



Kean University
Environmental Assessment:
MOU SemiAnnual Report
November 18, 2015

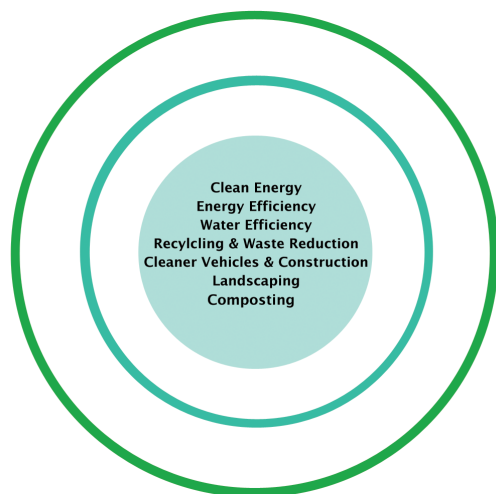


Environmental Protection Agency
Region 2

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212-637-4147

Accomplishments

Reductions of 8,353 MTCO₂e



Memorandum of Understanding

On January 20, 2011, Kean 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 Kean University has resulted in reducing energy, water and solid waste production across campus operations.

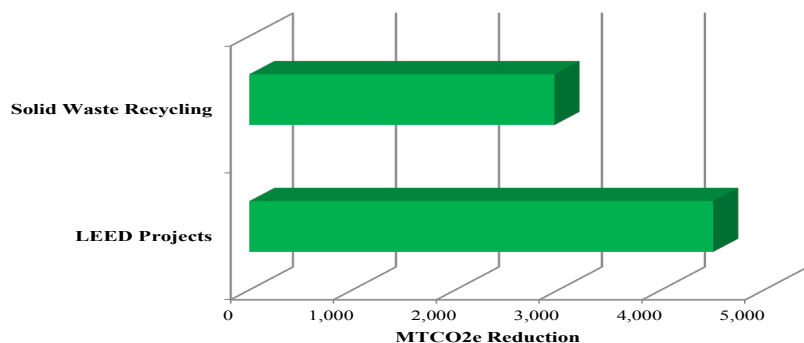
Reduction in Environmental Footprint

This is the eighth update Kean University has provided 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 8,353 MTCO₂e* and saved an estimated \$860,375 in operating expenses.

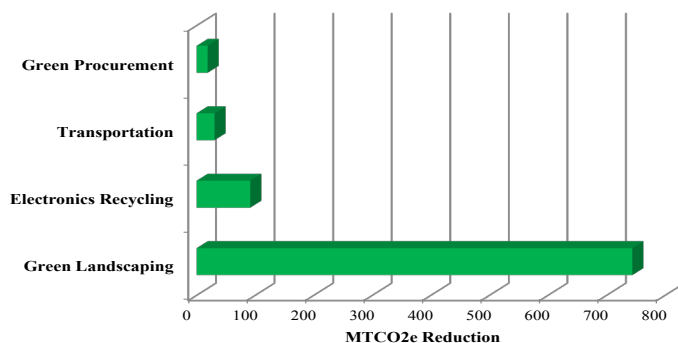
*Metric Ton Carbon Dioxide Equivalent

Environmental Metrics	Total Sector (MTCO ₂ e)
Solid Waste Recycling	2,963.3
Green Procurement	18.8
Green Landscaping	744.1
Electronics Recycling	91.6
Transportation	30.6
LEED Projects	4,505.1
Total (MTCO ₂ e)	8,353.4

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 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 8,353 MTCO₂e



Greenhouse Gas Equivalencies

What does the reduction of 8,353 MTCO₂e represent ?

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

- Annual greenhouse gas emissions from 1,759 vehicles



- Carbon dioxide emissions from 939,957 gallons of gasoline



- Carbon dioxide emissions from 19,427 barrels of oil consumed



- Carbon dioxide emissions from the energy use of 762 homes for one year



- Carbon dioxide emissions from 252,383 propane tanks used for home barbeques



- Carbon dioxide emissions from gasoline carried by 111 tanker trucks



- Carbon dioxide emissions from burning 44.8 railcars' worth of coal (approx. 2/3 mi. long)



Environmental Metrics	Jan 2011 MOU	Jul 2011 Update	Jan/Jul 2012 Updates	Jan/Jul 2013 Updates	Jan 2014 Update	Jul 2014 Update	Jan/Jul 2015 Updates	Total Conversion (MTCO2e)	Cost Savings (est.)
Energy Conservation/Energy Star									
Total Savings (MTCO2e)								0	\$0
Miscellaneous Energy Conservation			included in LEED sav- ings	included in LEED sav- ings	included in LEED sav- ings	included in LEED sav- ings	included in LEED sav- ings		
Alternative Energy									
Total Savings (MTCO2e)								0	\$0
Water Conservation/WaterSense									
Total Savings (MTCO2e)								0	\$0
Miscellaneous Water Conservation			included in LEED sav- ings	included in LEED sav- ings	included in LEED sav- ings	included in LEED sav- ings	included in LEED sav- ings		
Solid Waste Recycling									
Total Savings (MTCO2e)	593	587	183	404	244	293	666	2,963	\$39,614
Mixed Recyclables (includes Waste- Wise)									
Pallets Waste Avoided / Wood Re- cycled									
Steel Recycled Offsite during Decon- struction									
Concrete Recycled									
Asphalt Recycled									
Recycled C&D Waste (construction waste)									
Cardboard (construction/non-construc- tion/sharp containers)	118.12 tons	118.12 tons	13.87 tons	40.41 tons	24.41 tons	31 tons	67.06 tons	1,289	\$16,520
Mixed Metal (ballast)			0.45 tons	1.65 tons				9	\$84
Paper, Mixed	16.77 tons	16.77 tons	13.87 tons	40.41 tons	24.41 tons	31 tons	67.06 tons	755	\$8,412
Plastic, Mixed (bottles,construction/ non-construction,sharp containers)									
Can / Bottle Recycling	32.45 tons	32.45 tons	16.75 tons	23.48 tons	14.92 tons	16.78 tons	36.77 tons	880	\$6,944
Blue Wrap									
Mixed Organics									
Food Donation (Waste diversion)									
Biosolids and Food Waste Recycling / Composting			68,447 lbs	126,028 lbs	73,517 lbs	50,322 lbs	56,236 lbs	28	\$7,491
Fluorescent Bulbs			2700 lbs	1900 lbs	2156 lbs			0	\$135
Ceiling Tiles Recycled									
Carpet Recycled									
Waste Oil Recycled									
Magazines / Third Class Mail									
Newspapers									

Environmental Metrics	Jan 2011 MOU	Jul 2011 Update	Jan/Jul 2012 Updates	Jan/Jul 2013 Updates	Jan 2014 Update	Jul 2014 Update	Jan/Jul 2015 Updates	Total Conversion (MTCO2e)	Cost Savings (est.)
Dimensional Lumber									
Fly Ash									
Aluminum Cans									
Glass									
HDPE									
LDPE									
PET									
Appliances									
Non-Ferrous Metals									
Fats, Oils, Grease									
Regulated Medical Waste (as Mixed Recyclables)				720 lbs	600 lbs			2	\$26
Medical Device Reprocessing									
Elizabeth River Cleanup			approx 85 lb					0	\$2
Green Procurement									
Total Savings (MTCO2e)					19			19	\$0
Purchase of Materials with Recycled Content					16.9 tons 100%PC			19	
Green Landscaping									
Total Savings (MTCO2e)	50	25	50	52	189	189	189	744	\$0
Green Roofs									
Porous Pavement									
Grass									
Low / No Mow Area									
Green Space									
Re-use of Collected Stormwater									
On-Site Use of Compost / Mulch									
Moisture Sensing Sprinklers									
Number / Acres of Trees	600 trees	600 trees	600 trees	638 trees	4500 trees	4500 trees	4500 trees	744	
Reflective Roof									
Synthetic Turf									
Native Plants									
Leaves Composted									
Electronics Recycling									
Total Savings (MTCO2e)	8	8	17	21	4		34	92	\$771
Recycling of Electronics			3500 lbs	8550 lbs	3314 lbs		12,000 lbs	22	\$547
Re-Use/Donation of Used Computers									
Toner/Ink Recycling and Use of Re-cycled Ink	200 car- tridges	200 car- tridges	1400 lbs	1300 lbs	152 lbs		2450 lbs	66	\$138
Battery Recycling			500 lbs	2430 lbs	299 lbs		1070 lbs	3	\$86

Environmental Metrics	Jan 2011 MOU	Jul 2011 Update	Jan/Jul 2012 Updates	Jan/Jul 2013 Updates	Jan 2014 Update	Jul 2014 Update	Jan/Jul 2015 Updates	Total Conversion (MTCO2e)	Cost Savings (est.)
Mass Transit									
Total Savings (MTCO2e)									
Miles Avoided									
Transportation									
Total Savings (MTCO2e)			4	9	4	4	9	31	\$27,167
Hybrid Vehicles									
Electric Vehicles (15)			9750 mi	19,600 mi	9800 miles	9800 miles	19,600 miles	31	\$27,167
Biodiesel Vehicles									
Clean Construction Vehicles									
LNG Vehicles									
Alternate Fuel Vehicles (Zipcar)									
Smartway Transporters									
Bike Racks									
LEED Projects									
Total Savings (MTCO2e)			816	890	700	700	700	4,505	\$792,823
Silver - 30% Kean-Ocean Gateway Building (80,000 sq ft)					357,312 kwh	357,312 kwh	357,312 kwh	1,018	\$179,085
Gold - 40% NJCTM Building (105,000 sq ft)			1,146,376 kwh	1,250,592 kwh	625,296 kwh	625,296 kwh	625,296 kwh	3,487	\$613,738
Platinum - 45%									
MTCO2e Savings									
Total (MTCO2e)	651	619	1,071	1,376	1,160	1,186	1,597	8,353	\$860,375
Energy	0	0	0	0	0	0	0	0	\$0
Alternative Energy	0	0	0	0	0	0	0	0	\$0
Water	0	0	0	0	0	0	0	0	\$0
Solid Waste	593	587	183	404	244	293	666	2,963	\$39,614
Green Procurement	0	0	0	0	19	0	0	19	\$0
Green Landscaping	50	25	50	52	189	189	189	744	\$0
Electronics	8	8	17	21	4	0	34	92	\$771
Transportation	0	0	4	9	4	4	9	31	\$27,167
LEED Projects	0	0	816	890	700	700	700	4,505	\$792,823



2015

Kean University Additional Green MOU Accomplishments and Cost Savings

Energy Management, Green Power, Energy Conservation and Reduction of the Kean Carbon Footprint

Zero Emission Vehicles

Kean's Facilities and Campus Planning uses a fleet of 15 Zero Emission Vehicles to transport personnel and materials around campus. The use of these vehicles avoided the use of gas-powered vehicles for approximately 9800 miles during this reporting period.

Incentives for Students and Staff to use Mass Transit

Kean University continues to partner with New Jersey Transit to offer fulltime students a 25% discount on their monthly bus, train or light rail pass for travel between their homes and campus. Similarly, the Commuter Tax\$ave program encourages employees to use mass transit by allowing them to use pre-tax dollars to pay for commuting costs.

Summer Hours

Kean observes a four-day work week for most staff (excluding Campus Police, Facilities and Campus Planning, and other essential personnel and services) and all students during the summer months. The result is a significant reduction in cooling and lighting needs, as most buildings are unoccupied on Fridays, Saturdays, and Sundays from mid-May to mid-August.

Organics / Food Waste Composting

Since inception, Kean University has diverted over 409,000 pounds of food scraps from landfills. All of the compost produced is used on campus for landscaping, and on Kean's farm and orchard that, in turn, supply fresh produce for our restaurants and cafeterias.

Incorporating Green Technologies in New and Renovated Buildings

On January 21, 2014, Kean University opened the Green Lane Building. This 103,000 square foot academic building is equipped with energy-saving features including high efficiency glass widows with programmable shades, occupancy sensors regulating the lighting in offices and classrooms, and LED accent lighting throughout.

Hazardous and Universal Waste Management

Electronic waste, spent light bulbs, batteries, ballasts, and toner cartridges continue to be collected for recycling, and the next pickup date will be in July, 2014.

Activities and Events in Support of Sustainability

Garden State GreenFest

Kean hosted and co-sponsored the Garden State GreenFest on March 14 and 15, 2014. The two-day event welcomes thousands of visitors to campus to view exhibits and attend lectures on all aspects of sustainable living practices.

Earth Day River Cleanup

On April 23, 2015 Kean personnel and representatives from Union County organized a cleanup of the Elizabeth River. Sixty-two people participated, and the efforts yielded 62 large bags of trash and 21 large bags of recyclables.