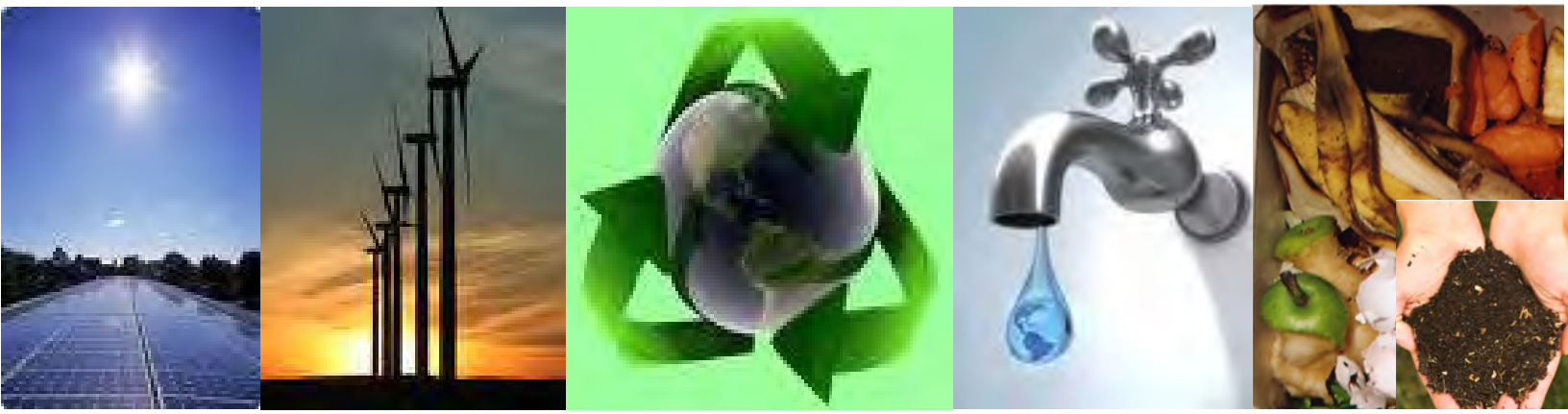
SUNY - Buffalo
Environmental Assessment:
Initial Green MOU SemiAnnual Report
November 15, 2012



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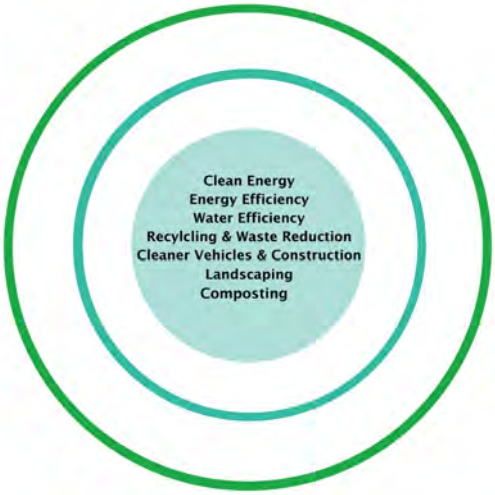
Accomplishments

Reductions of 57,378 MTCO2e



Memorandum of Understanding

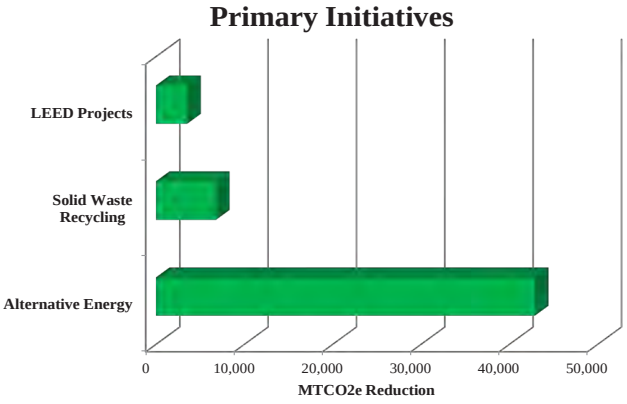
On August 2, 2011, SUNY - Buffalo signed a Memorandum of Understanding (MOU) pledging to become an environmental steward by implementing a number of green initiatives that would reduce its carbon footprint and further improve our planet's environment. This partnership with the United States Environmental Protection Agency (EPA) and SUNY - Buffalo has resulted in reducing energy, water and solid waste production across their entire operations.

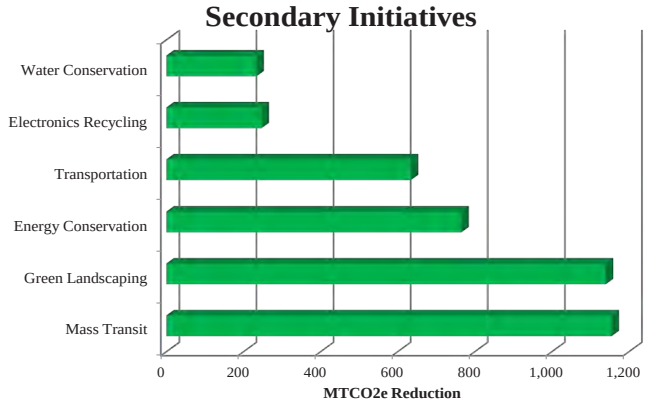
Reduction in Environmental Footprint

This is the first update SUNY - Buffalo 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 university, SUNY - Buffalo has managed to reduce its carbon footprint by 57,378 MTCO2e* and saved an estimated $1,100,000 in operating expenses.

*Metric Ton Carbon Dioxide Equivalent

Environmental Metrics	Total Sector (MTCO2e)
Energy Conservation	765.2
Alternative Energy	42,887.4
Water Conservation	233.7
Solid Waste Recycling	6,784.9
Green Landscaping	1,139.9
Electronics Recycling	246.8
Mass Transit	1,154.9
Transportation	634.3
LEED Projects	3,531.5
Total (MTCO2e)	57,378.5





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) which converts 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 57,378 MTCO2e

Greenhouse Gas Equivalencies

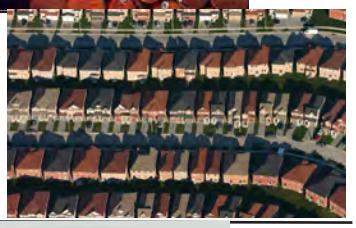
What does the reduction of 57,378 MTCO2e represent ?
The organization's effort is equivalent to any one of the following:

- Annual greenhouse gas emissions from 11,251 vehicles

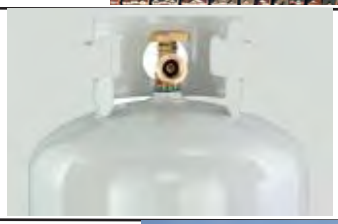
- Carbon dioxide emissions from 6,432,567 gallons of gasoline

- Carbon dioxide emissions from 133,438 barrels of oil consumed

- Carbon dioxide emissions from the energy use of 4,968 homes for one year

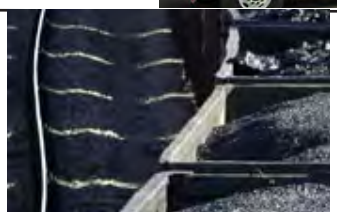


- Carbon dioxide emissions from 2,390,771 propane tanks used for home barbeques



- Carbon dioxide emissions from gasoline carried by 757 tanker trucks

- Carbon dioxide emissions from burning 312 railcars' worth of coal (nearly 4 3/4 miles long)



Environmental Metrics	Aug 2011 MOU	Sep 2012 Update	Total Conversion (MTCO2e)	Cost Savings (est.)
Energy Conservation/Energy Star				
Total Savings (MTCO2e)		***765.2***	***765.2***	***$133,000***
Miscellaneous Energy Conservation		1,100,000 kwh	690.7	$113,520
Web Based Energy Competition				
Motors and Transformers				
Lighting Project Fixtures (bulbs and ballast)				
High Temp Hot Water Pipe Replacement				
HVAC, Chiller & Electrical				
Bulb Replacement (CFLs)				
Bulb Replacement (LEDs)				
Gas Savings				
Fuel Oil Savings				
Steam Savings		540,000 lbs	74.6	$19,480
Alternative Energy				
Total Savings (MTCO2e)		***42887.4***	***42,887.4***	***($1,311,572)***
On-Site Solar (855 KW)		580,726 kwh	364.6	$59,931
On-Site Wind				
On-Site Geothermal				
On-Site Combined Heat and Power		245,477 kwh	154.1	$25,333
Purchase of Green Energy/Green Power		67,480,000 kwh	42,368.7	($1,396,836)
Water Conservation/WaterSense				
Total Savings (MTCO2e)		***233.7***	***233.7***	***$72,455***
Miscellaneous Water Conservation				
Low Flow/Hands Free Faucets (3,000)		1,500,000 gal	3.1	$2,847
Low Flow Toilets (2,100)		8,400,000 gal	17.4	$15,945
Low Flow Shower Heads (1,000)		2,300,000 gal + 300,000 kwh	193.1	$35,326
Low Flow Urinals (2,100)		9,660,000 gal	20.0	$18,337
Waterless Urinals				
Solid Waste Recycling				
Total Savings (MTCO2e)		***6784.9***	***6,784.9***	***$141,019***
Mixed Recyclables (includes Wastewise)		824.53 tons	2,366.4	$32,981
Pallets Waste Avoided / Wood Recycled				
Steel Recycled Offsite during Deconstruction				
Concrete / Asphalt Recycled during Deconstruction		2,000 tons	1,600.0	$80,000
Recycled C&D Waste (construction waste)				
Cardboard (construction/non-construction/sharp containers)				
Mixed Metal (construction/non-construction)		480 tons	2,592.0	$19,200
Paper, Mixed				
Plastic, Mixed (bottles,construction/non-construction,sharp containers)				
Can / Bottle Recycling				
Mixed Organics				
Food Donation (Waste diversion)				
Biosolids and Food Waste Recycling / Composting		172 tons	34.4	$6,880
Fluorescent Bulbs		13.2 tons	1.7	$528
Ceiling Tiles Recycled		10 tons	4.6	$400

Environmental Metrics	Aug 2011 MOU	Sep 2012 Update	Total Conversion (MTCO2e)	Cost Savings (est.)
Carpet Recycled		10,300 sq yds	185.9	$1,030
Waste Oil Recycled				
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				
Instrument Recycling				
Ballast				
Green Procurement				
Total Savings (MTCO2e)			***0.0***	***$0***
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				
Use of Coal Combustion Products				
Green Landscaping				
Total Savings (MTCO2e)		***1,139.9***	***1,139.9***	***$20,880***
Green Roofs		1,512 sq ft	3.3	
Porous Pavement		11,352 sq ft	0.3	
Grass				
Low / No Mow Area		123 acres	1,100.0	
Green Space				
Re-use of Collected Stormwater				
On-Site Use of Compost / Mulch				
Moisture Sensing Sprinklers (covers 600,000 sq ft)		7,700,000 gal	16.0	$14,616
Number / Acres of Trees		160 trees	13.4	
Reflective Roof				
Synthetic Turf (104,000 sq ft)		3,300,000 gal	6.8	$6,264
Native Plants				
Leaves Composted				

Environmental Metrics	Aug 2011 MOU	Sep 2012 Update	Total Conversion (MTCO2e)	Cost Savings (est.)
Electronics/EPEAT				
Total Savings (MTCO2e)	***104.0***	***142.8***	***246.8***	***$6,170***
Recycling of Electronics	65 tons	89 tons	246.4	$6,160
Re-Use/Donation of Used Computers				
Toner/Ink Recycling and Use of Recycled Ink				
Battery Recycling		502 lbs	0.4	$10
Mass Transit				
Total Savings (MTCO2e)		***1,154.9***	***1,154.9***	***$1,450,082***
Miles Avoided		2,589,432 mi	1,154.9	$1,450,082
Transportation				
Total Savings (MTCO2e)		***634.3***	***634.3***	***$21,000***
Hybrid Vehicles		4	7.7	$6,000
Electric Vehicles		10	28.2	$15,000
Biodiesel Vehicles		26	88.4	
Commuter Gas Savings				
Clean Construction Vehicles				
LNG Vehicles				
Alternate Fuel Vehicles (Zipcar)		5	510.0	
Smartway Transporters				
Bike Racks		89		
LEED Projects				
Total Savings (MTCO2e)		***3531.5***	***3,531.5***	***$580,449***
Silver - 10% (total 163,822 sq ft)		763,382.7 kwh	479.3	$78,781
Gold - 17% (total 613,646 sq ft)		4,861,126.5 kwh	3,052.2	$501,668
Platinum - 20%				
Misc. - Further Clarification				
Total Savings (MTCO2e)				
NOX (equipment only)				
NOX (includes vehicles)				
MTCO2e Savings				
Total (MTCO2e)	***104.0***	***57,274.5***	***57,378.5***	***$1,113,483***
Energy Conservation	0.0	765.2	765.2	$133,000
Alternative Energy	0.0	42,887.4	42,887.4	($1,311,572)
Water Conservation	0.0	233.7	233.7	$72,455
Solid Waste	0.0	6,784.9	6,784.9	$141,019
Green Landscaping	0.0	1,139.9	1,139.9	$20,880
Electronics	104.0	142.8	246.8	$6,170
Mass Transit	0.0	1,154.9	1,154.9	$1,450,082
Transportation	0.0	634.3	634.3	$21,000
LEED Projects	0.0	3,531.5	3,531.5	$580,449

2012

SUNY - Buffalo Additional Green MOU Accomplishments

Sustainability measures undertaken by SUNY-Buffalo include opening the UB Solar Strand, bringing five new LEED-designed buildings online within a year, recycling waste through an innovative single-stream process, and composting what waste is not recycled.
SUNY-Buffalo is constantly examining ways to conserve energy. For example, residential dining centers are trayless. By not using trays, the University saves considerably on energy and water consumption.

Energy Use

SUNY-Buffalo now has two solar installations and 30 percent of its energy comes from renewable energy outside of hydropower.
The UB Solar Strand uses renewable energy from the sun to power the equivalent of hundreds of student apartments on campus.
SUNY-Buffalo is the largest purchaser of wind energy in New York State.

Waste Reduction

SUNY-Buffalo diverts more than 30 percent of its waste from the landfill.
Hundreds of thousands of pounds of organic waste are being composted each year, with 43 percent decomposed on campus into a soil amendment for gardening.
The addition of a second decomposer has enabled SUNY-Buffalo to compost 100 percent of its dining center food waste on campus and now can offer its compost as free fertilizer to urban community gardens and members of the campus community.

Eco-Smart Buildings

New buildings on all three SUNY-Buffalo campuses reflect the University's commitment to the future. Construction and renovation projects across the University have been designed to meet rigorous accessibility and LEED green building design standards.
Inside its facilities, SUNY-Buffalo's custodial team practices green cleaning techniques, using nontoxic, recycled products and implementing responsible application methods that protect both health and the environment.
In 2003, SUNY-Buffalo's Creekside Village Community Center was the first building in Western New York to become certified under the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system.
Then in 2004, SUNY-Buffalo published its own High Performance Building Guidelines in support of New York State Executive Order 111. These guidelines were referenced by institutions across New York State and served to further the University's commitment to build green.
SUNY-Buffalo is in the process of opening five new LEED buildings—all within one year. Four are designed to meet LEED Gold standards and will save critical natural resources.
William R. Greiner Hall, a residence hall that debuted in 2011, demonstrates SUNY-Buffalo's leadership in green construction and is SUNY's first LEED Gold-designed residence hall.

Tracking Building Performance

As part of a NYPA project, over 210 power meters have been installed at SUNY-Buffalo. The new internet based "Smart" power meters will permit the University to closely observe and manipulate power consumption within each building.
A software platform was also installed with the new meters allowing easy access by multiple users to historical and real-time power data at each building. The meters and internet based metering platform gives Facilities staff and others the tools needed to implement new energy conservation measures at every location and observe the real-time results.

Green Transporation

SUNY-Buffalo offers plenty of ways to travel around campus using alternative transportation methods. The University's system of convenient, free shuttles and buses make it easy to travel to or around any of its three campus centers.

Green IT

SUNY-Buffalo's Center for Computational Research launched a series of green IT projects a little over 2 years ago with funding from the New York State Energy Research & Development Authority (NYSERDA) and the National Institutes of Health (NIH). The projects have resulted in a seven-fold increase in CCR's research computing capacity as well as a decrease in total energy consumption by 20%. As of January 2012, these actions have saved the University more than $278,000 and reduced greenhouse gases by more than 550 metric tons. The recently relocated CIT data center will soon undergo similar improvements.