



Kean University
Environmental Assessment:
MOU SemiAnnual Report
March 6, 2014



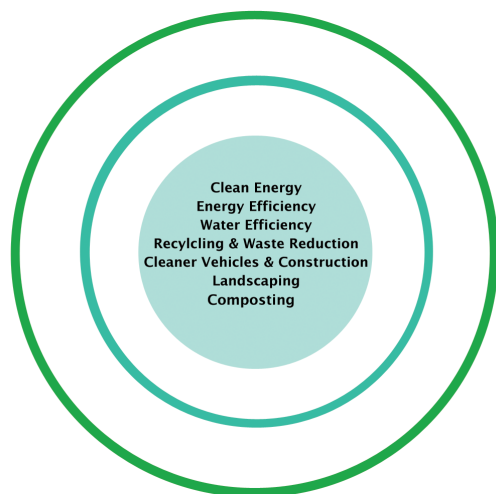
Environmental Protection Agency
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Accomplishments

Reductions of 4,867 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.

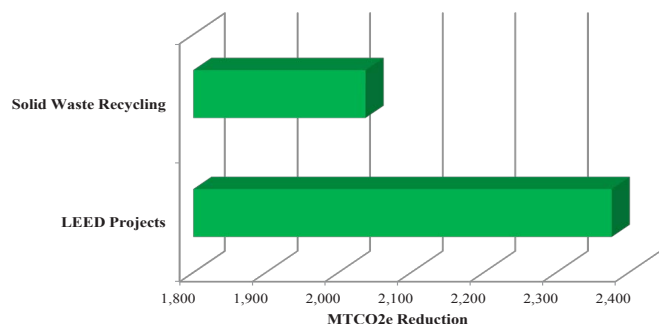
Reduction in Environmental Footprint

This is the sixth 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 4,867 MTCO₂e* and saved an estimated \$400,000 in operating expenses.

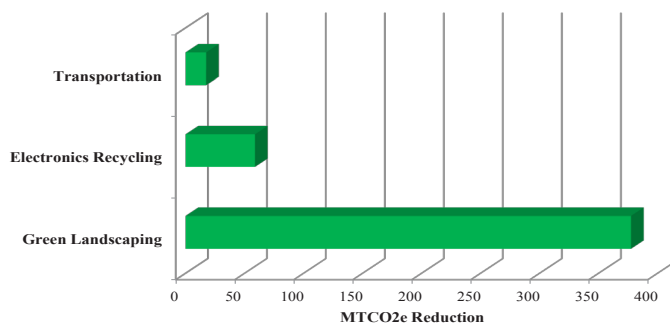
*Metric Ton Carbon Dioxide Equivalent

Environmental Metrics	Total Sector (MTCO ₂ e)
Solid Waste Recycling	2,037.2
Green Landscaping	377.6
Electronics Recycling	58.9
Transportation	17.5
LEED Projects	2376.3
Total (MTCO ₂ e)	4,867.4

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.

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 4,867 MTCO₂e



Greenhouse Gas Equivalencies

What does the reduction of 4,867 MTCO₂e represent ?

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

- Annual greenhouse gas emissions from 1014 vehicles



- Carbon dioxide emissions from 545,628 gallons of gasoline



- Carbon dioxide emissions from 11,319 barrels of oil consumed



- Carbon dioxide emissions from the energy use of 243 homes for one year



- Carbon dioxide emissions from 202,792 propane tanks used for home barbeques



- Carbon dioxide emissions from gasoline carried by 64.2 tanker trucks



- Carbon dioxide emissions from burning 21 railcars' worth of coal (approx. 1/3 mi. long)



Environmental Metrics	Jan 2011 MOU	Jul 2011 Update	Jan 2012 Update	Jul 2012 Update	Jan 2013 Update	Jul 2013 Update	Jan 2014 Update	Total Conversion (MTCO ₂ e)	Cost Savings (est.)
Energy Conservation/Energy Star									
Total Savings (MTCO₂e)								0.0	\$0
Miscellaneous Energy Conservation			incl in LEED	incl in LEED	incl in LEED	incl in LEED	incl in LEED		
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/LEDs)									
Gas Savings									
Fuel Oil Savings									
Steam Savings									
Alternative Energy									
Total Savings (MTCO₂e)								0.0	\$0
On-Site Solar/Wind/Geothermal									
On-Site Combined Heat and Power									
Purchase of Green Energy/Green Power									
Water Conservation/WaterSense									
Total Savings (MTCO₂e)								0.0	\$0
Miscellaneous Water Conservation			incl in LEED	incl in LEED	incl in LEED	incl in LEED	incl in LEED		
Low Flow/Hands Free Faucets									
Low Flow Toilets									
Low Flow Shower Heads									
Low Flow Urinals									
Waterless Urinals									
Solid Waste Recycling									
Total Savings (MTCO₂e)	586.5	586.5	0.0	183.4	170.6	233.6	276.6	2,037.2	\$27,816
Mixed Recyclables (includes WasteWise)									
Pallets Waste Avoided / Wood Recycled									
Steel Recycled Offsite during Deconstruction									
Concrete/Asphalt Recycled									
Recycled C&D Waste (construction waste)									
Cardboard	118.12 tons	118.12 tons		13.87 tons	16 tons	24.41 tons	24.41 tons	979.4	\$12,597
Mixed Metal (ballast)				0.45 tons	1.65 tons			41.1	\$415
Paper, Mixed	16.77 tons	16.77 tons		13.87 tons	16 tons	24.41 tons	24.41 tons	395.0	\$4,489
Plastic, Mixed (bottles,construction/non-construction,sharp containers)									
Can / Bottle Recycling	32.45 tons	32.45 tons		16.75 tons	10.39 tons	13.09 tons	14.92 tons	592.4	\$4,802
Blue Wrap									
Mixed Organics									
Food Donation (Waste diversion)									
Biosolids/Food Wst Recycle/ Compost				68,447 lbs	66,201 lbs	59,827 lbs	73517 lbs	26.7	\$5,349
Fluorescent Bulbs				2700 lbs		1900 lbs	2156 lbs	0.4	\$135
Ceiling Tiles Recycled									

Environmental Metrics	Jan 2011 MOU	Jul 2011 Update	Jan 2012 Update	Jul 2012 Update	Jan 2013 Update	Jul 2013 Update	Jan 2014 Update	Total Conversion (MTCO ₂ e)	Cost Savings (est.)
Carpet Recycled									
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									
Reg Medical Waste (as Mixed Recyclables)						720 lbs	600 lbs	1.8	\$26
Medical Device Reprocessing									
Elizabeth River Cleanup				approx 85 lb				0.1	\$2
Green Procurement									
Total Savings (MTCO₂e)							16.9	18.8	\$0
Purchase of Materials with Recycled Content							16.9	18.8	
Purchase / Use of Compost Socks									
Purchase of EPEAT Products									
Use of Recycled Steel during Construction									
Use of Recycled Iron during Construction							785 desks		
Use of Recycled Plastic during Construction							908 chairs		
Use of Recycled Alum during Construction									
Use of Recycled Concrete / Asphalt during Construction									
Use of Coal Combustion Products									
Green Landscaping									
Total Savings (MTCO₂e)	50.3	25.2	25.2	25.2	25.2	26.8	377.6	377.6	\$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	600 trees	600 trees	638 trees	4500 trees	377.6	
Reflective Roof									
Synthetic Turf									
Native Plants									
Leaves Composted									

Environmental Metrics	Jan 2011 MOU	Jul 2011 Update	Jan 2012 Update	Jul 2012 Update	Jan 2013 Update	Jul 2013 Update	Jan 2014 Update	Total Conversion (MTCO2e)	Cost Savings (est.)
Electronics Recycling									
Total Savings (MTCO2e)	8.2	8.2	8.2	9.3	18.5	3.5	3.0	58.9	\$458
Recycling of Electronics				3500 lbs	5500 lbs	3050 lbs	3314 lbs	12.3	\$307
Re-Use/Donation of Used Computers									
Toner/Ink Recycl and Use of Recycl Ink	200 cartridges	200 cartridges	200 cartridges	600 lbs	1300 lbs		152 lbs	44.0	\$86
Battery Recycling				500 lbs	1050 lbs	1380 lbs	299 lbs	2.6	\$65
Mass Transit									
Total Savings (MTCO2e)									
Miles Avoided									
Transportation									
Total Savings (MTCO2e)				4.4	4.4	4.4	4.4	17.5	\$21,728
Hybrid Vehicles									
Electric Vehicles (15)				9750 miles	9800 miles	9800 miles	9800 miles	17.5	\$21,728
Biodiesel Vehicles									
Clean Construction Vehicles									
LNG Vehicles									
Alternate Fuel Vehicles (Zipcar)									
Smartway Transporters									
Bike Racks									
LEED Projects									
Total Savings (MTCO2e)			386.8	464.2	464.2	464.2	596.8	2,376.3	\$401,075
Silver - 30% Kean-Ocean Gateway Bldg (80,000 sq ft)						not yet open	178,656 kwh	132.6	\$22,386
Gold - 40% NJCTM Building (105,000 sq ft)			521,080 kwh	625,296 kwh	625,296 kwh	625,296 kwh	625,296 kwh	2,243.7	\$378,690
Platinum - 45%									
Misc. - Further Clarification									
Total Savings (MTCO2e)									
NOX (equipment only)									
NOX (includes vehicles)									
MTCO2e Savings									
Total (MTCO2e)	645.0	619.9	420.2	686.5	682.8	732.4	1,258.4	4,867.4	\$451,077
Energy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$0
Alternative Energy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$0
Water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$0
Solid Waste	586.5	586.5	0.0	183.4	170.6	233.6	276.6	2,037.2	\$27,816
Green Landscaping	50.3	25.2	25.2	25.2	25.2	26.8	377.6	377.6	\$0
Electronics	8.2	8.2	8.2	9.3	18.5	3.5	3.0	58.9	\$458
Transportation	0.0	0.0	0.0	4.4	4.4	4.4	4.4	17.5	\$21,728
LEED Projects	0.0	0.0	386.8	464.2	464.2	464.2	596.8	2,376.3	\$401,075



2014

Kean University Additional Green MOU Accomplishments and Cost Savings

Energy Management, Green Power and Energy Conservation

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.

Kean observes a four-day (M-TH) 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.

Incorporating Green Technologies in New and Renovated Buildings and Leadership in Energy and Environmental Design (LEED)

Kean has partnered with Ocean County College in the construction of an 80,000 sq ft building on the Ocean County College campus. The Kean-Ocean Gateway Building includes 25 classrooms, a large lecture hall, computer labs, seminar and conference rooms, and offices for 56 faculty members. It was designed and constructed to LEED Silver standards, and open on October 2, 2013. A significant portion of Kean's office furniture recently purchased utilized recycled content.

Activities and Events in Support of Sustainability

Kean hosted the Garden State GreenFest in May, 2013. The two-day event brought approximately 3000 participants to Kean's campus to view exhibits and attend lectures on all aspects of sustainable living practices.

On June 14 and 15th, Kean University co-sponsored BioBlitz, a 24 hour event in which scientists, naturalists and the public work together to document all of the species in three Union County parks in Cranford, Kenilworth, Mountainside, Union Township and Westfield.