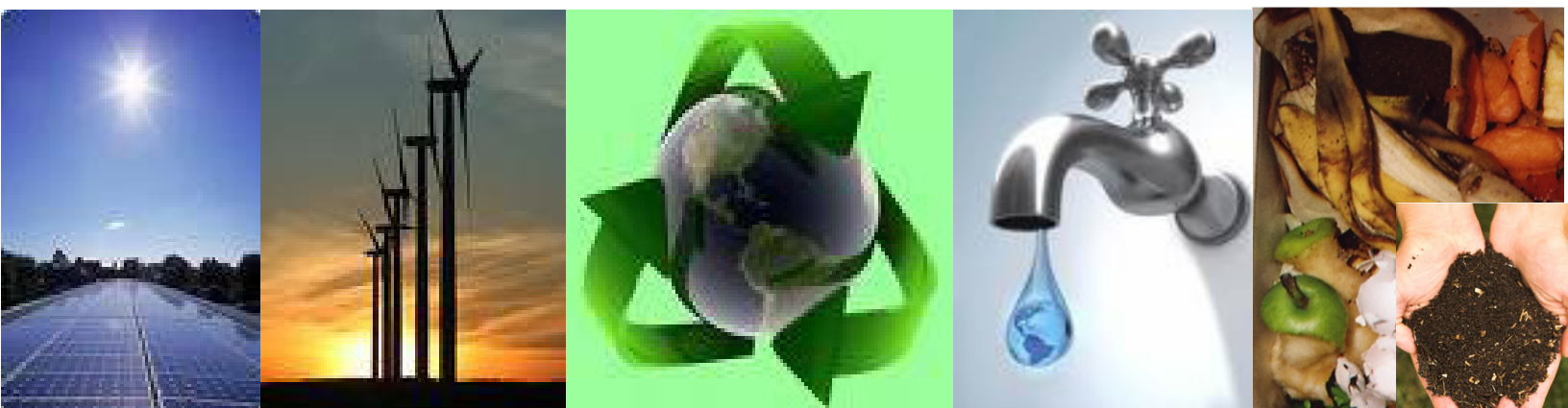




Hackensack University Medical Center
Environmental Assessment:
Green MOU SemiAnnual Report
March 24, 2014



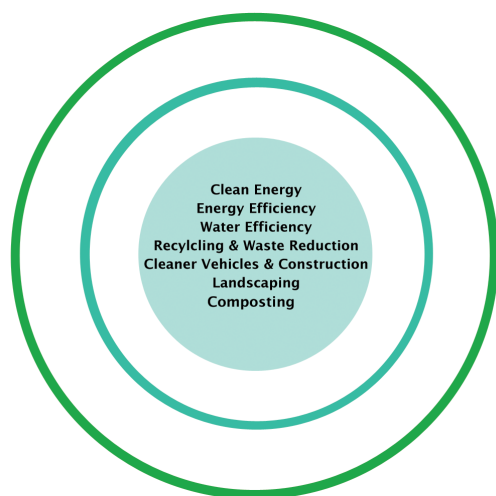
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Accomplishments

Reductions of 22,236 MTCO₂e



Memorandum of Understanding

On February 23, 2012, Hackensack University Medical Center 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 HackensackUMC has resulted in reducing energy, water and solid waste production across their entire operations.

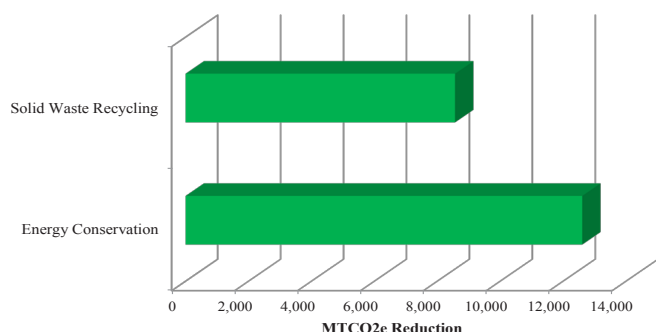
Reduction in Environmental Footprint

This is the fourth update HackensackUMC has provided documenting its green initiatives. The EPA has analyzed the submitted information and generated an environmental footprint. Due to the progressive green efforts of the organization, HackensackUMC has managed to reduce its carbon footprint by 22,236 MTCO₂e* and saved an estimated \$2.1 million in operating expenses.

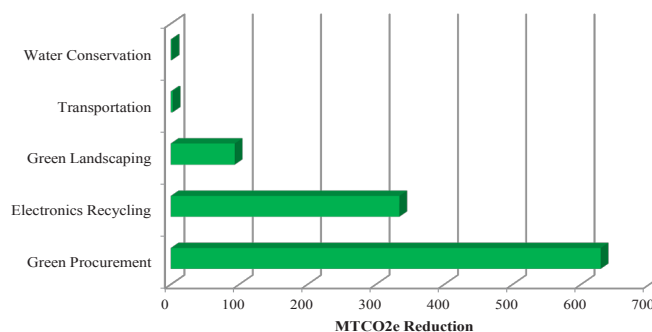
*Metric Ton Carbon Dioxide Equivalent

Environmental Metrics	Total Sector (MTCO ₂ e)
Energy Conservation	12,609.3
Water Conservation	1.3
Solid Waste Recycling	8,566.5
Green Procurement / Source Reduction	629.0
Green Landscaping	93.5
Electronics Recycling	334.4
Transportation	2.8
Total (MTCO ₂ e)	22,236.8

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 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 22,236 MTCO₂e



Greenhouse Gas Equivalencies

What does the reduction of 22,236 MTCO₂e represent ?
The organization's effort is equivalent to any one of the following:

- Annual greenhouse gas emissions from 4,681 vehicles



- Carbon dioxide emissions from 2,502,172 gallons of gasoline consumed



- Carbon dioxide emissions from 51,713 barrels of oil consumed



- Carbon dioxide emissions from the energy use of 2,029 homes for one year



- Carbon dioxide emissions from 926,533 propane tanks used for home barbeques



- Carbon dioxide emissions from gasoline carried by 294 tanker trucks



- Carbon dioxide emissions from burning 119 railcars' worth of coal (approx. 1.8 miles long)



Environmental Metrics	Feb 2012 MOU	Aug 2012 Update	Feb 2013 Update	Aug 2013 Update	Feb 2014 Update	Total Conversion (MTCO2e)	Cost Savings (est.)
Energy Conservation/Energy Star							
Total Savings (MTCO2e)		3977.6	3464.5	1934.0	3233.2	12,609.3	\$1,957,945
Miscellaneous Energy Conservation				733,488 kwh	2,496,874 kwh	2,300.0	\$404,764
Motors and Transformers							
Lighting Project Fixtures (bulbs and ballast)		6250 kwh	6250 kwh	10,850 kwh	27,725 kwh	36.4	\$6,400
High Temp Hot Water Pipe Replacement		56,490 therms	56,490 therms	56,490 therms	56,490 therms	1,198.9	\$147,608
HVAC, Chiller & Electrical		3,900,698 kwh	3,186,763 kwh	397,235 kwh	397,235 kwh	5,611.9	\$987,606
Bulb Replacement (CFLs)							
Bulb Replacement (LEDs)		2210 kwh	3770 kwh	5330 kwh	16,705 kwh	19.9	\$3,510
Gas Savings		154,054 therms	154,054 therms	154,054 therms	154,054 therms	3,269.5	\$402,543
Fuel Oil Savings							
Steam Savings		310,000 lbs	286,326 lbs		94,311.2 lbs	172.1	\$5,387
New Washers (energy saved)				504.4 kwh	504.4 kwh	0.7	\$126
Alternative Energy							
Total Savings (MTCO2e)						0.0	\$0
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)		0.3	0.2	0.6	0.2	1.3	\$1,445
Miscellaneous Water Conservation							
Low Flow/Hands Free Faucets (4)		2,000 gal	1,000 gal	1,000 gal	1,000 gal	0.0	\$10
Low Flow Toilets (6 flushometers)		24,000 gal	12,000 gal	12,000 gal	12,000 gal	0.1	\$122
Low Flow Shower Heads							
Low Flow Urinals							
Waterless Urinals (4)		80,000 gal	80,000 gal	80,000 gal	80,000 gal	0.8	\$650
New Washers (water saved)				163,020 gal	163,020 gal	0.4	\$663
Solid Waste Recycling							
Total Savings (MTCO2e)	1102.0	1812.3	1600.9	1826.2	2225.1	8,566.5	\$160,736
Mixed Recyclables (includes Wastewise, TerraCycle)	383.7 tons	602.9 tons	451.09 tons	517.86 tons	671.72 tons	7,356.4	\$105,091
Pallets Waste Avoided / Wood Recycled			41.25 tons	49.5 tons	49.5 tons	345.0	\$5,610
Steel Recycled Offsite during Deconstruction				66.88 tons		120.4	\$2,675
Concrete / Asphalt Recycled during Deconstruction			96.75 tons		412.29 tons	50.7	\$20,362
Recycled C&D Waste (construction waste)			15.12 tons	78.23 tons	.56 tons	49.2	\$3,756
Cardboard (construction/non-construction/sharp containers)			1,899 lbs	2,180 lbs		6.3	\$82
Mixed Metal (construction/non-construction)		16.21 tons	32.09 tons	20.74 tons	31.75 tons	400.1	\$4,032
Paper, Mixed							
Plastic, Mixed (bottles,construction/non-construction,sharp containers)		23,007 sharps	21.98 tons		60.64 tons	79.0	\$3,225
Can / Bottle Recycling							
Blue Wrap Waste Reduction		9,300 lbs				4.6	\$186
Mixed Organics							
Food Donation (Waste diversion)		4,000 lbs	12,460 lbs	5,300 lbs	1,300 lbs	2.3	\$461



Environmental Metrics	Feb 2012 MOU	Aug 2012 Update	Feb 2013 Update	Aug 2013 Update	Feb 2014 Update	Total Conversion (MTCO2e)	Cost Savings (est.)
Biosolids and Food Waste Recycling / Composting	224,524 lbs	112,262 lbs	113,622 lbs	126,019 lbs	120,188 lbs	69.7	\$13,932
Fluorescent Bulbs	9,000 (5740 lbs)	4,500 (2870 lbs)	4,500 (2870 lbs)	4,500 (2870 lbs)	4,500 (2870 lbs)	1.1	\$344
Ceiling Tiles Recycled							
Carpet Recycled							
Waste Oil Recycled	2970 lbs	1485 lbs	4630 lbs	3600 lbs	11,400 lbs	36.1	\$482
Magazines / Third Class Mail							
Newspapers							
Office Paper							
Phonebooks							
Textbooks							
Dimensional Lumber							
Fly Ash							
Aluminum Cans							
Glass							
HDPE / LDPE / PET							
Appliances							
Non-Ferrous Metals							
Fats, Oils, Grease							
Water Coolers (Plastic bottles saved)	30,000	15,000	15,000	15,000	15,000	1.2	\$50
Medical Device Reprocessing		6,455 lbs	5,098 lbs	5,044 lbs	5,807 lbs	44.4	\$448
Green Procurement / Source Reduction							
Total Savings (MTCO2e)			486.8	124.3	17.9	629.0	\$37,321
Re-Use/Purchase of Materials with Recycled Content (Paper towels)				24.5 tons 100%PC		27.2	
Purchase / Use of Compost Socks							
Purchase of EPEAT Products			678 monitors	636 units	147 units	184.8	\$8,541
Use of Recycled Steel during Construction			219 tons			394.2	\$4,380
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							
Use of Coal Combustion Products							
Paper Reduction				2.7 tons	.15 tons	22.8	\$24,400
Green Landscaping							
Total Savings (MTCO2e)		23.4	23.4	23.4	23.4	93.5	\$0
Green Roofs		7,000 sq ft	7,000 sq ft	7,000 sq ft	7,000 sq ft	30.5	
Porous Pavement			120 sq ft	120 sq ft	120 sq ft	0.0	
Grass / Green Space							
Low / No Mow Area							
Re-use of Collected Stormwater							
On-Site Use of Compost / Mulch							
Moisture Sensing Sprinklers							
Number / Acres of Trees							
Reflective Roof		21,000 sq ft	21,000 sq ft	21,000 sq ft	21,000 sq ft	63.0	
Synthetic Turf							

Environmental Metrics	Feb 2012 MOU	Aug 2012 Update	Feb 2013 Update	Aug 2013 Update	Feb 2014 Update	Total Conversion (MTCO2e)	Cost Savings (est.)
Native Plants							
Leaves Composted							
Electronics Recycling							
Total Savings (MTCO2e)	43.0	52.5	71.4	79.4	88.1	334.4	\$3,197
Recycling of Electronics		35,472 lbs	27,297 lbs	31,984 lbs	25,169 lbs	95.9	\$2,398
Electronic Ballast				368 lbs	8000 lbs	6.7	\$167
Re-Use/Donation of Used Computers							
Toner/Ink Recycling and Use of Recycled Ink	1120 car- tridges	560 cartridges	1246 cartridges	1356 cartridges	1,585 cartridges	225.3	\$469
Battery Recycling		3,279 lbs	2,115 lbs	1,826 lbs	875 lbs	6.5	\$162
Mass Transit							
Total Savings (MTCO2e)							
Miles Avoided							
Transportation							
Total Savings (MTCO2e)					2.8	2.8	\$1,172
Hybrid Vehicles							
Electric Vehicles							
Biodiesel Vehicles							
Clean Construction Vehicles							
LNG Vehicles							
Alternate Fuel Vehicles (Zipcar)							
More fuel efficient vehicles (2)					312.5 gal	2.8	\$1,172
Bike Racks		3	3	3	3		
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 (MTCO2e)	1,145.0	5,866.0	5,647.2	3,987.9	5,590.7	22,236.8	\$2,161,816
Energy Conservation	0.0	3,977.6	3,464.5	1,934.0	3,233.2	12,609.3	\$1,957,945
Water Conservation	0.0	0.3	0.2	0.6	0.2	1.3	\$1,445
Solid Waste	1,102.0	1,812.3	1,600.9	1,826.2	2,225.1	8,566.5	\$160,736
Green Procurement / Source Reduction	0.0	0.0	486.8	124.3	17.9	629.0	\$37,321
Green Landscaping	0.0	23.4	23.4	23.4	23.4	93.5	\$0
Electronics	43.0	52.5	71.4	79.4	88.1	334.4	\$3,197
Transportation	0.0	0.0	0.0	0.0	2.8	2.8	\$1,172



2014

HackensackUMC Additional Green MOU Accomplishments

HackensackUMC Waste Recycling and Re-use Operations

HUMC reduced its medical waste by nearly half in just one year from 1.35 million pounds to just 765,000 pounds. This reduction also impacted the transportation of medical waste – down to 3 times per month compared to the 8-9 times per month last year. In addition, HUMC diverted approximately 250,000 pounds of food from ending up in a landfill. Another 7,000 pounds of vegetable oil waste was sent to the Department of Public Works in Westwood, to be converted into a biodiesel fuel. HackensackUMC continued its partnership with TerraCycle, recycling more than one ton of materials including diaper packaging, keyboards, shoes, candy wrappers and chip bags. HUMC continues to implement recycling stations on campus, which supports their food waste diversion and recycling efforts.

Electronics Waste (E-waste) Recycling

HackensackUMC recycled 57,153 pounds of e-waste and plans to hold its 2nd annual e-waste collections on campus.

Energy Conservation and EnergyStar Program

HackensackUMC completed the installation of a new efficient 1,500 ton chiller. Through sustainability measures in, HackensackUMC avoided 2,496,874 kWh from July-December of 2013. Phase 2 of the HackensackUMC energy conservation program will be completed this year.

- Chiller Plant Upgrade with (2) 1,500 ton chillers - expected to bring 2,168,735 kWh electric savings annually.
- CHW AHU Control Valves – expected to bring 249,500 kWh electric savings annually.
- Connection to Research Building -expected to bring 384,772 kWh electric savings annually.

Paper Reduction

All board documents/minutes/resolutions are now available on Directors Desk which is 100% paperless. This saves approximately 5,000 sheets of paper per board meeting. All publications for distribution are printed double-sided.

Safer Chemicals

HackensackUMC conducted a house-wide sweep of the medical center to identify departments that have any remaining mercury devices. A plan to replace them is being formulated. HUMC began using zero-VOC paints throughout the campus. HUMC swapped out basins and bedpans with new pigment/dye-free basins which will reduce the use of toxic chemicals.

Employee Education and Training Program

HUMC added over 50 green champions since their last report, bringing the total number of green champions to 175.

Landscaping

HackensackUMC installed a sustainable garden outside the cancer center which features all native plants as well as permeable pavers.

Healthier Foods

Through its Guiding Stars Program, HUMC averaged 7,000 healthy meals each month in 2012. In 2013, HUMC averaged 11,000 healthy meals each month, which increases the wellness of our staff. In our main cafeteria, HUMC implemented ‘Meatless Mondays’ and began featuring more vegetarian choices.

Transportation

Two 2010 Jeep Liberty’s (15-16/21-22 mpg) were replaced with a 2014 Kia Soul (23-24/30-31 mpg) and a Ford Escape (21-23/28-32 mpg) which will result in \$8,000-\$10,000 in fuel savings.