procurement	18.8
Green Landscaping	26.1
Electronics Recycling	782.4
Total (MTCO <sub>2</sub> e)	21,835.2

\*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. This report utilized conversion factors developed from prior report(s).

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<sub>2</sub>e.

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<sub>2</sub>e 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 21,835 MTCO<sub>2</sub>e



## Greenhouse Gas Equivalencies

What does the reduction of 21,835 MTCO<sub>2</sub>e represent ?

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

- Annual greenhouse gas emissions from 4,612 vehicles



- Carbon dioxide emissions from 2,456,982 gallons of gasoline



- Carbon dioxide emissions from 50,553 barrels of oil consumed



- Carbon dioxide emissions from the energy use of 2,306 homes for one year



- Carbon dioxide emissions from 892,617 propane tanks used for home barbeques



- Carbon dioxide emissions from gasoline carried by 289 tanker trucks



- Carbon dioxide emissions from burning 116 railcars' worth of coal (nearly 1 3/4 miles long)





Environmental Metrics	Aug 2009 MOU	Feb/Aug 2010 Update	Feb/Aug 2011 Update	Feb/Aug 2012 Update	Feb/Aug 2013 Update	Feb/Aug 2014 Update	Feb/Aug 2015 Update	Total Conversion (MTCO2e)	Cost Saving (Est.)
<b>Energy Conservation/Energy Star</b>									
<b>Total Savings (MTCO2e)</b>	<b>69</b>	<b>139</b>	<b>142</b>	<b>148</b>	<b>943</b>	<b>1880</b>	<b>943</b>	<b>4,265</b>	<b>\$938,405</b>
Miscellaneous Energy Conservation									
Virtual Servers	105,777 kwh	211,554 kwh	211,554 kwh	211,554 kwh	211,554 kwh	211,554 kwh	211,554 kwh	903	\$198,702
Energy Savings Pilot Unit 14S				7,368 kwh	7,368 kwh	7,368 kwh	7,368 kwh	19	\$4,259
Motors and Transformers									
Lighting Fixture Projects (723 total)					1,208,290 kwh	1,208,290 kwh	1,208,290 kwh	3,174	\$698,392
Lighting ECM Projects plus Quiet Hours						217,160 kwh		143	\$31,380
High Temp Hot Water Pipe Replacement									
HVAC, Chiller & Electrical									
Bulb Replacement (CFLs) other than Lighting Projects									
Bulb Replacement (LEDs) other than Lighting Projects (176)			4972.5 kwh	6,955 kwh	8,645 kwh	10,042 kwh	8,645 kwh	26	\$5,673
Gas Savings									
Fuel Oil Savings									
Steam Savings									
<b>Water Conservation/Water-Sense</b>									
<b>Total Savings (MTCO2e)</b>		<b>1</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>15</b>	<b>\$5,601</b>
Miscellaneous Water Conservation									
Low Flow/Hands Free Faucets (81 total)		5,000 gal	27,000 gal	32,000 gal	40,500 gal	40,500 gal	40,500 gal	0	\$466
Low Flow Toilets (43 total)		12,000 gal	112,000 gal	152,000 gal	172,000 gal	172,000 gal	172,000 gal	2	\$1,990
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	29,900 gal + 3900 kwh	29,900 gal + 3900 kwh	13	\$3,145
Low Flow Urinals									
Waterless Urinals									
<b>Solid Waste Recycling</b>									
<b>Total Savings (MTCO2e)</b>	<b>826</b>	<b>2,890</b>	<b>1,824</b>	<b>2,540</b>	<b>2,744</b>	<b>3,005</b>	<b>2,883</b>	<b>16,728</b>	<b>\$241,036</b>
Mixed Recyclables (includes Wastewise)									
Pallets Waste Avoided/Wood Recycled	97 tons	216 tons	164 tons	164.17 tons	266.16 tons	174.5 tons	266 tons	3,567	\$57,993
Steel Recycled during Deconstruction									
Concrete / Asphalt Recycled									
Ceiling Tile Recycled									
Carpet Recycled		1 ton						2	\$40
Recycled C&D Waste (masonry/wood/sheetrock/fines)		104 tons	59 tons	270.2 tons	6.11 tons	313.11 tons	138.41 tons	221	\$35,633
Cardboard (construction/non-construction/sharp containers)		111 tons	163.8 tons	191.22 tons	180.22 tons	172.54 tons	205 tons	3,194	\$32,996



Environmental Metrics	Aug 2009 MOU	Feb/Aug 2010 Update	Feb/Aug 2011 Update	Feb/Aug 2012 Update	Feb/Aug 2013 Update	Feb/Aug 2014 Update	Feb/Aug 2015 Update	Total Conversion (MTCO2e)	Cost Saving (Est.)
Mixed Metal (construction/non-construction)	39 tons	206 tons	86 tons	57.8 tons	63.39 tons	99 tons	52 tons	2,642	\$24,128
Paper, Mixed	103 tons	248 tons	83 tons	287.21 tons	293.21 tons	325 tons	366 tons	6,101	\$68,217
Plastic, Mixed (construction/non-construction/sharp containers)	39 tons	113 tons	53 tons	28 tons	55.49 tons	68.28 tons	28 tons	396	\$15,391
Blue Wrap		18 tons		4 tons	5.6 tons	1.8 tons		30	\$1,176
Can/Bottle Recycling		6 tons	21 tons	13.78 tons	13.78 tons			277	\$2,182
Mixed Organics									
Food Donation		3 tons	1.25 tons	2 tons	1.75 tons	1.5 tons	1.4 tons	2	\$416
Biosolids & Food Waste Recycling / Composting									
Fluorescent Bulbs	1 ton	3 tons	2.44 tons	1.5 tons	2.5 tons	2.06 tons	2.16 tons	2	\$576
Waste Oil Recycled									
Magazines/ThirdClass Mail									
Newspaper									
Office Paper									
Textbooks			3 tons					9	\$120
Phonebooks									
Dimensional Lumber									
Fly Ash									
Aluminum Cans									
Glass			1 ton		0.81 tons			1	\$72
HDPE / LDPE / PET									
Appliances									
Non-Ferrous Metals									
Fats, Oils, Grease			10 tons	15.5 tons	14.5 tons	7.1 tons	5.25 tons	157	\$2,094
Recycled Mixed Waste (medical equipment)	4 tons	16 tons	12 tons	24 tons	11.4 tons	8.9 tons	3.48 tons	128	\$2
<b>Green Procurement</b>									
<b>Total Savings (MTCO2e)</b>			<b>17</b>	<b>0</b>	<b>2</b>			<b>19</b>	<b>\$1,432</b>
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			19	\$1,432
Construction Recycling - Glass									
Use of Coal Combustion Products									



Environmental Metrics	Aug 2009 MOU	Feb/Aug 2010 Update	Feb/Aug 2011 Update	Feb/Aug 2012 Update	Feb/Aug 2013 Update	Feb/Aug 2014 Update	Feb/Aug 2015 Update	Total Conversion (MTCO2e)	Cost Saving (Est.)
<b>Green Landscaping</b>									
<b>Total Savings (MTCO2e)</b>		<b>3</b>	<b>0</b>	<b>0</b>	<b>6.5</b>	<b>6.5</b>	<b>10</b>	<b>26</b>	<b>\$5,760</b>
Green Roofs									
Porous Pavement									
Grass									
Low/no mow area									
Re-use of Collected Stormwater									
On-Site Re-use of Compost / Mulch		2 tons						0	\$80
Moisture Sensing Sprinklers									
Placing Mulch over plants' root zone at ACP		17.5 tons		2 tons	40 tons	40 tons	60 tons	26	\$5,680
<b>Electronics Recycling</b>									
<b>Total Savings (MTCO2e)</b>	<b>8</b>	<b>83</b>	<b>82</b>	<b>215</b>	<b>122</b>	<b>133</b>	<b>139</b>	<b>782</b>	<b>\$6,958</b>
Recycling of Electronics	4 tons	19 tons	9 tons	4 tons	7.2 tons	7 tons	44 tons	151	\$3,768
Re-Use/Donation of Used Computers									
Toner/Ink Recycling and Use of Recycled Ink		2 tons	3 tons	10.5 tons	4.71 tons	5.5 tons	2.94 tons	550	\$1,147
Battery Recycling	1 ton	9 tons	6 tons	4.5 tons	12.83 tons	10.3 tons	7.46 tons	82	\$2,043
<b>Transportation</b>									
<b>Total Savings (MTCO2e)</b>									
Hybrid/Elec/Biodiesel Vehicles									
Smartway Transporters									
Bike Racks		4	4	4	4	4	4		
<b>MTCO2e Savings</b>									
<b>Total Savings (MTCO2e)</b>	<b>903</b>	<b>3,116</b>	<b>2,068</b>	<b>2,906</b>	<b>3,820</b>	<b>5,207</b>	<b>3,977</b>	<b>21,835</b>	<b>\$1,199,193</b>
Energy	69	139	142	148	943	1880	943	4,265	\$938,405
Water	0	1	2	2	3	3	3	15	\$5,601
Solid Waste	826	2,890	1,824	2,540	2,744	3,005	2,883	16,728	\$241,036
Green Procurement	0	0	17	0	1	0	0	19	\$1,432
Green Landscaping	0	3	0	0	6	6	9	25	\$5,760
Electronics	8	83	82	215	122	133	139	782	\$6,958



2015

## Stony Brook University Hospital Additional Green MOU Accomplishments and Cost Savings

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### *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 basically completed.