



**Georgian Court University**  
**Environmental Assessment:**  
**Green MOU SemiAnnual Report**  
**April 24, 2014**



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

Andrew Bellina, PE  
*Senior Policy Advisor*  
212-637-4126

Michael Poetzsch, PE  
Michael Wanser,  
Research Analyst

## Accomplishments

### Reductions of 13,460 MTCO<sub>2</sub>e



## Memorandum of Understanding

On March 12, 2012, Georgian Court 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 Georgian Court University has resulted in reducing energy, water and solid waste production across their entire operations.

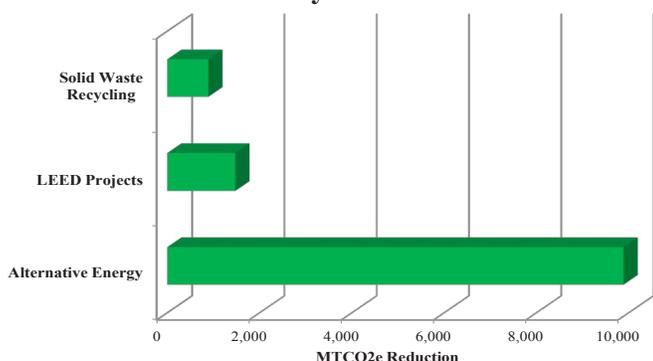
## Reduction in Environmental Footprint

This is the fourth update Georgian Court University 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, Georgian Court University has managed to reduce its carbon footprint by 13,460 MTCO<sub>2</sub>e\* and saved an estimated \$546,500 in operating expenses.

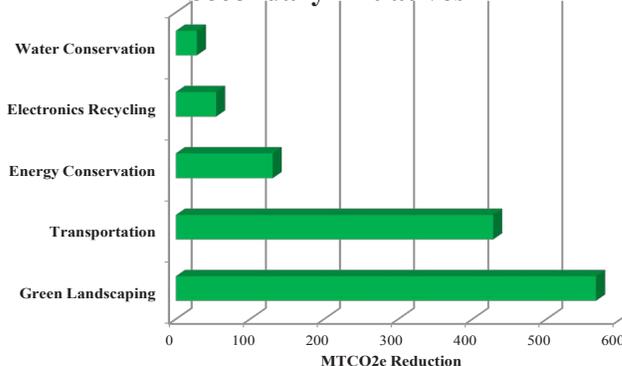
\*Metric Ton Carbon Dioxide Equivalent

Environmental Metrics	Total Sector (MTCO <sub>2</sub> e)
Energy Conservation	130.6
Alternative Energy	9,889.1
Water Conservation	28.3
Solid Waste Recycling	889.2
Green Landscaping	566.9
Electronics Recycling	54.3
Transportation	428.0
LEED Projects	1,473.6
<b>Total (MTCO<sub>2</sub>e)</b>	<b>13,460.1</b>

### 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<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 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 13,460 MTCO<sub>2</sub>e

## Greenhouse Gas Equivalencies

What does the reduction of 13,460 MTCO<sub>2</sub>e represent ?  
 The organization's effort is equivalent to any one of the following:

- Annual greenhouse gas emissions from 2,834 vehicles



- Carbon dioxide emissions from 1,514,572 gallons of gasoline



- Carbon dioxide emissions from 31,302 barrels of oil consumed



- Carbon dioxide emissions from the energy use of 1,228 homes for one year



- Carbon dioxide emissions from 560,833 propane tanks used for home barbeques



- Carbon dioxide emissions from gasoline carried by 178 tanker trucks



- Carbon dioxide emissions from burning 72.2 railcars' worth of coal (over 1 mile long)





Environmental Metrics	Mar 2012 MOU	Sep 2012 Update	Mar 2013 Update	Sep 2013 Update	Mar 2014 Update	Total Conversion (MTCO2e)	Cost Savings (est.)
<b>Energy Conservation/Energy Star</b>							
<b>Total Savings (MTCO2e)</b>	<b>25.2</b>	<b>25.2</b>	<b>26.5</b>	<b>26.7</b>	<b>27.0</b>	<b>130.6</b>	<b>\$31,610</b>
Miscellaneous Energy Conservation							
Web Based Energy Competition							
Lighting Project Fixtures/Motor & Transformers							
High Temp Hot Water Pipe Replacement							
HVAC, Chiller & Electrical							
Bulb Replacement (CFLs)	5000 kwh	5000 kwh	6500 kwh	6500 kwh	6500 kwh	21.0	\$3,696
Bulb Replacement (LEDs)	19,500 kwh	19,500 kwh	19,890 kwh	20,215 kwh	20,605 kwh	71.0	\$12,494
Gas Savings							
Fuel Oil Savings	750 gal	750 gal	750 gal	750 gal	750 gal	38.6	\$15,420
Steam Savings							
<b>Alternative Energy</b>							
<b>Total Savings (MTCO2e)</b>	<b>2058.7</b>	<b>1957.6</b>	<b>1957.6</b>	<b>1957.6</b>	<b>1957.7</b>	<b>9,889.1</b>	<b>(\$2,274)</b>
On-Site Solar (855 KW)	427.5 kwh	427.5 kwh	427.5 kwh	427.5 kwh	642.5 kwh	1.7	\$295
On-Site Wind							
On-Site Geothermal							
On-Site Combined Heat and Power							
Purchase of Green Energy/Green Power	2,891,000 kwh	2,749,000 kwh	2,749,000 kwh	2,749,000 kwh	2,749,000 kwh	9,887.5	(\$2,569)
<b>Water Conservation/WaterSense</b>							
<b>Total Savings (MTCO2e)</b>	<b>3.3</b>	<b>3.3</b>	<b>3.3</b>	<b>9.3</b>	<b>9.3</b>	<b>28.3</b>	<b>\$6,080</b>
Miscellaneous Water Conservation							
Low Flow/Hands Free Faucets							
Low Flow Toilets (30)	60,000 gal	60,000 gal	60,000 gal	60,000 gal	60,000 gal	0.7	\$610
Low Flow Shower Heads (83) new total Sept 2013	32,200 gal + 4200 kwh	32,200 gal + 4200 kwh	32,200 gal + 4200 kwh	95,450 gal + 12,450 kwh	95,450 gal + 12,450 kwh	27.4	\$5,283
Low Flow Urinals (8)	18,400 gal	18,400 gal	18,400 gal	18,400 gal	18,400 gal	0.2	\$187
Waterless Urinals							
<b>Solid Waste Recycling</b>							
<b>Total Savings (MTCO2e)</b>	<b>83.2</b>	<b>155.7</b>	<b>203.5</b>	<b>312.0</b>	<b>134.8</b>	<b>889.2</b>	<b>\$13,963</b>
Mixed Recyclables (includes Wastewise)							
Pallets Waste Avoided / Wood Recycled		125 lbs	125 lbs	85 tons	1 ton	211.9	\$3,445
Steel Recycled Offsite during Deconstruction				16 tons		28.8	\$640
Concrete / Asphalt Recycled during Deconstruction		12.5 tons	12.5 tons		6 tons	16.2	\$1,240
Recycled C&D Waste (construction waste)				9 tons	19 tons	6.9	\$1,120
Cardboard (construction/non-construction/sharp containers)	5.7 tons	5.7 tons	10.45 tons	5.5 tons	6.5 tons	105.3	\$1,354
Mixed Metal (construction/non-construction)		15 tons	15 tons		12 tons	166.7	\$1,680
Paper, Mixed	15.24 tons	15.24 tons	27.9 tons	12.75 tons	11.5 tons	290.9	\$3,305
Plastic, Mixed (bottles,construction/non-construction,sharp containers)		2.2 tons	2.2 tons			4.3	\$176
Can / Bottle Recycling	2.4 tons	2.4 tons		2 tons	2.5 tons	45.9	\$372
Blue Wrap Waste Reduction							
Mixed Organics		5.626 tons	5.626 tons			2.3	\$450



Environmental Metrics	Mar 2012 MOU	Sep 2012 Update	Mar 2013 Update	Sep 2013 Update	Mar 2014 Update	Total Conversion (MTCO2e)	Cost Savings (est.)
Food Donation (Waste diversion)							
Biosolids & Food Waste Recycling / Composting							
Fluorescent Bulbs		881 lbs	930 lbs		562.5 lbs	0.1	\$47
Ceiling Tiles Recycled							
Carpet Recycled		1 ton	1 ton			4.7	\$80
Waste Oil Recycled/Fats, Oils, Grease							
Magazines / Third Class Mail/Newspapers							
Office Paper/Phonebooks/Textbooks							
Dimensional Lumber							
Fly Ash/Glass							
Aluminum Cans							
HDPE / LDPE /PET							
Copper Wire					0.75 tons	3.7	\$30
Tires					0.25 tons	0.1	\$10
Appliances							
Non-Ferrous Metals							
Ballast		285 lbs	395 lbs			1.3	\$14
<b>Green Procurement</b>							
<b>Total Savings (MTCO2e)</b>						<b>0.0</b>	<b>\$0</b>
Re-Use/Purchase of Materials w/ Recy 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 Concr/Asphalt during Construc							
Use of Coal Combustion Products							
<b>Green Landscaping</b>							
<b>Total Savings (MTCO2e)</b>	<b>108.3</b>	<b>116.3</b>	<b>115.1</b>	<b>110.2</b>	<b>117.0</b>	<b>566.9</b>	<b>\$58,823</b>
Green Roofs	2,450 sq ft	2,450 sq ft	2,450 sq ft	2,450 sq ft	2,450 sq ft	13.4	
Porous Pavement							
Grass / Green Space							
Low / No Mow Area	272,000 sq ft	272,000 sq ft	272,000 sq ft	272,000 sq ft	272,000 sq ft	140.5	\$37,500
Re-use of Collected Stormwater	200 gal	200 gal	200 gal	200 gal	1000 gal	0.0	\$4
On-Site Use of Compost / Mulch		20 tons	11 tons			6.2	\$1,240
Moisture Sensing Sprinklers (now covers 420,319 sq ft)	1,500,000 gal	1,500,000 gal	1,500,000 gal	1,500,000 gal	2,700,000 gal	20.4	\$17,679
Number / Acres of Trees	20 trees	20 trees	34 trees	64 trees	64 trees	8.5	
Reflective Roof	97,590 sq ft	97,590 sq ft	97,590 sq ft	97,590 sq ft	97,590 sq ft	366.0	
Synthetic Turf							
Native Plants							
Leaves Composted		20 tons	20 tons		20 tons	12.0	\$2,400



Environmental Metrics	Mar 2012 MOU	Sep 2012 Update	Mar 2013 Update	Sep 2013 Update	Mar 2014 Update	Total Conversion (MTCO2e)	Cost Savings (est.)
<b>Electronics Recycling</b>							
<b>Total Savings (MTCO2e)</b>		<b>28.6</b>	<b>19.8</b>		<b>5.9</b>	<b>54.3</b>	<b>\$466</b>
Recycling of Electronics		100 various items	55 various items		3.67 tons	8.6	\$214
Re-Use/Donation of Used Computers		204 various items	128 various items			9.5	\$162
Toner/Ink Recycling and Use of Recycled Ink		500 cartridges	425 cartridges			35.5	\$74
Battery Recycling		335 lbs	489 lbs			0.7	\$16
<b>Mass Transit</b>							
<b>Total Savings (MTCO2e)</b>							
Miles Avoided							
<b>Transportation</b>							
<b>Total Savings (MTCO2e)</b>	<b>75.8</b>	<b>83.8</b>	<b>86.6</b>	<b>88.1</b>	<b>93.7</b>	<b>428.0</b>	<b>\$178,490</b>
Hybrid Vehicles		1	1	1	1	3.9	\$3,000
Electric Vehicles		5	7	8	12	45.1	\$26,400
Biodiesel Vehicles							
Commuter Gas Savings	8500 gal	8500 gal	8500 gal	8500 gal	8500 gal	379.1	\$149,090
Clean Construction Vehicles							
LNG Vehicles							
Alternate Fuel Vehicles (Zipcar)							
Smartway Transporters							
Bike Racks		3	3	3	3		
<b>LEED Projects</b>							
<b>Total Savings (MTCO2e)</b>	<b>294.7</b>	<b>294.7</b>	<b>294.7</b>	<b>294.7</b>	<b>294.7</b>	<b>1,473.6</b>	<b>\$259,337</b>
Silver - 30%							
Gold - 40% (Wellness Center 69,510 sq ft)	413,946 kwh	413,946 kwh	413,946 kwh	413,946 kwh	413,946 kwh	1,473.6	\$259,337
Platinum - 45%							
<b>Misc. - Further Clarification</b>							
<b>Total Savings (MTCO2e)</b>							
NOX (equipment only)							
NOX (includes vehicles)							
<b>MTCO2e Savings</b>							
Total (MTCO2e)	2,649.2	2,665.2	2,707.0	2,798.5	2,640.1	13,460.1	\$546,496
Energy Conservation	25.2	25.2	26.5	26.7	27.0	130.6	\$31,610
Alternative Energy	2,058.7	1,957.6	1,957.6	1,957.6	1,957.7	9,889.1	(\$2,274)
Water Conservation	3.3	3.3	3.3	9.3	9.3	28.3	\$6,080
Solid Waste	83.2	155.7	203.5	312.0	134.8	889.2	\$13,963
Green Landscaping	108.3	116.3	115.1	110.2	117.0	566.9	\$58,823
Electronics	0.0	28.6	19.8	0.0	5.9	54.3	\$466
Transportation	75.8	83.8	86.6	88.1	93.7	428.0	\$178,490
LEED Projects	294.7	294.7	294.7	294.7	294.7	1,473.6	\$259,337



2014

## Georgian Court University Additional Green MOU Accomplishments

---

- Georgian Court University continues to offset all of their electrical power use with Green e-certified Renewable Energy Certificates (RECs). They are also continuing participation in Recyclemania, and their weekly sustainability newsletter, as well as working to restore turf health through the use of low impact management strategies (e.g. low mow, no mow areas). GCU's new gravel rain garden is achieving 95% reduction in nitrogen compounds (nitrate, nitrite, ammonia, organic nitrogen).
- GCU replaced an additional gasoline powered vehicle with an electric only service vehicle.
- GCU again held 4 day work weeks throughout the summer in order to reduce the cooling demand by having three day weekends.
- GCU is working to assess effectiveness of energy saving ceramic window films in A+S. They are also in the process of collecting data on this summer's energy use to compare to previous years.
- Groundbreaking for experimental gravel wetlands is anticipated Spring 2014.
- Construction of an approx. 7000 sq feet community garden is complete. This garden will be used to provide demonstrations of organic vegetable cultivation, sustainable turf management, perennial and pollinator plantings, a meditation area and an outdoor classroom. Vegetables produced in the garden will be donated to needy families through the catholic charities network. The area is now fenced, operational with additional vegetable beds, native plant beds, and turfgrass area.
- Regular shower heads were replaced with low flow units throughout the dormitory facilities this summer.
- Letters were sent to nearly 400 incoming residents on 2 occasions, one in the summer and one in the fall. The first introduced the idea of sustainability and encouraged purchase of energy star appliances and power bars that automatically shut off power to electronics in sleep mode. The second encouraged sustainable use of thermostats and window cooling units and discussed strategies to avoid unnecessary waste of water and power (turning lights out when leaving room, reporting dripping taps etc).
- Thermometers were placed into each room in the dorm so that students can visually get reinforcement of the temperature in their rooms. They then reminded them of desired targets (no less than 67 in summer no more than 72 in winter).
- A sustainability workshop was offered to all incoming students during orientation week. More than 100 students attended the 1 hour workshop that informed them about the various sustainability initiatives going on at GCU.
- Reusable water bottles and totes were provided to all students as part of their welcome package during orientation.
- GCU was successful in its application for grants from the Funds for Higher Education made available through the State Bond initiative to upgrade and renovate several spaces on campus. In that project are a number of upgrades to boilers and lighting and electrical systems which will allow GCU to further improve energy efficiency of their campus infrastructure. Those monies have not yet been released but GCU hopes to start work on those improvements in 2014.