



St. John's University
Environmental Assessment:
Green MOU SemiAnnual Report
July 23, 2013



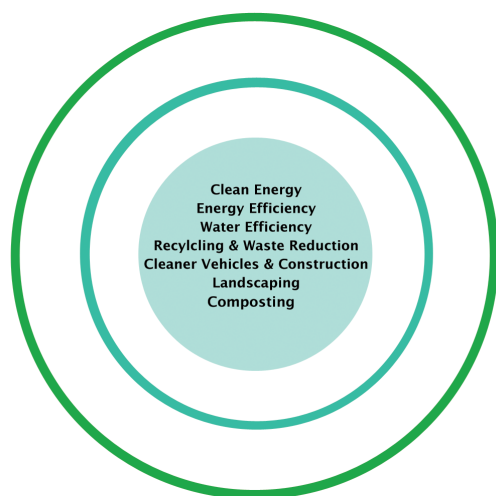
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Accomplishments

Reductions of 27,886 MTCO₂e



Memorandum of Understanding

On December 5, 2008, St. John's University 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 St. John's University has resulted in reducing energy, water and solid waste production across campus operations.

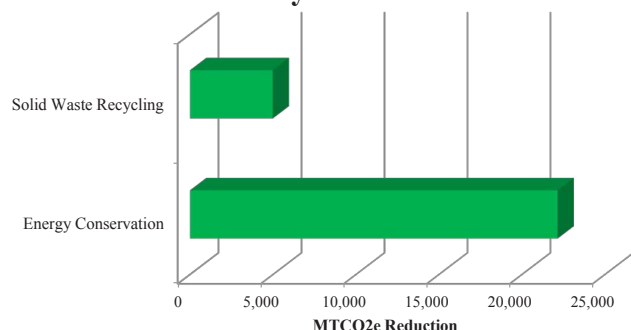
Reduction in Environmental Footprint

In the last five years, St. John's University has provided nine 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 university has managed to reduce its carbon footprint by 27,886 MTCO₂e* and saved more than \$4.3 million in operating expenses.

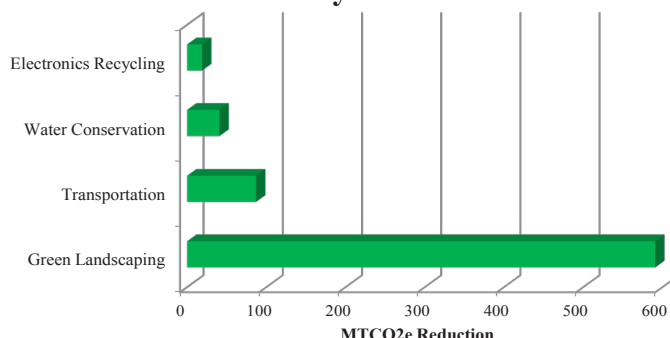
*Metric Ton Carbon Dioxide Equivalent

Environmental Metrics	Total Sector (MTCO ₂ e)
Energy Conservation	22,145.0
Water Conservation	40.7
Solid Waste	4,984.0
Green Landscaping	590.7
Electronics	18.8
Transportation	86.9
Total (MTCO ₂ e)	27,886.1

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 27,886 MTCO₂e



Greenhouse Gas Equivalencies

What does the reduction of 27,886 MTCO₂e represent ?
The organization's effort is equivalent to any one of the following:

- Annual greenhouse gas emissions from 5,810 vehicles



- Carbon dioxide emissions from 3,126,244 gallons of gasoline



- Carbon dioxide emissions from 64,851 barrels of oil consumed



- Carbon dioxide emissions from the energy use of 1,435 homes for one year



- Carbon dioxide emissions from 1,161,921 propane tanks used for home barbeques



- Carbon dioxide emissions from gasoline carried by 368 tanker trucks



- Carbon dioxide emissions from burning 120 railcars' worth of coal (over 1.8 miles long)





Environmental Metrics	Jun 2010 Update	Dec 2010 Update	Jun 2011 Update	Dec 2011 Update	Jun 2012 Update	Dec 2012 Update	Jun 2013 Update	Total Conversion (MTCO ₂ e)	Cost Savings (Est.)
Energy Conservation/Energy Star									
Total Savings (MTCO₂e)	1,976.3	1,841.1	3,533.9	3,533.9	3,556.4	3,605.4	3,264.1	22,145.0	\$4,187,441
Miscellaneous Energy Conservation	846,500 kwh	846,500 kwh	1,269,760 kwh	1,269,760 kwh	1,269,760 kwh	3,388,209 kwh	2,220,174.5 kwh	7,048.3	\$1,677,741
Miscellaneous Energy Conservation						291,040 therm	360,156 therm	3,464.9	\$425,394
Web Based Energy Competition	290,160 kwh				37,071 kwh	(included above)	(included above)	198.7	\$47,285
Motors and transformers									
Lighting Project Fixtures (Bulbs and Ballast)									
High Temp Hot Water Pipe Replacement									
HVAC, Chiller & Electrical	83,335 kwh	83,335 kwh	125,000 kwh	125,000 kwh	125,000 kwh	(included above)	(included above)	529.2	\$125,956
Chiller Gas Savings	149,500 therm	149,500 therm	224,250 therm	224,250 therm	224,250 therm	(included above)	(included above)	5,170.5	\$850,368
Bulb Replacement (CFLs, LEDs)									
Construction of St. John's University Center	439,655.5 kwh							533.8	\$127,060
Construction of St. John's University Center	11,901 therm							126.7	\$15,549
Construction/Operation of D'Angelo Center		505,692 kwh						307.0	\$73,072
Construction/Operation of D'Angelo Center		12,063 therm						64.2	\$7,880
Steam Traps / Insulation	12,512 therm	12,512 therm	18,767.5 therm	18,767.5 therm	18,767.5 therm	(included above)	(included above)	432.7	\$53,127
Water Projects	8,164 therm	8,164 therm	12,245.5 therm	12,245.5 therm	12,245.5 therm	(included above)	(included above)	282.3	\$34,664
Boiler Controls			54,562 therm	54,562 therm	54,562 therm	(included above)	(included above)	870.9	\$106,928
Lighting Upgrades			726,270.5 kwh	726,270.5 kwh	726,270.5 kwh	(included above)	(included above)	1,322.7	\$314,838
Pipe Insulation			20,704.5 therm	20,704.5 therm	20,704.5 therm	(included above)	(included above)	330.5	\$40,576
Fume Hoods / Ventilation			511,640.5 kwh	511,640.5 kwh	511,640.5 kwh	(included above)	(included above)	931.8	\$221,796
Fume Hoods / Ventilation			33,273.5 therm	33,273.5 therm	33,273.5 therm	(included above)	(included above)	531.1	\$65,207
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)	7.0	5.6	5.6	5.6	5.6	5.6	5.6	40.7	\$51,101
Miscellaneous Water Conservation									
Low Flow Devices (3,000)	3,500,000 gal	2,805,025 gal	2,805,025 gal	2,805,025 gal	2,805,025 gal	2,805,025 gal	2,805,025 gal	40.7	\$51,101
Waterless Urinals									
Solid Waste Recycling									
Total Savings (MTCO₂e)	509.7	497.5	497.5	724.1	724.1	635.2	886.4	4,984.0	\$78,738
Mixed Recyclables (includes WasteWise)		2.55 tons	2.55 tons	258 tons	258 tons		314.87 tons	2,340.7	\$33,439
Pallets Waste Avoided/Wood Recycled									
Concrete recycled during Deconstruction									
Steel Recycled during Reconstruction									
Recycled C & D Waste									
Cardboard (construction/non-construction/ sharp containers)	79.15 tons	99.2 tons	99.2 tons			88.9 tons		1,385.8	\$17,820
Mixed Metal						30 tons		119.1	\$1,200



Environmental Metrics	Jun 2010 Update	Dec 2010 Update	Jun 2011 Update	Dec 2011 Update	Jun 2012 Update	Dec 2012 Update	Jun 2013 Update	Total Conversion (MTCO2e)	Cost Savings (Est.)
Paper, Mixed						36.5 tons		128.5	\$1,460
Plastic, Mixed (bottles, construction/non-construction, sharp containers)						3.85 tons		3.8	\$154
Blue Wrap									
Can / Bottle Recycling									
Mixed Organics									
Food Donation (Waste diversion)						1500 lbs		0.2	\$30
Biosolids & Food Waste Recycling / Composting	1.8 tons	3.65 tons	3.65 tons	8.5 tons	8.5 tons	17 tons	23.84 tons	13.8	\$2,749
Fluorescent Bulbs									
Ceiling Tiles Recycled									
Carpet Recycled									
Waste Oil Recycled									
Magazines/ThirdClass Mail	6.7 tons	6.1 tons	6.1 tons					78.6	\$1,024
Newspaper	1.35 tons	3.3 tons	3.3 tons					25.9	\$372
Office Paper	18.7 tons	33.9 tons	33.9 tons					299.8	\$4,208
Textbooks	4.4 tons	1.75 tons	1.75 tons					38.3	\$492
Phonebooks									
Dimensional Lumber	24.4 tons	11 tons	11 tons			26 tons		238.1	\$3,872
Fly Ash	105.05 tons	9.05 tons	9.05 tons					198.5	\$9,128
Aluminum Cans	1.7 tons	0.55 tons	0.55 tons			3.85 tons		74.2	\$334
Glass	.85 tons	1.2 tons	1.2 tons			20 tons		6.8	\$964
HDPE	5.9 tons	12.75 tons	12.75 tons					32.1	\$1,492
LDPE / PET									
Appliances									
Non-Ferrous Metals									
Fats, Oils, Grease									
Green Procurement									
Total Savings (MTCO2e)								0.0	\$0
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)	74.2	75.1	75.1	75.1	75.1	81.9	75.1	590.7	\$1,360
Green Roofs									
Porous Pavement									
Low/no mow area									
Grass / Green Space	700 sq ft	3,000 sq ft	3,000 sq ft	3,000 sq ft	3,000 sq ft	3,000 sq ft	3,000 sq ft	7.8	



Environmental Metrics	Jun 2010 Update	Dec 2010 Update	Jun 2011 Update	Dec 2011 Update	Jun 2012 Update	Dec 2012 Update	Jun 2013 Update	Total Conversion (MTCO ₂ e)	Cost Savings (Est.)
Re-use of Collected Stormwater									
On-Site Re-use of Compost / Mulch						19 tons		3.8	\$760
Moisture Sensing Sprinklers									
Number / Acres of Trees	1762 trees (1/2 yr)	1762 trees (1/2 yr)	1762 trees (1/2 yr)	1762 trees (1/2 yr)	1762 trees (1/2 yr)	1762 trees (1/2 yr)	1762 trees (1/2 yr)	576.2	
Reflective Roof									
Synthetic Turf									
Native Plants									
Leaves Composted						15 tons		3.0	\$600
Electronics/EPEAT									
Total Savings (MTCO₂e)		9.4	9.4					18.8	\$332
Recycling of Electronics									
Re-Use/Donation of Used Computers		4.15 tons	4.15 tons					18.8	\$332
Toner/Ink Recycling and Use of Recycled Ink									
Battery Recycling									
Mass Transit									
Total Savings (MTCO₂e)									
Miles Avoided									
Transportation									
Total Savings (MTCO₂e)	9.7	9.7	9.7	9.7	9.7	9.7	9.7	86.9	\$36,720
Hybrid Vehicles	10 cars (1/2 yr)	10 cars (1/2 yr)	10 cars (1/2 yr)	10 cars (1/2 yr)	10 cars (1/2 yr)	10 cars (1/2 yr)	10 cars (1/2 yr)	86.9	\$36,720
Electric Vehicles									
Biodiesel Vehicles									
Clean Construction Vehicles									
LNG Vehicles									
Alternate Fuel Vehicles (Zipcar)									
Smartway Transporters									
Bike Racks									
LEED Projects									
Total Savings (MTCO₂e)									
Silver - 10%									
Gold - 17%									
Platinum - 20%									
MTCO₂e Savings									
Total (MTCO₂e)	2,576.8	2,438.3	4,131.1	4,348.4	4,370.9	4,337.7	4,240.9	27,866.1	\$4,355,692
Energy Conservation	1,976.3	1,841.1	3,533.9	3,533.9	3,556.4	3,605.4	3,264.1	22,145.0	\$4,187,441
Water Conservation	7.0	5.6	5.6	5.6	5.6	5.6	5.6	40.7	\$51,101
Solid Waste Recycling	509.7	497.5	497.5	724.1	724.1	635.2	886.4	4,984.0	\$78,738
Green Landscaping	74.2	75.1	75.1	75.1	75.1	81.9	75.1	590.7	\$1,360
Electronics / EPEAT	0.0	9.4	9.4	0.0	0.0	0.0	0.0	18.8	\$332
Transportation	9.7	9.7	9.7	9.7	9.7	9.7	9.7	86.9	\$36,720



2013

St. John's University Additional Green MOU Accomplishments and Cost Savings

EnergyStar Building & Plant Partnership

During a 26-day period in April, 2013 St. John's competed in the third annual Campus Conservation Nationals (CCN) 2013. CCN's Compete to Reduce program is based on each participating school first logging energy consumption during a base period and then monitor the energy during the competition period, determine the energy reduced and calculate the reduction as a percentage of the base period. Results show St. John's finished in the top five schools in CCN 2013. Of the 120 participating schools, St. John's achieved a 16 percent energy reduction while engaging 9 residence buildings housing 3,000 students. St. John's energy reduction amounted to 83 thousand KWH in a twenty six day period.

New for 2013, St. John's started to develop a program entitled WattStopper which is an energy awareness campaign for students in the residence halls to understand how much energy they are consuming from their personal devices and building services (elevator and laundry). To develop the WattStopper program commercial, St. John's engaged eight student Resident Assistants (RAs) to document wattage consumption from 35 typical student energy consuming devices. Then, for a seven consecutive day period the eight RAs logged device run-time, counted laundry usage and elevator trips. The energy data was compiled and reported in a meeting with the RAs. The data revealed some interesting energy consumption patterns and is the basis for developing the WattStopper energy conservation program. Throughout CCN 2013 students working as Sustainability Coordinators campaigned for energy reduction based on the data collected.

WasteWise Partnership and Solid Waste Recycling

In order to bring attention to its campus-wide recycling program and motivate students, faculty and staff to recycle more, each year St. John's competes in RecycleMania. The RecycleMania 2013 tournament results placed St. John's 33rd place in a field of 273 participating schools in the Competition Division (percent recycling as a percentage of total waste) with a diversion rate of 49%. This ranking is a significant improvement over years past.

During the second week of May 2013 St. John's conducted its annual student move-out food and clothing drive and collected four thousand pounds of clothing donated to the Salvation Army.

This past winter and spring, St. John's developed a plan to increase its diversion rates with a target of 50%.

Waste Characterization Studies were completed in four types of buildings on the Queens Campus. Recycling surveys were conducted with 300 students face-to-face in the dining halls. Marketing materials and posters were generated for specific dining halls. St. John's has developed a plan to increase diversion rate in the dining halls by reducing municipal solid waste, and increasing recycling and composting. Current diversion rate is 29% - target diversion rate is 50%.

Initiatives Planned for the Next Six Months

- 1) Implement the plan to increase recycling, numerous items listed in WasteWise report.
- 2) Consolidate eight utility company electrical services into one main campus substation by installing underground high voltage feeders and switchgear.
- 3) Development of design drawings and specifications of a combined heat and power plant.
- 4) Participate in EPA's Food Waste Challenge.
- 5) Continue the work to achieve status of Tree Campus USA Institution for 2013.
- 6) Implement WattStopper, energy conservation program in the residence halls.
- 7) Conduct an energy audit and re-commissioning study and report to Department of Buildings as per NYC Local Law 87.
- 8) Work on plan to keep all campus grounds yard waste to be used for feedstock for on-site composting.