



Kean University
Environmental Assessment:
MOU SemiAnnual Report
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Environmental Protection Agency
Region 2

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Accomplishments

Reductions of 3,782 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.

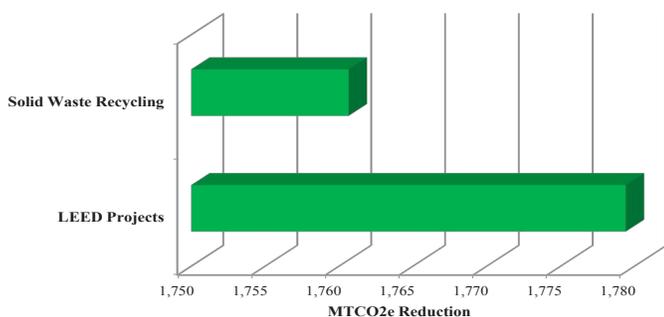
Reduction in Environmental Footprint

This is the fifth 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 3,782 MTCO₂e* and saved an estimated \$340,000 in operating expenses.

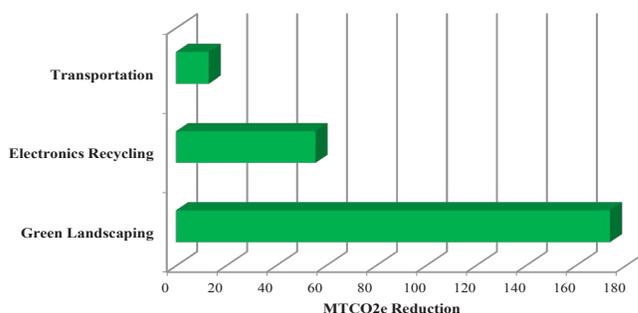
*Metric Ton Carbon Dioxide Equivalent

Environmental Metrics	Total Sector (MTCO ₂ e)
Solid Waste Recycling	1,760.7
Green Landscaping	173.8
Electronics Recycling	55.8
Transportation	13.1
LEED Projects	1,779.4
Total (MTCO ₂ e)	3,782.8

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 3,782 MTCO₂e

Greenhouse Gas Equivalencies

What does the reduction of 3,782 MTCO₂e represent ?
The organization's effort is equivalent to any one of the following:

- Annual greenhouse gas emissions from 788 vehicles



- Carbon dioxide emissions from 424,081 gallons of gasoline



- Carbon dioxide emissions from 8,797 barrels of oil consumed



- Carbon dioxide emissions from the energy use of 195 homes for one year



- Carbon dioxide emissions from 157,617 propane tanks used for home barbeques



- Carbon dioxide emissions from gasoline carried by 49.9 tanker trucks



- Carbon dioxide emissions from burning 16.3 railcars' worth of coal (approx. 1/4 mi. long)





Environmental Metrics	Jan 2011 MOU	Jul 2011 Update	Jan 2012 Update	Jul 2012 Update	Jan 2013 Update	Jul 2013 Update	Total Conversion (MTCO2e)	Cost Savings (est.)
Energy Conservation/Energy Star								
Total Savings (MTCO2e)							0.0	\$0
Miscellaneous Energy Conservation			included in LEED savings					
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								
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)							0.0	\$0
Miscellaneous Water Conservation			included in LEED savings					
Low Flow/Hands Free Faucets								
Low Flow Toilets / Urinals								
Low Flow Shower Heads								
Waterless Urinals								
Solid Waste Recycling								
Total Savings (MTCO2e)	586.5	586.5	0.0	183.4	170.6	233.6	1,760.7	\$23,420
Mixed Recyclables (includes WasteWise)								
Pallets Waste Avoided / Wood Recycled								
Steel Recycled Offsite during Deconstruction								
Concrete Recycled								
Asphalt Recycled								
Recycled C&D Waste (construction waste)								
Cardboard (construction/non-construction/sharp containers)	118.12 tons	118.12 tons		13.87 tons	16 tons	24.41 tons	903.5	\$11,621
Mixed Metal (ballast)				0.45 tons	1.65 tons		8.3	\$84
Paper, Mixed	16.77 tons	16.77 tons		13.87 tons	16 tons	24.41 tons	309.1	\$3,513
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	518.8	\$4,205
Blue Wrap								
Mixed Organics								



Environmental Metrics	Jan 2011 MOU	Jul 2011 Update	Jan 2012 Update	Jul 2012 Update	Jan 2013 Update	Jul 2013 Update	Total Conversion (MTCO2e)	Cost Savings (est.)
Food Donation (Waste diversion)								
Biosolids and Food Waste Recycling / Composting				68,447 lbs	66,201 lbs	59,827 lbs	19.5	\$3,889
Fluorescent Bulbs				2700 lbs		1900 lbs	0.3	\$92
Ceiling Tiles Recycled								
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								
Regulated Medical Waste (as Mixed Recyclables)						720 lbs	1.0	\$14
Medical Device Reprocessing								
Elizabeth River Cleanup				approx 85 lb			0.1	\$2
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)	50.3	25.2	25.2	25.2	25.2	26.8	173.8	\$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	173.8	
Reflective Roof								



Environmental Metrics	Jan 2011 MOU	Jul 2011 Update	Jan 2012 Update	Jul 2012 Update	Jan 2013 Update	Jul 2013 Update	Total Conversion (MTCO2e)	Cost Savings (est.)
Synthetic Turf								
Native Plants								
Leaves Composted								
Electronics Recycling								
Total Savings (MTCO2e)	8.2	8.2	8.2	9.3	18.5	3.5	55.8	\$386
Recycling of Electronics				3500 lbs	5500 lbs	3050 lbs	9.6	\$241
Re-Use/Donation of Used Computers								
Toner/Ink Recycling and Use of Recycled Ink	200 cartridges	200 cartridges	200 cartridges	600 lbs	1300 lbs		43.9	\$86
Battery Recycling				500 lbs	1050 lbs	1380 lbs	2.3	\$59
Mass Transit								
Total Savings (MTCO2e)								
Miles Avoided								
Transportation								
Total Savings (MTCO2e)				4.4	4.4	4.4	13.1	\$16,289
Hybrid Vehicles								
Electric Vehicles (15)				9750 miles	9800 miles	9800 miles	13.1	\$16,289
Biodiesel Vehicles								
Clean Construction / LNG Vehicles								
Alternate Fuel Vehicles (Zipcar)								
Smartway Transporters								
Bike Racks								
LEED Projects								
Total Savings (MTCO2e)			386.8	464.2	464.2	464.2	1,779.4	\$300,340
Silver - 30% Kean-Ocean Gateway Building (80,000 sq ft)						not yet open		
Gold - 40% NJCTM Building (105,000 sq ft)			521,080 kwh	625,296 kwh	625,296 kwh	625,296 kwh	1,779.4	\$300,340
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	3,782.8	\$340,435
Energy	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
Water	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	1,760.7	\$23,420
Green Landscaping	50.3	25.2	25.2	25.2	25.2	26.8	173.8	\$0
Electronics	8.2	8.2	8.2	9.3	18.5	3.5	55.8	\$386
Transportation	0.0	0.0	0.0	4.4	4.4	4.4	13.1	\$16,289
LEED Projects	0.0	0.0	386.8	464.2	464.2	464.2	1,779.4	\$300,340



2013

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 is being constructed to LEED Silver standards, and is expected to open in the fall of 2013.

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.