



MEMORANDUM OF UNDERSTANDING

Between

THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

And

KEAN UNIVERSITY

I. Purpose

The purpose of this Memorandum of Understanding (hereinafter referred to as "MOU") is to create formally a mutually beneficial working relationship between the United States Environmental Protection Agency (hereinafter referred to as "EPA") and Kean University (hereinafter referred to as "Kean"). Kean is committed to working with the EPA to launch new initiatives and become a leader in sustainability practices.

II. Background

In the October 20, 2006 issue of *The Chronicle of Higher Education*, the cover story was about creating sustainable universities. The subtitle was "With great fanfare, universities are trumpeting their efforts to make society more equitable and environmentally healthy. Will they succeed?"

Colleges and Universities are uniquely positioned to impact the behavior of future generations by enacting sustainable policies and practices. Institutions of higher education are increasingly being viewed not only as locations where students are educated, future teachers are prepared, and research is conducted; they are also being viewed as locations that provide examples of how society can move toward sustainability. They are becoming locations where demonstration projects that contribute to sustainability are developed and evaluated. These efforts extend to facilities, purchasing, academics, and student life.

The mission of the Environmental Protection Agency ("EPA") is to protect human health and the environment. EPA works to develop and enforce regulations that implement environmental laws enacted by Congress. In recent years, between 40 and 50 percent of EPA's enacted budgets have provided direct support through grants to State environmental programs. At laboratories located throughout the nation, the EPA works

to assess environmental conditions and to identify, understand, and solve current and future environmental problems. The EPA works through its headquarters and regional offices partnering with over 10,000 industries, businesses, nonprofit organizations, and state and local governments, on over 40 voluntary pollution prevention programs and energy conservation efforts. Moreover, the EPA advances educational efforts to develop an environmentally conscious and responsible public, and to inspire personal responsibility in caring for the environment.

Kean is committed to serving the educational needs of New Jersey with programs characterized by academic rigor and currency in the development of knowledge and its applications. Kean serves as a center for the creation of new knowledge and for the development of innovative applications of existing knowledge and as a center for pedagogical and artistic excellence and creativity. Kean will play a role beyond the campus community, partnering and collaborating at the local, state, national and international levels to make positive contributions to addressing issues of importance to society, to enable students to experience their ability to use knowledge in constructive ways in the world, and to share the rich array of intellectual and cultural resources of the University with the people of New Jersey and beyond.

The EPA and Kean will, through this MOU, continuously collaborate to develop and promote environmentally sustainable practices. This MOU will include 34 on-campus buildings as well as 185 acres of campus grounds. Kean shall also take steps to reduce the solid waste stream. Further, it will enhance current source separation and material recycling for which a market exists, including but not limited to: paper, cardboard, news print, metal, glass, plastic and electronics.

III. MOU Commitments

The Parties recognize the importance of collaboration to serve the needs of society through proper design, construction, and management of the nation's post-secondary institutions. Consequently, the Parties are hereby establishing a working relationship, and undertaking certain commitments with respect to campus infrastructure and operations as they relate to environmental issues, including, but not limited to the following specific undertakings related to university facilities and academic programming at Kean.

A. University Facilities and Green Operations

1. *Environmental Management Systems ("EMS")*

Kean will work with the EPA to develop a comprehensive Environmental Management System for the University. Kean's EMS will be a set of processes and practices that enable the University to reduce its environmental impacts and increase its operating efficiency.

2. *Municipal Solid Waste ("MSW") Recycling and Re-Use Waste Wise Program*

Kean will join EPA's Waste Wise program, which provides technical assistance to members for auditing MSW generation rates and developing MSW reduction and recycling plans. Members also set their own recycling goals. Listed below are some of the ongoing MSW recycling activities being conducted at Kean.

a. *Organics/Food Waste Composting*

Food scraps will be collected from all dining facilities on campus. The scraps will be collected daily in either 5 or 10 gallon buckets. The buckets will be collected and weighed. The scraps will then be processed in a state-of-the-art aerobic in-vessel digester that was custom designed for Kean based on a food waste audit that was conducted during the summer of

2009. Kean will endeavor to eliminate food scraps from its waste stream. These plans also include eliminating the serviceware currently being used in favor of compostable serviceware, which will further reduce the amount of waste generated on campus and the energy required to wash serviceware that is not disposable.

The finished compost will be used in landscaping projects on campus, resulting in a decrease in the amount of synthetic fertilizer used and a decrease in the amount of topsoil and decorative mulch (both of which have environmental impacts) that must be purchased.

b. *Mixed Fiber (Paper) and Bottles/Cans Recycling*

Kean has an existing contract that provides for the recycling of paper, cardboard, and co-mingled cans and bottles. This activity continues to be successful in that the volume and percentage of paper, bottles/cans being recycled are consistently increasing each year. Kean utilizes a paper and cardboard compactor to maximize capacity and minimize the number of pickups, thereby reducing fossil fuel consumption.

All Kean facilities must be adaptable to its recycling program and provide collection containers that are placed adjacent to trash receptacles in an aesthetically pleasing display. The units are easy to access by housekeeping personnel when discarding items. Any hazardous wastes managed within the facility are appropriately contained and provisions are made for their proper disposal.

c. *Recyclemania Competition*

Kean will participate in the RecycleMania event sponsored by EPA. This year (2010) is the first time Kean is participating in the program. Kean intends to participate annually in an effort to educate the campus community about solid waste management and to reduce the solid waste produced on campus.

d. *Environmentally Preferable ("Green") Products*

Kean is committed to green cleaning in all of its facilities. In 2006 former Governor Codey signed Executive Order #76, which mandates all State facilities to use less hazardous cleaning products. Currently, 50% of all cleaning products used on campus are Green Seal certified. Kean uses Green Seal Certified products wherever a Green Seal product is available. Further, Kean is currently preparing a public bid specification that will require all new environmentally friendly cleaning supplies, including such items as mop heads, floor stripper/wax.

Currently, paper hand towels and toilet paper are made of recycled materials and Kean will investigate the possibility of using office paper made from recycled content.

Kean is also investigating a 'chemical free' cleaning process for our cooling

towers. This method will potentially replace current chemical methods being used for the destruction of bacteria.

e. *Kean Reforestation Program.*

Consistent with New Jersey's No Net Loss Reforestation Act, NJSA 13:1L-14.1 et. seq, by the end of 2010 Kean will have planted approximately 600 trees on campus. This has been an ongoing since 2008.

f. *Electronics Waste (E-Waste) Recycling.*

Computer components/CRTs contain hazardous substances, which can harm the environment if they are simply put out with the trash. These items and similar ones contain cadmium, lead, and mercury, which can make their way into landfills or incinerators, and require substantial cost and effort to assure that these hazardous substances are not released into the air or water.

Kean's Office of Computer and Information Services has contracted with a computer and electronics recycling firm to properly handle the retirement of all E-Waste that is not leased or returned to the supplier at the end of its life cycle. Currently, our E-Waste is taken to a non-profit organization that refurbishes the computer equipment and uses it in job retraining efforts. All E-Waste not re-used is recycled appropriately.

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

1. *Energy Usage and Carbon Footprint Reduction*

Future energy assessment and reduction plans include:

- Joining the Energy Star Program as a partner, including benchmarking energy consumption for new and existing buildings, reducing energy usage by 10% and educating students and employees on energy conservation techniques;
- Sub-metering buildings to track electrical energy consumption. Currently four buildings are sub-metered and the information is tracked with a software program that is viewable in real time. Sub-metering will allow us to identify trends and possible opportunities for energy savings;
- Conducting and providing an audit of the critical energy and utilities infrastructure to ensure that business continuity best practices are developed to assist in the event of an emergency or threat;
- Researching the feasibility of adding renewable energy sources such as wind power, fuel cells, and photovoltaic technology to the campus;
- Developing best practices to take advantage of grants through the New Jersey Board of Public Utilities Office of Clean Energy, NJ SmartStart programs, EnergyStar rebates, use of Energy Star labeled appliances and equipment, and additional Opportunities; and
- Developing an overall energy management plan.

2. *Geothermal Heating and Cooling Systems*

Geothermal heating and cooling systems are a proven technology. These systems have demonstrated the capability of producing significant peak demand load reductions during the summer when compared with conventional cooling alternatives. The technology also provides electric utilities with improved load factor when considering winter heating operation. Since the technology relies on simply moving heat, instead of producing heat through combustion, it is the most environmentally friendly heating and cooling technology that leverages the most consistent form of renewable energy available today, namely, stored solar energy. Geothermal systems take advantage of the most advanced storage technology ever invented, the Earth.

Kean currently has three geothermal systems installed on campus. Starting with the renovation of historic Kean Hall in 2001, the University has made the strategic decision to rely on geothermal technology. In summer 2008, construction began on the six-story New Jersey Center for Science, Technology and Mathematics (NJCSTM) building. Designed to be a LEED Gold Certified facility, the NJCSTM building features glass curtain wall facades with solar shades and a geothermal system for heating and cooling. The NJCSTM officially opened in June 2010.

3. *Solar Energy*

Harwood Arena has a 30 kW solar array that provides approximately 5% of electricity for the building. A solar array is also in place in the Maxine and Jack Lane Center for Academic Success. Kean is exploring the possibility of entering power purchase agreements with solar energy companies to install solar arrays on campus that will reduce its reliance on the electrical grid.

4. *Energy Cogenerator*

At Kean, the cogeneration plant produces thermal energy (steam) and electricity. Steam expended in the generation of electricity is cycled to Kean's campus buildings for heating in the winter and cooling in the summer. The cogeneration plant includes a 1.485 MW combustion turbine generator and a heat recovery steam generator capable of generating over 10,000 lb/hr of steam.

Cogeneration plays an important role in the mission of the institution by providing energy to the campus in a manner that is both economically efficient and environmentally friendly. Kean has recently retained an engineering firm to perform a utilization analysis study of the existing cogeneration plant to determine if the plant is being used at its peak efficiency. Kean will use this information to ensure the plant is functioning as designed and continues to provide renewable energy.

5. *Energy Conservation and Emergency Generators*

Emergency generators might not be allowed to operate for normal testing/maintenance on a certain day, depending on New Jersey's air quality for that day. The air quality is based on the National Air Quality Index System.

6. *Integrated Pest Control*

The pest control company that currently services Kean's campus uses integrated pest management protocols. Although universities are not required to use this method, as in K-12 school systems, Kean feels that it is a responsible practice.

7. *Transportation*

Kean partnered with NJ Transit, the State Department of Transportation, and others to make mass transit a viable option for students, faculty and staff by adding Union Station, directly across from the main campus, to the Raritan Valley train line. After seven years of effort, Union Station opened in 2003. Kean also offers a free shuttle bus to the Elizabeth train station, approximately 2 miles from campus. This connects students to the Northeast corridor train line.

Shuttle buses to local shopping areas are also available for on campus students to discourage single occupant vehicle travel.

Lastly, shuttle buses are in use on campus to transport students to different parts of the campus. Bicycle racks are provided for free. Kean's Facilities Department utilizes electric Zero Emission Vehicles (ZEV's) to bring personnel and equipment to the worksite. Gas/diesel vehicles use is minimized whenever possible. Kean is exploring new technologies in ZEV's that can replace traditional fossil fuel burning vehicles.

Kean's Mail Services, Computer Services, Athletics and Materiel Services also utilize ZEV's on campus to complete their job responsibilities. Kean will continue to explore the use of ZEV's whenever possible.

When replacing gas-powered vehicles, Kean will consider purchasing the most fuel-efficient vehicles possible. Recently, two Smart Cars were purchased for the Campus Police Department, which will replace less fuel-efficient vehicles.

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

The Maxine and Jack Lane Center for Academic Success (CAS) is a LEED certified (certified level) building. The 48,427SF building achieved LEED certification in August of 2008.

Kean's NJCSTM building, which opened in June 2010, is designed to be a LEED Gold Certified facility. The building features glass curtain wall facades with solar shades and a geothermal system for heating and cooling.

Kean will continue to use green technologies in new and renovated buildings. Kean will also explore the possibility of using the LEED specifications in all new construction.

9. *Landscaping and Storm Water Conservation Programs*

Kean was the 2008 winner of the NJ Clean Water Governor's Environmental Excellence Award in recognition of our storm water management practices. Kean will continue to evaluate and improve its storm water management procedures.

Landscaping for all projects will be consistent with the general nature of plantings approved by Kean's Campus Planning and Facilities staff. Plant material should be drought resistant and native to the northern New Jersey area when possible.

Irrigation systems when utilized shall be installed with moisture and rainfall sensors and will operate during the most optimum watering times, taking into consideration time of day, humidity, temperature, weather and evapotranspiration.

Kean will consult with EPA's Greenscapes Program, which offers assistance for sustainable landscaping, water conservation and storm water management programs, including the capture and re-use of stormwater.

The NJCSTM building has a green roof on 1,205 square feet of the building roof. We are currently exploring installing another 1,837 square feet on another section of the building. The green roof will capture rainwater and create a pervious surface, reducing storm water runoff. It will also reduce heating and cooling requirements.

10. *Water Conservation*

Kean will attempt to utilize WaterSense products, where appropriate, in the renovation or upgrade of existing buildings as well as in new buildings planned for Kean's campus. The use of WaterSense approved products ensures that Kean will be conserving its precious drinking water sources.

Kean will also investigate capturing rainwater and using it to water plants and flowers on campus.

11. *Using Coal Combustion Products*

In order to reduce CO2 emissions and save landfill space and energy, Kean intends to use coal combustion products, such as fly ash, *in place of* portland cement for any new appropriate construction projects. The amount and mixture concentrations of coal combustion products used will be determined at the time of construction.

12. National Clean Diesel Campaign & Clean Construction USA

Under this MOU, Kean University will join EPA's Clean Construction USA Program to cooperatively promote and implement measures to effectively reduce emissions from vehicles and other internal combustion engines used in construction and operation of its facilities, with a focus on diesel engine emission reductions. These activities will lead to a measurable decrease in diesel emissions through the following strategies:

- Kean University will work with our contractors to ensure that emission-reduction technologies, such as diesel particulate filters (DPF) and diesel oxidation catalysts (DOC) are utilized on our projects.
- Kean University will investigate the use of electric crane systems to reduce on-site emissions.
- Kean University will investigate and incorporate innovative design features to enhance the maintainability of installed systems to ensure proper operation throughout the equipment life cycle.

C. Proper management of Hazardous and Universal Waste

1. *Toner and Ink Recycling*

Kean has a toner cartridge recycling program administered through the Facilities Department. AERC is a vendor contracted by Kean to pick up the cartridges and have them recycled. Annually, we recycle approximately 500 toner cartridges.

2. *Proper Chemical Management*

Kean will investigate using the *ChemSW software* to keep track of hazardous materials on campus. The academic labs can use the database inventory system to manage chemicals for Right-to-Know and Hazcom. Currently, Kean is utilizing a paper-based system to inventory and manage chemicals in the science areas. Using a computer-based system will increase efficiency and save money.

D. Status Reporting

Kean will submit a status report to EPA twice per year starting six months after the official signing of the MOU. The report will include an update and quantitative data, where available, on the various activities identified in the MOU. EPA will use this data to determine the environmental benefits associated with Kean's "green" activities.

IV. General Terms and Conditions

This MOU is not a contractual or a financial obligation instrument. Nothing in this MOU shall obligate EPA or Kean University to expend appropriations or to enter into any contract or other obligations or be cited as the basis for the promise or transfer of funds. Collaboration under this MOU shall be in accordance with applicable statutes and regulations.

This MOU does not restrict EPA or Kean University from participating in similar activities or arrangements with other entities or Federal agencies (domestic or foreign).

Either party may unilaterally withdraw at any time from this MOU by issuing a signed written notice to that effect to the other party. By mutual agreement, which may be either formal or informal, the parties may modify the list of intended activities set forth in Paragraph III, above, and/or determine the practical manner by which the goals, purposes and activities of this MOU will be accomplished. Modification to other written parts of this MOU must be made in writing and signed by both parties, or their designees.

Nothing in this MOU shall be construed to authorize or permit any violation of any Federal, State or local law, including, but not limited to, any environmental law administered and/or enforced by EPA.

Access to all documents generated pursuant to the activities set forth in this MOU that constitute agency records for purposes of the Freedom of Information Act ("FOIA"), 5 U.C.S. 552 shall be governed by the provisions of the FOIA.

Kean University agrees that it does not expect, nor will they ever seek to compel from EPA in any judicial forum, the payment of money, services or other thing of value based upon the terms of this MOU. The foregoing provision does not in any way affect any legal rights accruing to Kean University by virtue of any other law, contract and/or assistance agreement.

Kean University understands and acknowledges that, as an institution of the Federal Government, EPA has a duty to refrain from providing any commercial entity an exclusive privilege without receiving payment therefore and, as a consequence, that EPA's relationship with Kean University in no way affects, alters or otherwise constrains EPA's right to provide similar (or identical) services to, or establish similar (or identical) relationships with, any other entity.

Kean University understands that EPA's participation in this MOU does not constitute an endorsement, express or implied, of (a) any policy advocated by Kean University or (b) any goods or services purchased, offered or sold by Kean University.

The parties agree that any copyrightable subject matter, including but not limited to journal articles, training, educational or informational material or software, created jointly by the parties from the activities conducted under the MOU may be copyrighted by Kean University. Kean University hereby grants to EPA a royalty-free, nonexclusive, irrevocable right to reproduce, distribute, make derivative works, and publish the work(s) publicly, or to authorize others to do the same on its behalf.

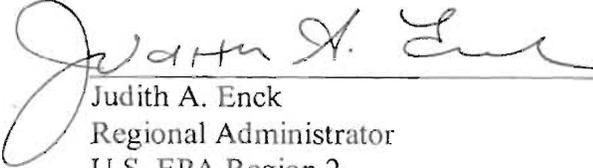
The EPA enters into this MOU under the authority of Section 103 of the Clean Air Act, 42 U.S.C. §7403, Section 104 of the Clean Water Act, 33 U.S.C. §1254, and Section 8001 of the Solid Waste Disposal Act, 42 U.S.C. §6981, Section 6604 of the Pollution Prevention Act, and Section 324A of the Energy Policy and Conservation Act, which provide EPA with authority to undertake cooperative efforts with other organizations to promote the coordination and acceleration of research, studies, training, and other efforts to prevent, reduce and eliminate pollution.

This MOU does not create any right or benefit, substantive or procedural, enforceable by law or equity against Kean University or EPA, their officers or employees, or any other person. This MOU does not direct or apply to any person outside of EPA and Kean University.

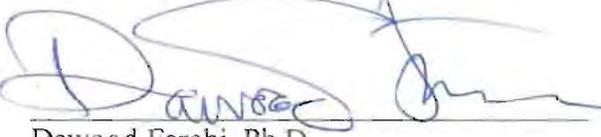
V. Effective Date and Administration

This MOU will become effective upon signature by the Regional Administrator of EPA Region 2 and the President of Kean University or their designees. It may be modified or amended by written agreement between the parties. This MOU will terminate at the end of five (5) years from the date of signature unless revised or extended at that time by written agreement of the parties. It may be terminated at any time by either party upon the issuance of a written notice to the other party. The Parties will review annually the provisions of this MOU and its implementation.

Signed:


Judith A. Enck
Regional Administrator
U.S. EPA Region 2

Date: 11/22/10


Dawood Farahi, Ph.D
President
Kean University

Date: 01/20/11