Introduction

The purpose of the SUNY Canton Campus Energy Plan (CEP) is to provide a road map of how SUNY Canton will reach the SUNY established target of reducing campus fossil fuel use by 42% (per square foot) when compared to its 1990 energy usage. The CEP is intended to be a living document that is updated periodically to reflect changes in the dynamic energy environment we currently face.

After providing contextual background for this document, the CEP starts with current energy use and how it compares to the 1989-1990 baselines, and then moves to a discussion of current conservation efforts, alternative energy initiatives, and building renovation efforts. The following section discusses future efforts that would make it possible for SUNY Canton to meet SUNY energy goals. Finally, there is a discussion of other energy challenges facing the College.

Background

While SUNY Canton has made an institutional commitment to sustainability in general and energy conservation in particular, this is not being done in isolation. Executive Order 111 (See Appendix A) directed all New York State agencies to reduce fossil fuel use by 35%.

SUNY Central responded to Executive Order 111 by creating the SUNY Energy Strategic Planning Task Force to make recommendations for a University Energy Policy pertaining to all sixty-four member campuses. The Report of the SUNY Energy Strategic Planning Task Force (Appendix B) identified specific energy conservation targets for each of the campuses in order for the SUNY system as whole to reach the 35% reduction mandated by Executive Order 111. SUNY Canton’s campus target is a 42% reduction. The introduction to the report could not be clearer about our energy future:

“The supply of oil and natural gas is quickly reaching the point where demand will outpace supply…. The rapid industrialization of China and India is increasing the demand for petroleum, while new sources of production are more difficult and expensive to find and develop. A significant shortfall in oil is expected as early as 2010…. An energy future that depends on carbon-based fuels is not sustainable.” Page 5.

And stated later in the same section, what this means for SUNY, “...since the supply of fossil fuel is fixed, SUNY must decrease its use of energy on an absolute scale.” (Page 5)

In addition, SUNY Central drafted Energy and Sustainability Policy statement (See Appendix C) delineating three related goals: conservation and sustainability, transformational opportunities and management and planning. The college’s commitment to sustainability and energy use reduction is reflected in both its organization and in its practices. One of the major goals in SUNY Canton’s Strategic Plan 2010 (Appendix D) is “Focus on Sustainability,” and energy use is a significant part of this. The Plan states, “Initiatives will include a plan to implement sustainable options to power the campus while reducing overall energy consumption.” (Page 12) Strategic Plan 2010 also recognizes that a utility disruption, possibly including one caused by high priced or scarce energy supplies, could affect the College’s ability to operate. The college has developed a Campus Energy Statement (Appendix E) to guide both its planning and its activities. For the Sustainability Task Force, established
in September 2009, working on meeting the energy target is part of its charge. The CEP is a Sustainability Task Force Project.

While the Sustainability Task Force has focused on overall direction for the campus, the Green Campus Committee, founded in 2007-2008, is project-oriented, and has taken a special interest in recycling. The campus Green Pages, created in August 2009, contains information on a whole range of sustainability topics. The Green Pages also contain information about recent campus energy use, pertinent documents, and information on how both students and staff can conserve energy in their residence hall rooms or offices. Energy and sustainability are also part of the college’s academic offerings in the Alternative and Renewable Energy curriculum. During spring semester 2011 a seminar course on Sustainable Design was offered for the first time.

**Progress to Date**

In outlining a plan for SUNY Canton to meet its energy reduction target, it is important to understand what the college has achieved so far. Campus energy use on a Btu/s.f. basis is approximately seventy-five percent natural gas and twenty-five percent electricity, and these percentages have been consistent over the past couple decades. During 2009-2010, SUNY Canton spent $585,081 for natural gas and $663,342 on electricity for total expenditures of $1,248,423. The actual campus energy use was 683,864 therms of natural gas and 7,293,260 kWh of electricity. This was a reduction of 17.2% per square foot over the 1989-1990 baseline campus usage. (See Appendix F) These energy savings also mean a reduction in greenhouse gases by eighty-six tons for electricity and 949 tons for natural gas.

While the data tells a story of progress, it is hard to determine the exact reasons for the reduction in energy use. While there are electrical meters in most buildings to determine usage patterns, not all buildings are metered for natural gas and water. In the future, planned additional metering will make it possible to understand how much energy is being used or conserved in each building.

One reason for declining energy consumption may be weather related and yearly variations in the number of degree days. Another factor is the 4 day class schedule. Statistics show less energy use on Fridays compared to days when classes are held, but more energy consumption than on Saturday or Sunday when most buildings are closed and staffing levels are minimal. Capital improvements such as the renovation of Nevaldine and the renovations to the residence halls have made these buildings more energy efficient, and contributed to a decline in campus energy use.

**What SUNY Canton is Currently Doing to Further Reduce its Energy Consumption**

A seventeen percent reduction in energy use per square foot is a significant accomplishment. Currently, SUNY Canton is utilizing a number of strategies in its effort to reduce energy use by an additional 25% to meet the energy reduction targets. These will include energy conservation measures, energy management strategies, alternative energy projects, and capital improvements. It should be noted that the initiatives outlined here are heavily geared towards addressing campus electricity consumption which only accounts for 25% of total campus use. The bulk of campus energy use, seventy-five percent, is used for heating purposes with natural gas. The following initiatives are in various states of development or implementation.
Conservation

The cheapest energy is that which is never used. Conservation is also the first step toward sustainability. There are a range of options when implementing conservation measures. Perhaps the hardest to effect in an institutional setting is behavior change on the part of staff and students. There have been some efforts in this area. Stickers have been put on light switches in various areas encouraging that lighting be turned off when not in use. Since February 2007, physical plant staff members have been directed not to leave their work vehicles idling unless necessary. The challenge of obtaining widespread buy-in limits the role behavior change will play in reaching SUNY energy targets, and reducing overall campus energy use in absolute terms. As the campus and the larger society become more focused on sustainability and energy conservation, additional individual behavior changes will be possible. Better communication with the campus community about our progress may help and the Green Pages have been a step in this direction. Increasing communication may be one of the functions of the Sustainability Center proposed in Strategic Plan 2010. For now, the real progress will be made through energy conservation upgrades and energy management strategies.

NYSERDA Electrical Energy Conservation Measures

In November 2010, NYSERDA completed an Energy Conservation Assessment with thirty-one electrical energy conservation measures (ECM) for seven different campus buildings. The study recommended twenty-five of thirty-one proposed measures be undertaken, and some of these are being turned into project proposals. All twenty-five projects would cost $314,332 to implement, and save approximately $47,600 annually. The average payback would be just under six and one-half years and cut current electrical use by 522,846 kWh or 7.17%. It is unlikely that all twenty-five conservation measures will be used. For this reason, and since electricity accounts for about 25% of combined electricity and gas usage, overall savings will be under two percent.

Energy Management

According to one estimate, energy management strategies could possibly cut campus energy use by up to ten percent. Several years ago, the campus implemented Heating & Cooling Policy identifying temperatures, time of day, days, month(s), and scheduled uses buildings would be provided heat and/or cooling. The policy has proven successful reducing energy use and provides opportunity for HVAC staff to properly plan and perform preventive maintenance essential to any mechanical system. A number of other ideas are being actively pursued including reallocating vendor service technician time from routine service work to energy management activities and the installation of additional utility metering to provide better data for energy management decisions. These improvements will make it possible to manage and target utility needs based on use of space and time of day.

Building Renovations

SUNY Canton is going through a period of historic building and renovation that is increasing the size of the physical plant. Major renovation projects will not only meet the educational needs of the campus but also increase energy efficiency. Recent renovations to Nevaldine South have provided new mechanical systems and new building envelope increasing thermal and insulation values including roofing systems, exterior walls, exterior windows and doors. Similar renovations are planned for
Nevaldine North with construction beginning May 2012 completing the entire building. Continued renovations to Wicks with construction beginning May 2012 are planned again providing rehab to mechanical systems and rehab to building envelope including roofing systems, exterior windows and doors. Beginning May 2012 Cook will undergo heating, ventilation, and air conditioning improvements. Over the past 5 years, similar projects have been completed to the residence buildings including Heritage, Rushton, Mohawk and Smith including replacement of building heating systems, domestic hot water systems, roofs, mansards, exterior windows and doors. Currently in design, is project to replace deteriorated exterior windows and doors in Payson, Cook, Faculty Office Building, French and Southworth Library. It is anticipated this project will begin May 2012. A project to renovate Chaney Dining Center is also planned in the near future which will address building envelope, mechanical systems, controllability of systems, and updated equipment for food service operation. In total, these buildings represent approximately 530,800 square feet, 70% of the campus total. Taken together, these renovations will significantly shape the campus’ effort to conserve energy and more efficiently use the energy it does use.

New Construction

During the spring and summer of 2011 two new buildings, Grasse River housing project and the Convocation and Recreation Center (CARC) will be completed, adding approximately 118,000 and 140,000 square feet respectively to the campus space inventory. Both buildings were designed and constructed to LEED Silver standards. Design aspects included white EPDM and planted roofing systems to reduce heat island effect; water efficient landscaping; day lighting & views providing daylight in 75% of spaces; innovative wastewater technologies collecting rainwater from roof tops for sanitary use; water use reduction utilizing low flow fixtures; controllability of lighting systems utilizing card access; controllability of building systems utilizing building management systems. These buildings will add to the actual overall energy consumption on campus. At the same time, the use of improved materials and energy efficient systems may reduce energy use per square foot, which is the metric we must use to meet our SUNY mandated goal. The campus will have a clearer idea of the impact by the new buildings on both overall energy use and energy usage per square foot by July 2012.

Alternative Energy

Alternative energy will play a role in SUNY Canton meeting both its energy reduction targets and its educational mission. The following projects are in various stages of discussion.

A. Methane Digester

Plans to build a .5 megawatt methane gas digester on properties owned by Canton College Foundation adjacent to the campus with a combined heat and power (CHP) generator on campus that would provide electricity to the campus have been slow to develop. In general, although these type projects are popular in other countries, they are slow to develop in the U.S. Most recently, EnviTec Biogas, a German based company remains interested in the project but at the same time is trying to establish themselves in the U.S. If the project comes to fruition it would have the potential of providing 20% - 30% of the campus’ electrical needs.

B. Wind Turbine
SUNY Canton and the New York Power Authority are partnering on a wind generator tied to a battery storage system. Ultra Life has obtained $3M grant for the battery storage system portion of the project, however a developer remains to be selected for the wind turbine. NYPA is currently reviewing two (2) different proposals for the wind turbine and hopes to be able to make a selection in fall of 2011. The generating capacity varies with each proposal and therefore has not been determined. It is anticipated construction of the project could begin as early as summer 2012.

C. Solar

Solar panels to heat hot water were added to Alumni House, a residence in a tract development adjacent to campus. A campus photovoltaic project is being planned for the roof of Nevaldine that would not only produce electricity but serve as an educational tool for students in the Colleges Alternative and Renewable Energy Curriculum. The campus has expressed interest in participating in NYPA 100MW Solar Initiative. NYPA is currently reviewing proposals for the project but have not selected developer to date.

Summary

The six strategies outlined above all represent opportunities to reduce campus energy use per square foot. Quantifying how much of the 25% gap these initiatives can fill is difficult to determine at this time. It is unlikely, however, that these efforts alone will make it possible for SUNY Canton to meet its targets. Furthermore, the two new buildings will likely help reduce the BTUS per square foot, while actually increasing the college’s energy use. During the summer of 2012, both buildings will have been operational for one year and the campus will have a better idea of their impact.

Next Steps

Since the energy savings from current initiatives are not expected to be enough to meet campus energy targets, additional measures will be necessary. This is especially true if SUNY Canton is to achieve an absolute decline in fossil fuel use. While this may seem daunting at first glance, there are opportunities to build on and expand upon current strategies. One of the inherent limitations so far has been that most initiatives have been directed at the use of electricity which has makes up only about 25% of the total energy used on campus. That figure has been remarkably consistent over time. Continued progress in energy reduction will make it necessary to reduce the use of natural gas.

Building Renovations

Phase II of the SUNY Canton Facilities Master Planning process has identified several buildings that are in unsatisfactory condition. As noted above, several of those, including Nevaldine, Wicks, Payson, Cook, French, Southworth and Chaney which each have projects planned to address their critical maintenance issues and deficiencies. Other buildings including, Dana, Campus Center, Cooper, Faculty Office Building and Newell contain approximately 210,000 square feet, or approximately 30% of the total campus space inventory. Renovations and energy improvements to these buildings will advance the college’s energy reduction efforts.
**Fuel Switching: Biomass**

In order to take decreased use of fossil fuels to the next level, it is necessary to explore the possibility of switching to another fuel. The logical choice is a biomass fuel such as wood chips. Northern New York has many decades of experience burning wood in various forms. Much of this experience has been small scale, but places like Edwards-Knox Central School are demonstrating that burning wood is a cost-effective option for larger facilities. A number of other public schools are also considering heating with wood. Recent studies show that there is a more than adequate supply of fuel within fifty miles of Canton being produced by the current level of logging in the region.

Biomass has already been suggested as a campus option by Siemens in a 2006 proposal. The Siemens study proposed two biomass projects. One was a boiler that would heat Chaney and the four dorms. The study estimated that the boiler would have saved almost $378,000 in energy costs. The payback would have been eight years. Switching to biomass for the campus would make financial sense, ensure that SUNY Canton could meet or exceed its 42% energy reduction target, and provide the campus a cushion against high-priced or scarce fossil fuel supplies in the future.

**Other Energy Challenges**

**Energy Used for Student and Staff Commuting**

The main focus of the CEP has been meeting New York State and SUNY energy goals. There are, however, other energy related issues that are important as well. The large number of commuting students represents a special challenge for the college in the event of an energy crisis. An analysis during the 2009-2010 academic year indicated that the average commuting student traveled 48 miles round trip to attend classes. If all commuting students came to campus each day, they would have driven 75,000 miles. It was also estimated that staff drove about 14,600 miles a day, and an individual round trip was twenty-eight miles.

In addition, student and staff transportation was estimated to account for twenty-five to thirty percent of the campus carbon footprint. This is much higher than a residential campus. More importantly, high energy prices or scarce fuel supplies have the potential to affect the college’s ability to carry out its mission. For students, higher energy costs could make attending SUNY Canton unaffordable or impractical. At that point, student transportation becomes a retention issue. In regard to staffing, higher energy costs could make it harder to recruit the best local candidates if transportation costs and issues became problematic.

**Utility Disruption Planning**

Strategic Plan 2010 includes a planning process for continued operations of the campus in the event of natural disaster, medical emergency, or utility disruption. In the case of an energy shock due to high prices, scarce supply, or a combination of both, ensuring that the college could continue to carry out its educational mission would be of utmost importance to the larger community as well as students and staff. Student transportation issues and utility disruptions are two potential energy-related threats to the College. Opportunities to address these issues are available through the strategic planning process and through the disaster planning process outlined in Strategic Plan 2010.
Conclusion

To the extent that small is also sustainable, SUNY Canton is well-positioned. The college has made substantive progress toward New York State and SUNY energy reduction targets due to its commitment to sustainability and energy use reduction. This is reflected in both its organization and initiatives. In the process, the college has become a better place with improvements to the campus buildings, energy efficiency and energy-related expenditures. Our work is not done. The CEP outlines opportunities for SUNY Canton to improve sustainability and energy-related goals.
EXECUTIVE ORDER

DIRECTING STATE AGENCIES TO BE MORE ENERGY EFFICIENT AND ENVIRONMENTALLY AWARE
"GREEN AND CLEAN STATE BUILDINGS AND VEHICLES"

WHEREAS, New York is dedicated to the mutually compatible goals of environmental protection and economic growth;

WHEREAS, New York has adopted measures designed to allow energy markets to operate more competitively and has significantly reduced taxes in order to reduce energy costs and encourage continued economic growth;

WHEREAS, the generation and use of energy has a significant impact on the environment, contributing to emissions of sulfur dioxide, nitrogen oxides, greenhouse gases, and other pollutants;

WHEREAS, State government is a major consumer of energy, spending approximately $300 million per year and purchasing approximately 1500 new vehicles annually with a concomitant impact on the environment; and

WHEREAS, it is appropriate that State government assume a leadership role in promoting the efficient use of energy and natural resources in the interest of the long-term protection and enhancement of our environment, our economy, and the health of our children and future generations of New Yorkers.

NOW, THEREFORE, I, GEORGE E. PATAKI, Governor of the State of New York, by virtue of the authority vested in me by the Constitution and Laws of the State of New York, do hereby order as follows:

I New Energy Efficiency Goals.

All agencies and departments over which the Governor has Executive authority, and all public benefit corporations and public authorities the heads of which are appointed by the Governor (hereinafter referred to as "State agencies and other affected entities"), shall seek to achieve a reduction in energy consumption by all buildings they own, lease or, operate of 35 percent.
by 2010 relative to 1990 levels. All State agencies and other affected entities shall establish agency-wide reduction targets and associated schedules to reach this goal and shall also be responsible for establishing peak electric demand reduction targets for each state facility by 2005 and 2010. No buildings will be exempt from these goals except pursuant to criteria to be developed by the New York State Energy Research and Development Authority ("NYSERDA"), in consultation with the Division of the Budget ("DOB"), the Office of General Services ("OGS") and the Advisory Council on State Energy Efficiency ("Advisory Council") as established herein.


A. Existing Buildings.

Effective immediately, State agencies and other affected entities shall implement energy efficiency practices with respect to the operation and maintenance of all buildings that they own, lease or operate. Such practices may include, but shall not be limited to: (1) shutting off office equipment when it is not being used; (2) adjusting the setting of space temperatures; (3) turning off lighting in unoccupied areas; (4) inspecting and re-commissioning or re-tuning heating, air conditioning and ventilation equipment to ensure optimal performance; and (5) cycling and restarting equipment on a staggered basis to shed electricity loads and minimize peak electricity demand usage. State agencies and other affected entities shall strive to meet the ENERGY STAR® building criteria for energy performance and indoor environmental quality in their existing buildings to the maximum extent practicable. Within 180 days of the date of this Executive Order, NYSERDA shall develop guidelines to help agencies and other affected entities implement energy efficiency practices in their buildings.

B. New Buildings and Substantial Renovation of Existing Buildings.

In the design, construction, operation and maintenance of new buildings, State agencies and other affected entities shall, to the maximum extent practicable, follow guidelines for the construction of "Green Buildings," including guidelines set forth in Tax Law § 19, which created the Green Buildings Tax Credit, and the U.S. Green Buildings Council's LEED™ rating system. Effective immediately, State agencies and other affected entities engaged in the construction of new buildings shall achieve at least a 20 percent improvement in energy efficiency performance relative to levels required by the State's Energy Conservation Construction Code, as amended. For substantial renovation of existing buildings, State agencies and other affected entities shall achieve at least a ten percent improvement. State agencies and other affected entities shall incorporate energy-efficient criteria consistent with ENERGY STAR® and any other energy efficiency levels as may be designated by NYSERDA into all specifications developed for new construction and renovation.

III Procurement of Energy-Efficient Products.

Effective immediately, State agencies and other affected entities shall select ENERGY STAR® energy-efficient products when acquiring new energy-using products or replacing existing equipment. NYSERDA shall adopt guidelines designating target energy efficiency levels for those products for which ENERGY STAR® labels are not yet available.
energy efficiency.

In role of NEVADA and creation of the Advisory Council on State

In connection with the performance of their responsibilities,

Executive Order No. 114
VII Assistance and Cooperation.

Every agency and department over which the Governor has executive authority, and all public benefit corporations and public authorities the heads of which are appointed by the Governor, shall provide all reasonable assistance and cooperation requested by NYSERDA and the Advisory Council for the purpose of carrying out this order. Such assistance may include the assignment of staff and the provision of support services.

VIII Participation of other governmental entities.

Local governments and school districts that are not subject to the requirements of this Executive Order are encouraged to review their energy efficiency practices and procedures, to institute appropriate operational and maintenance modifications, and to accelerate the implementation of energy efficiency projects. NYSERDA, OGS, the New York Power Authority and the Long Island Power Authority are hereby directed to offer any assistance as may be appropriate to assist local governments and school districts to achieve the goals of this Executive Order, including, but not limited to, assistance with procurement.

IX Repeal of Prior Executive Order.

Executive Order No. 132, promulgated on January 2, 1990, and continued unamended and unmodified, is hereby revoked and superseded by this Executive Order as of the date hereof.

GIVEN under my hand and the

Privy Seal of the State
in the City of Albany
this tenth day of June in
the year two thousand
one.

GIVEN under my hand and the

Privy Seal of the State
in the City of Albany
this tenth day of June in
the year two thousand
one.

BY THE GOVERNOR

[Signature]

Secretary to the Governor
Report of the SUNY Energy Strategic Planning Task Force

Recommendations for a University Energy Policy

March 20, 2007
ENERGY TASK FORCE MEMBERSHIP

The SUNY Energy Task Force is composed of recognized energy leaders from State-operated campuses and community colleges. The Task Force sees the State University’s energy challenges and opportunities from both a practical financial standpoint and as a societal issue, with SUNY uniquely positioned to leverage its size, research and educational resources to provide solutions that will benefit the University, the people of New York State and the nation.

Raymond Cross, President, Morrisville, Co-Chair
Cornelius B. Murphy President, ESF, Co-Chair
Peter Carney Manager Utilities, Binghamton
Ezra Delaney Vice President, Nassau Community College
Jerry DeSantis Associate Vice President for Facilities, Oswego
Maureen Dolan Chair, University Faculty Senate Operations Committee
Roger Jansma Director Physical Plant, Oneonta
Amy Provanzano Director Physical Plant, Stony Brook
John Russo Manager Utilities, University at Buffalo
William Shaut Vice President for Administration, Cortland
David Schottler Asst. Vice President for Facilities, Monroe Community College
Walter Simpson Energy Manager, University at Buffalo
Carl Wiezalis President, University Faculty Senate

Thomas Mannix Associate General Manager, State University Construction Fund

System Administration
Elliot Easton Manager Energy Procurement
Joseph Fox Director Energy Management
Peter Pileggi Associate Vice Chancellor for Hospital and Clinical Services
Daniel Sheppard Senior Associate Vice Chancellor for Finance and Business
SUMMARY OF TASK FORCE RECOMMENDATIONS

MISSION/OBJECTIVE:

SUNY will assume a national leadership role in energy sustainability, education, technology, economics and public policy through a transformational integration of practice, teaching and research.

GOALS:

Conservation/Sustainability
- Establish campus targets for reduction of energy usage such that total University energy usage is 37% lower than 1989-90, as measured by BTUs per square foot (see Appendix A). This goal is two percentage points higher than the goal of Executive Order (E.O.) 111.
- Cap greenhouse gas emissions at current levels and decrease emissions 20% by 2014 (see Appendix D).
- Increase the use of renewable energy purchased or generated on campus to 30% by 2014. This is 10 percentage points greater than the E.O. 111 requirement.
- Increase usage of bio diesel to 10% by 2010. Two years ahead of E.O. 142 requirements.
- Increase usage of bio heating oil (#2 oil) to 10% by 2010. Five percentage points higher and two years earlier than E.O. 142 requirements.
- Develop five new combined heat and power (CHP) projects by 2010 (see Appendix C)
- Design and construct new buildings or rehabilitate existing buildings using Leadership in Energy and Environmental Design (LEED) Silver criteria and life-cycle-cost analysis. Energy systems will be designed to maximize efficiency over the life cycle.

Transformational Opportunities
- Advance SUNY’s educational mission in energy and environment
  - Academic Programs--Develop and expand energy-related curriculum and cross-disciplinary academic programs that explore the energy/environment/economics nexus.
  - General Education--Develop curriculum within campus general education programs related to energy and the environment.
  - K-12 Teacher Education--Support campuses with Teacher Education programs to strengthen their offerings in the energy-environment area.
  - Workforce Training--Develop academic programs at the technical level and through Continuing Education programs to meet the needs of energy users, energy service companies, regulators, and public and investor-owned utilities.
  - Raising Awareness--Utilize capabilities of University to educate students, faculty, staff, local community and global community about the nexus between energy and the environment.
SUNY Energy Strategic Planning Task Force
Policy Recommendations

- Expand energy-related research to achieve national leadership in the development and use of renewable energy, conservation and the efficient use and conversion of energy.
- Build strategic alliances with public and private sector partners by providing research and analysis to regulators, elected officials, private industry and New York’s citizens.

Management and Planning

- Optimize “System-ness” by encouraging and facilitating greater inter-campus communication and cooperation regarding best practices, campus-based initiatives and externally funded projects.

- Procure energy and fuels at the lowest cost, while managing price risk in accordance with a prudent, clearly defined and documented University Risk Management Policy that utilizes financially sound market-based products.

- Take a proactive roll in rate cases before the New York State Public Service Commission and the Federal Energy Regulatory Commission to protect the University’s interests.
Introduction

The supply of oil and natural gas is quickly reaching the point where demand will outpace supply. Today, the United States consumes approximately 22 million barrels of oil a day out of a worldwide use of 83 million barrels a day. The rapid industrialization of China and India is increasing the demand for petroleum, while new sources of production are more difficult and expensive to find and develop. A significant shortfall in oil is expected as early as 2010. During the fall of 2005, the United States experienced a temporal shortfall of natural gas and petroleum, which resulted in increases of 30% or more in the cost of transportation fuels, heating fuels, and electricity. Despite this increase in price, in December 2005, daily U.S. consumption of petroleum hit an all time high. An energy future that depends on carbon-based fuels is not sustainable.

The first step toward sustainability is conservation. SUNY must reduce energy use as much as possible. Despite SUNY past energy conservation activities (38.57% reduction since 1973-74), the University must continuously expand its efforts to eliminate energy waste. Efforts to date have been measured on a square footage basis, which is appropriate for a growing institution such as SUNY. However, since the supply of fossil fuel is fixed, SUNY must decrease its use of energy on an absolute scale.

As a significant energy user and the nation’s largest comprehensive higher education system, the State University of New York has a unique opportunity to integrate practice, research and education in order to take a national leadership role in energy education, technology, economics and public policy. If we seize the opportunity, SUNY will be the first major public university to achieve such a transformational integration.

The SUNY Energy Task Force recommends that the University achieve the following goals:

1. Achieve national leadership in sustainability to:
   a. Reduce energy use to the lowest level possible. By 2010, reduce energy use in buildings by 37% compared to 1989-90 usage (see Appendix A for individual campus goals). This is two percentage points higher than required by E.O. 111.
   b. Cap the University’s green house gas emissions at current levels, with a goal of decreasing emissions by 20% by 2014 (see Appendix D).
   c. Increase the use of renewable energy purchased or generated on campus, with a goal of 30% by 2014—10 percentage points greater than the requirements of E.O. 111.
   d. Increase the use of bio diesel to 10% of total usage by 2010, two years sooner than required by E.O. 142.
   e. Increase usage of bio heating oil (#2 oil) to 10% by 2010. This is five percentage points higher and two years sooner than required by E.O. 142.
   f. Develop combined heat and power projects, with a goal of five new projects by 2010.
g. Design and construct new buildings or rehabilitate existing buildings using Leadership in Energy and Environmental Design (LEED) Silver criteria and life-cycle-cost analysis. Energy systems will be designed to maximize efficiency over the life cycle. Costs will be measured in dollars, energy consumed, and emissions created.

2. Take advantage of transformational opportunities to:
   a. Advance SUNY’s educational mission in energy and the environment
   b. Expand energy-related research.
   c. Provide research and analysis to regulators, elected officials, private industry, and to New York’s citizens.
   d. Achieve national leadership in research, development, and use of renewable energy, conservation, and the efficient use and conversion of energy.
   e. Form partnerships with private and public organizations to reach our goals.

3. Optimize “System-ness” by encouraging and facilitating greater inter-campus communication and cooperation regarding best practices, campus-based initiatives and externally funded projects.

4. Procure energy and fuels at the lowest cost, while managing price risk in accordance with a prudent, clearly defined and documented University Risk Management Policy that utilizes financially sound market-based products.

5. Take a proactive roll in rate cases before the New York State Public Service Commission and the Federal Energy Regulatory Commission to protect the University’s interests.

THE UNIVERSITY TODAY

SUNY is one of the largest energy users in New York State.

- The University’s State-operated campuses contain more than 90 million overall gross square feet in 2,829 buildings.
- Total annual energy consumption is approximately 11,445.9 trillion BTUs, the equivalent of 67,000 homes.
- Projected 2006-07 utility costs are projected to be nearly $300 million, comprising approximately 10% of SUNY’s core operating budget and, in many cases, 50% of a campus’ non-personal service expenditures (see Appendix F).

Until 2005-06, the State budget did not adequately support growth in utility costs.

- Increased volatility in energy prices makes budgeting and planning difficult (see Appendix G).
- Growth in enrollment, increased residence hall electrical usage and the rapid growth in campus research facilities has increased campus operating costs and offset SUNY’s conservation accomplishments.
• In gross terms, SUNY’s electrical usage grows about 1% to 2% per year; the electrical equivalent of adding a new arts and science college every year (see Appendix H).

For many campuses, energy conservation and management has been a challenge.
• Aging infrastructure and limited capital funds for critical maintenance and physical plant upgrades have increased deferred maintenance.
• The level of energy management expertise varies widely among campus facilities administrators.
• The level of energy procurement expertise varies widely among campus business officers.

Governor’s Executive Order 111, Clean and Green Buildings and Vehicles.
• Requires a 35% reduction in energy consumption by 2010 (compared to 1989-90 base year).
• Requires that 10% of electric consumption be provided by renewable sources by 2005, and 20% by 2010. Eligible sources include wind, solar, thermal, photovoltaic, tidal, geothermal, fuel cells and biomass.
• Requires the purchase of Energy Star compliant equipment, if applicable.
• Requires that 50% of new light duty vehicles purchased by 2005 be alternate fueled or hybrid, and 100% by 2010.

In face of these challenges and requirements, SUNY has made considerable progress in the areas of energy demand-side management and procurement.
• Since the start of SUNY’s energy conservation activities, energy use per occupied gross square foot (OGSF) has dropped 38% (2005-06 vs. 1973-74). The cumulative cost avoidance of this reduction is estimated at $1.14 billion. SUNY’s energy use per OGSF since 1989-90 has declined by 16.96%. Note that E.O. 111 uses 10,000 BTUs/kwh vs. SUNY energy using 3,142 BTUs/kwh, input vs. output)
• Since 1992, SUNY has invested over $100 million dollars in energy conservation since 1992, and currently has over $121 million in energy conservation projects in design or construction.
• The State University Construction Fund and campus planners have incorporated LEED and life cycle costing in all new construction and rehabilitation to insure that the most efficient equipment and technologies are used in SUNY buildings.
• SUNY has taken advantage of deregulated energy markets to reduce costs. The Energy Buying Group (EBG) procures electricity directly from the wholesale auctions run by the New York Independent System Operator (NYISO), saving participating campuses a total of over $1 million annually.
• SUNY’s natural gas contracts procure gas supply at competitive rates, while allowing campuses to lock in future prices, based on New York Mercantile Exchange (NYMEX) futures contracts
Sustainability

The utilization of non-renewable energy and the lack of prudent energy management can result in significant impacts on the environment. The use of non-renewable energy (oil, natural gas, and coal) contributes to global warming, acid rain, and the serious depletion of natural resources. By not conserving our conventional carbon-based fuels, we are depriving future generations of a resource necessary to produce chemicals, pharmaceuticals, and polymers. Our students will live in a world in which energy is much more expensive and the environment will be altered because of the world’s energy use. SUNY’s responsibility is to prepare them for this world.

Stewardship and the assumption of responsibility for campus energy consumption with its implications for the environment and the economy of New York State should be a system-wide goal. If we expect to educate responsible citizens and future stewards, they need to be integrated into our mission, participate in our campus renewable energy objectives, and be allowed to monitor our progress.

Viable sustainability is first about using less energy more efficiently, and secondly, about increasing the share that is derived from renewables. Using less fossil fuel energy through conservation, improved energy efficiency, and cogeneration frees up financial resources to fund the premiums that increasing shares of renewables demand.

A holistic approach to physical plant design, operations, curriculum, and research will be used to integrate the academic community under the umbrella of sustainability.

1. Sustainable Academic Initiatives
   a. Sustainability initiatives potentially involve curriculum in environmental studies, natural and social sciences, engineering, architecture, business and management, decision science, economics, life sciences, humanities and teacher education. SUNY will pursue increased external funding for energy-related research, academic initiatives, and sponsored activities consistent with sustainability.
   b. In striving for excellence as a dynamic academic community, and model of energy efficiency and sustainable development, SUNY will achieve an enhanced public image and total quality in its educational mission and operations.

2. Sustainable Development and Business Practices
   a. By educating students, faculty, staff and the community about the environmental and economic impacts of energy usage, and by practicing and promoting sustainable business practices and policies, SUNY will demonstrate national leadership in environmental stewardship and thus serve to provide solutions to complex energy and environmental issues that confront society.
   b. SUNY will seek to determine the sustainable size of the University, by analyzing the economics of growth and energy use in the context of associated
The current energy economy of the United States is not sustainable. As a business enterprise, SUNY must be prepared for the energy future.

1. The University must create a more sustainable energy management system which requires a minimum of between 20% and 30% utilization of renewable energy along with significant energy conservation and efficiency improvements.

2. Executive Orders 111 and 142, the New York State Renewable Portfolio Standard, and the Regional Greenhouse Gas Initiative provide encouragement to move toward a more sustainable energy management system. SUNY should:
   a. By 2010, reduce energy use to the lowest level possible based on the operational needs with a goal of 37% reduction compared to 1989-90. This is two percentage points higher than required by E.O. 111.
   b. Move toward a system-wide increase in the use of renewable energy by purchasing significant quantities of green power, and developing on-campus generation of renewable energy in partnership with NYSErDA, NYPa and the USDOE. By 2014 renewable source electricity should make up 30% of University requirements, 10 percentage points higher than required by E.O. 111.
   c. Increase use of bio diesel to 10% by 2010. Two years ahead of requirements of E.O. 142.
   d. Increase use of bio heating oil (#2 oil) to 10% by 2010. This is five percentage points higher and two years earlier than required by E.O. 142.
   e. Seek to promote the advancement of all renewable energy resources, technologies, and systems while prioritizing wind energy because it is emissions-free and most likely to be significantly developed in New York State if purchased.
   f. Promote combined heat and power (CHP) systems.

3. SUNY should quantify the current energy consumed to educate a student (2004-05 estimated at 65.66 MMBTUs per student per year) and the contribution of that energy consumption to greenhouse gas emissions (tons per student per year). Green house gas emissions should be capped at current levels and reduced 20% by 2014. SUNY students should contribute to this process and should assist in developing campus metrics; this would represent a transformational process.

4. The State University Construction Fund has developed standards associated with the design and construction of Green Building/High Performance Buildings. These standards need to be constantly reviewed to assure that they incorporate and accommodate the latest developments in efficient energy use. The standards must be designed to maximize efficient energy utilization when compared to the proposed building operating plan. Building life cycle analysis needs to be measured in terms of economic costs, energy consumed, and emissions created.
5. It is important to maintain dual fuel capacity where it exists and to encourage the integration of dual fuel capacity were it can be applied.

TRANSFORMATIONAL OPPORTUNITIES

Rising energy costs are consuming an increasing proportion of SUNY’s operating budget. These increased costs, in combination with more volatile energy markets, have focused renewed attention on the need to reduce energy consumption and costs. This challenge provides unprecedented opportunities for SUNY to advance to the forefront in energy management, education, and research. SUNY is uniquely positioned to demonstrate regional and national leadership, innovation, excellence, and good citizenship in the way it uses energy resources. As it moves towards improvements in facilities and operations, the University will leverage its energy efficiency initiatives and sustainable business practices into energy-related sponsored activities, public/private partnerships, and cross-disciplinary research and curriculum. The diversity of campus missions and expertise across the system provide an unparalleled resource for addressing the compelling global problems related to energy, including its impact on the environment, health and society.

In meeting this energy challenge, SUNY will harness the energy of its faculty, students and staff to transform the efficiency and health of its buildings and building occupants, while at the same time transforming SUNY’s image through academic and community initiatives. These timely opportunities are focused around five thematic areas: Advance SUNY’s Educational Mission; Expand Energy-Related Research; Build Strategic Alliances; Enhance Synergies System-wide; and Achieve Leadership through Sustainability.

ADVANCE SUNY’S EDUCATIONAL MISSION IN ENERGY AND THE ENVIRONMENT

Few aspects of life impact citizens, business and society as much as energy. The production and use of energy has a critical effect on the environment, climate, public health, public policy, financial well being, and national security. Decisions made by every individual as well as by institutions and governments contribute to the complex web of energy supply and demand, but few individuals or institutions understand or have studied the convergence of issues related to energy.

As a diverse and dynamic academic community, SUNY will seek to develop and expand energy-related academic programs at the undergraduate, graduate, and technical level, as well as curriculum for general education, continuing education and workforce training.

1. Academic Programs

   SUNY campuses will seek to develop and expand energy-related curriculum and cross-disciplinary academic programs that explore the energy/environment/economics nexus. Robust diversity in campus missions will fuel the development of innovative curriculum in programs that include, but are not limited to: engineering, environmental sciences, atmospheric science, health
sciences, business, finance, decision science, behavioral and social sciences, multi-culturalism and ethics. Campuses will be encouraged to pursue additional financial support for the development and expansion of such curriculum from external funding, both public and private sources.

2. General Education
   a. SUNY will encourage campuses to develop curriculum within their general education programs related to energy and the environment. Such curriculum, created by faculty at the campus level, will provide students with a basic understanding of energy technologies and energy economics, in addition to understanding how behavior and personal energy choices have global social, economic, political and environmental consequences. The University will develop an eco-literacy program to ensure that all graduates are intellectually equipped to be responsible citizens living on a planet with biosphere. Individual campuses may choose to emphasize varied content such as the politics of energy, alternate sources of energy, consumer education, or the impacts of energy on health and society.
   b. The SUNY Provost will work with the University Faculty Senate to facilitate discussion, development and approval of such curriculum through existing mechanisms. This energy/environment curriculum could form a new domain or span several existing domains as defined by SUNY.

3. K-12 Teacher Education
   a. K-12 curriculum in New York State currently integrates energy/environment themes at specific grade levels. SUNY will identify campuses that have demonstrated excellence in this area within their existing Teacher Education programs.
   b. SUNY will encourage and support other campuses with Teacher Education programs to strengthen their offerings in the energy-environment area. The New York State Energy Research and Development Authority (NYSERDA) could be tapped as a resource, since it offers education materials for K-12 related to energy and the environment.

4. Workforce Training
   a. SUNY will seek to develop academic programs at the technical level and through Continuing Education programs to meet the needs of energy users, energy service companies, regulators, and public and investor-owned utilities. Again, NYSERDA may be used as a resource since it offers educational institutions funding for various training programs—e.g. photo voltaic equipment installation.

5. Raising Awareness
   a. SUNY will utilize all of its capabilities to educate its student body, faculty, staff, local community and global community about the nexus between energy and the environment. Educating the college and broader community about the environmental, public health, and economic impacts of energy usage will have
a lasting benefit by developing a greater sense of environmental stewardship within the citizenry for generations to come.

**EXPAND ENERGY-RELATED RESEARCH**

SUNY will develop and support applied and advanced research in a wide range of energy-related areas. This research will explore the connection of energy to the environment, health and public policy in order to address challenges facing the global community. This research will include both disciplinary fields in engineering, science, and technology as well as cross-disciplinary approaches to understanding the technological, economic, and societal impacts of energy.

1. Research Clearinghouse
   a. SUNY will inventory all recent, current, and planned energy-related sponsored research (not limited to projects administered through the Research Foundation).
   b. SUNY will survey campuses to determine the energy-related expertise of existing faculty and staff, and will identify high-interest and high-needs areas of graduate and undergraduate research.
   c. Subject to the availability of resources, SUNY will recruit new faculty into high-interest, high-needs areas not met with existing personnel.
   d. SUNY will create a database of multi-disciplinary expertise and research projects, which will serve as a clearinghouse for marketing and other institutional advancement purposes at campus and system level.
   e. SUNY will facilitate faculty research and professional development by supporting workshops in grant writing, and by sponsoring or co-sponsoring conferences and symposia related to timely energy-environment issues.

2. Areas of Energy-Related Research
   a. Recognizing the severity of the problem of global warming, SUNY will develop research programs designed to improve our understanding of climate change and its impacts, especially to develop strategies, technologies, policies, and educational programs to address it.
   b. SUNY will develop and support applied and advanced energy-related research in areas such as those supported, but not limited to, programs funded through National Science Foundation (NSF), U.S. Department of Energy (USDOE), National Institute of Health (NIH) and the New York State Energy Research and Development Authority (NYSERDA), in addition to research funded by private sources.¹
   c. Examples of cross-disciplinary areas of research (spanning social, behavioral and natural sciences, business and humanities): the psychology of energy use, ethics

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¹ Examples of science/engineering/technology-based areas of research might include the following: biomass, fuel cells, photovoltaics, solar thermal energy (active/passive), power quality and reliability, distributed generation and cogeneration technologies, wind turbines, energy storage strategies (e.g., mechanical or chemical storage of wind or solar energy), pumped storage, alternative fueled vehicles, tidal energy and ocean-thermal energy, geothermal/ground-source heat pumps, analysis of transmission and distribution networks, assessment of energy potential.
and energy choices, the effect of education on energy consumption, energy use in developing nations, energy markets, risk management, impacts of deregulation, energy economics and externalities, quantifying public health and other societal costs of energy use (e.g., impacts on climate, air quality, agriculture, homeland security), quantifying energy and non-energy benefits/costs of energy conservation, metrics for M&V (monitoring and verification) and quality assurance.

3. Student Opportunities
   a. Undergraduate and graduate research in energy-related areas will create new opportunities for SUNY students. Expanded research that spans many disciplines will provide students with funding as research assistants; public/private research partnerships will additionally provide funding for internships.
   b. Energy-related research directed at education and behavior could also provide student opportunities in mentoring, environmental stewardship, creation and staffing of energy/environment kiosks, and community outreach through activities such as energy audits, recycling campaigns, and assistance to low-income residential energy users.

**BUILD STRATEGIC ALLIANCES**

Public/private partnerships, entrepreneurial ventures and increased collaboration with business and community groups must be part of a broader SUNY strategy aimed at operational efficiency, academic excellence, cutting-edge research, and enhanced public image through responsible energy use and innovative leadership. SUNY will pursue increased outreach to federal, state, and private funding sources, increase collaboration with state agencies, utilities, business, and industry in order to leverage energy efficiency mandates into strategic opportunities for resource development, sponsored activities, and research.

1. Business Collaborations
   a. SUNY will pursue increased collaboration with local and regional businesses, energy service companies, public and investor-owned utilities (e.g., New York Power Authority (NYPA), Long Island Power Authority (LIPA), Local Delivery Companies (LDC), and other organizations at the energy/environment nexus.
   b. Such alliances and partnerships will increase externally funded projects and consolidate SUNY’s position as a leader and innovator.
   c. Public/private partnerships will lead to increased opportunities to fund Centers of Excellence, R&D Incubators, energy-related demonstration projects, and academic initiatives and research.

2. Demonstration Projects
   a. SUNY will encourage campuses to pursue increased deployment of environmentally aware demonstration projects and distributed generation (e.g., solar photovoltaics, wind, fuel cells, hydro and cogeneration), and to
pursue growth in entrepreneurial energy-related ventures that produce campus-based revenue streams.

b. Wherever possible, campuses should leverage energy initiatives with incentives from state and federal sources, utilities and other external funding sources.

c. SUNY and its campuses will facilitate knowledge transfer, technology transfer and dissemination of results of such demonstration projects.

3. NYSERDA
   a. SUNY will seek a significant and consistent source of funding from NYSERDA to support research, conservation, improved energy efficient conversions, and emission reduction programs.

4. Establishing SUNY as an Energy “Center of Excellence”
   a. SUNY should develop its internal expertise in a cross-disciplinary structure that can be marketed to other institutions, state agencies and industry. Given its breadth and depth of expertise, SUNY is in the unique position to pursue research and policy development at the energy/environment nexus. SUNY will work with local, state, national, and global institutions to inform, educate, and provide solutions to the energy and environmental issues that confront society. SUNY will seek funding and recognition from New York State to support this effort.

5. Community Outreach
   SUNY will partner with local communities and organizations to provide the knowledge and resources needed for constituency education and sustainable economic development in these communities. SUNY will provide leadership in the development of new energy technologies and industries, sustainable business practices, and in the training of a skilled workforce in energy and related fields. SUNY will promote its excellence and image of leadership by encouraging placement of its faculty and staff with relevant expertise on community boards and advisory boards of businesses, public agencies and authorities.

Management and Planning

Beyond the considerable challenges of planning, funding and implementation, the new mandates for energy conservation provide a transformational opportunity for SUNY to demonstrate leadership and innovation. As it moves toward greater energy efficiency and associated improvements in operations, facilities and infrastructure—which in turn enhance the health and productivity of building occupants—SUNY can leverage its maintenance and operational initiatives into expanded research and energy-related academic initiatives throughout many disciplines. Greater communication, coordination, and collaboration at the campus and system level will expedite the achievement of campus and system excellence. Consistent with
recommendations of SUNY’s Task Force on Efficiency and Effectiveness, the University’s visions and goals will be effectively integrated; best practices related to energy will be promoted, through various avenues including the SUNY website.

1. Optimizing “System-ness”
   a. SUNY will encourage greater inter-campus communication and cooperation regarding best practices, campus-based initiatives and externally funded projects. Campuses with a record of energy leadership, and with individual faculty and staff having notable expertise and experience, will be encouraged (and receive appropriate support and recognition) for participating in dissemination efforts that help facilitate energy and related initiatives on other campuses.
   b. System Administration will facilitate knowledge transfer in areas related to energy management, energy economics, and maintenance through sponsorship of workshops and conferences in areas such as supply-side, demand-side and renewable energy strategies.
   c. SUNY will provide central assistance in technical/financial areas such as group energy procurement, risk management, staff training, grant writing, data collection, and analysis.

2. Intra-Campus Coordination
   a. SUNY will ask each campus to identify person(s) with energy-related expertise. These experts may be faculty, senior administrators, facilities staff, business officers or other personnel.
   b. Energy-related issues and decisions involve a number of campus offices including facilities, business affairs, institutional advancement, residential life, research, and academic affairs. Effective energy management requires a comprehensive skill set and clear lines of responsibility; successful energy-related initiatives require concerted internal coordination and communication. SUNY will encourage each campus to establish appropriate organizational structures and mechanisms to ensure that effective coordination of energy use, planning, and budgeting takes place. These structures should also serve as focus for development of a campus’ other institutional-related energy initiatives.

3. Green Committee
   a. Campuses with a “Green Committee” (engaged in campus activities such as recycling, energy conservation awareness, and green building advocacy) are to be commended for their pro-active efforts, and will be encouraged to disseminate and expand their activities beyond the campus.
   b. Campuses without a green (or energy) committee will be encouraged to establish such a college-wide group, in conjunction with Facilities, Faculty Governance, Student Governance, Residential Life, Alumni Association and other interested parties.
4. Knowledge Transfer/Dissemination
   a. SUNY will sponsor or co-sponsor energy-related workshops, conferences and symposia, designed to provide timely information, dissemination and training, and to showcase the energy-related achievements of SUNY and its campuses, faculty, staff and students.
   b. Conference themes would span energy-environmental issues, and may include public health, public policy, climate change, and other educational, technical or environmental topics.
   c. Co-sponsorship of such events may be sought from agencies and organizations such as NYSERDA, NYPA, DOE, NIH, NYPIRG, and professional associations, as well as from business and community groups. The University Faculty Senate may also be involved in co-sponsoring such events, e.g., through the Conversations in the Disciplines program.

5. System Administration should assist campuses to purchase renewable energy if they lack the technical or administrative resources processes to own and operate campus-specific renewable energy systems.

6. Energy utilization and energy management needs to be integrated into System and campus growth plans.
   a. Other options for growth, including rehabilitation and modifications to existing space, should be considered.

7. Combined heat and power (CHP) projects should be implemented in the future.
   a. Total energy efficiencies in excess of 80% can be achieved with the CHP concept. The University should set a target to implement five CHP projects in the System by 2010. These projects should use renewable fuels (e.g. biomass, biodiesel, etc) where economically practicable.
   b. Partners in these CHP projects could include NYPA, NYSERDA and the USDOE.

SUNY will foster the continual development and refinement of policies and best practices related to energy management and conservation efficiencies. In addition to conservation, strategies shall include the appropriate development of onsite resources for the production of energy.

Specific methods in sustaining appropriate management and planning will include:

1. Campus Plans—Written policies, guidelines, and procedures with respect to energy issues for each campus. These plans should include:
   a. Identification of one individual at the campus who is responsible for administering the guidelines, policies, and procedures.
   b. Identification of appropriate level of financial and personnel resources to be dedicated to energy management and conservation.
   c. Specification of energy use management and measurement, along with goals for reduction including temperature policies and equipment run-time policies.
d. Capital planning strategies to be utilized to achieve long-term increases in energy efficiency, security, and reduction of environmental impacts.

e. Management plans for emergency response to energy disruption.

f. Management plans for power load shedding.

g. Executive Orders 111 and 142 compliance plans.

h. Annual reports to the campus leadership, the Chancellor and SUNY Board of Trustees on energy management and sustainability efforts.

i. Report on academic programs and initiatives that have been added by campuses pursuant to the goals of the University’s overall Strategic Energy Management and Planning Policy, including energy-related curriculum, sponsored research and student opportunities.

j. Efforts undertaken to link enrollment planning and academic planning with facilities planning and energy use, to meet the goals of the policy.

2. Capital planning strategies need to be developed to achieve long-term increases in energy efficiency, security, and reduction of environmental impacts.

3. Campus Measurement–Campuses will be required to provide some fundamental data-reporting to System administration.
   c. Executive Orders 111 and 142 compliance.

4. The information will be disseminated back to the campuses in a form that will organize system-wide data into logical subdivisions that will enable campuses to conduct comparative analysis and benchmarking.
   a. Energy and greenhouse gas emissions on a square foot and per student basis.
   b. Energy costs by campus and commodity including average unit costs and costs per square foot.
   c. Historical energy usage by campus (10-year trend).
   d. Best energy management practices as reported by campuses.
   e. Changes at SUNY that affect energy use: enrollment, sponsored research, economic development, and increased health care services.

**Procurement and Risk Management**

SUNY is the second largest energy consumer in New York State with approximately $300 million in combined utility costs. As such, SUNY has the potential to capitalize on its size, geographic diversity (as relates to electricity and natural gas costs), and credit worthiness to better manage its response to escalating and volatile energy costs. While conservation and greater energy independence must continue to be fundamental to the University’s energy strategies, two areas where SUNY can leverage its size and diversity are: procurement and risk management. Included in this last category are any on-campus production capabilities that may exist.
Procurement

Among the most significant challenges that SUNY faces is managing energy costs in volatile energy markets. To meet this challenge SUNY needs to develop contracts and procurement systems that allow it to participate in energy markets. SUNY should:

1. Work with New York State’s control agencies (i.e., State Comptroller, Attorney General and Division of the Budget) to develop standardized energy contracts that meet the State approval process and are compatible with common energy market practices for all energy products. If legislative changes are required, SUNY will seek such changes.

2. Explore long-term wind energy or green power purchases as financial hedges to minimize price volatility.

3. Explore development/ownership of generation resources as the most effective long-term hedges against escalating energy prices.

Risk Management

The current budgetary process requires SUNY to make predictions regarding energy prices eighteen months in the future. These predictions are built into the annual utility budget for each campus. The problem is that the New York energy market is a deregulated one that is based upon hourly “spot” pricing. This deregulated market can be characterized as an extremely volatile and unpredictable one (see Appendices I & J) in which previously establish market patterns are easily inverted. With this kind of volatility it is impossible for SUNY to accurately predict and manage energy costs, or achieve budget certainty, without the use of well-established, responsible risk management strategies. Only by adopting these risk management tools and strategies will SUNY be able to achieve energy budget certainty within an acceptable, pre-established variance. SUNY should:

1. Develop and implement a risk management policy that is clearly documented with strong oversight and controls. This policy must be approved and supported across the institution.

2. Formulate and implement a risk management strategy to actively control and stabilize the institution’s exposure to the extreme risks inherent in the energy market. Participation in this risk management strategy should be mandatory and include all State-Operated campuses within the SUNY system.

   a. Additional internal or consulting service resources will be required to administer such a program, but would constitute a fractional percentage of the University’s current expenditures on electricity, natural gas, and oil.
**Regulation and Incentives**

**Regulation**

1. The State University will take a proactive role in rate cases before the New York State Public Service Commission (NYSPSC) and Federal Energy Regulatory Commission (FERC), to protect its interests, such that:
   a. Costs for transmission and distribution of natural gas and electricity are fairly distributed by rate classes based on cost of services.
   b. Regulated utilities profits do not exceed allowed rates of return.
   c. Standby rates for electricity or gas service do not adversely affect the University’s ability to burn alternate fuels or generate electricity or utilize combined heat and power cogeneration systems on campus.
   d. Regulated utilities meet reliability and maintenance standards.
   e. Rate structures are modified so that utility companies are once again provided with financial incentives to promote conservation and efficiency.

2. SUNY needs to continue and expand its proactive role in the governance of the New York Independent System Operator (NYISO), such that:
   a. Electricity costs to consumers are kept as low as possible while still maintaining reliability.
   b. Costs of energy, ancillary services, and capacity are accurately accounted for and accurately charged to buyers and sellers.
   c. Reserve margins are maintained to meet regional requirements and costs are allocated regionally based on those needs.

3. SUNY should provide input to the Governor, the Legislature, and regulatory bodies on:
   a. The need for Systems Benefit Charges to be maintained at the current level or increased, and continue to be available in an open, flexible and competitive fashion for energy conservation projects.
   b. Energy issues that affect the cost of energy to SUNY and all New Yorkers.
   c. The mix of electrical generation sources in New York State.
   d. Environmental issues such as the Green House Gas Initiative.
   e. Electrical transmission needs.
   f. Renewable energy technologies.

**Incentives**

1. SUNY should apply for additional funding from State entities (NYSERDA, LIPA, NYPA, Empire State Development), Federal entities (DOE and EPRI) and private foundations for:
   a. Grants to offset the costs of energy conservation projects.
   b. Grants for research into new energy sources, more energy efficient products, and improved delivery systems.
   c. Grants to improve energy and environmental education.
## Appendix A

### State University of New York
Comparison of Base Year (1989/90) to Goal for 2010

<table>
<thead>
<tr>
<th>Campus</th>
<th>Baseline 1989/90 BTUs/OGSF</th>
<th>Current 2005/06 BTUs/OGSF</th>
<th>See Note Below % Difference 05/06 vs. 89/90</th>
<th>Goal to Meet a 37% Reduction by 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albany</td>
<td>246,827</td>
<td>233,453</td>
<td>-5.42%</td>
<td>31.58%</td>
</tr>
<tr>
<td>Binghamton</td>
<td>220,981</td>
<td>179,650</td>
<td>-18.70%</td>
<td>18.30%</td>
</tr>
<tr>
<td>Buffalo South/Main</td>
<td>207,806</td>
<td>195,882</td>
<td>-5.74%</td>
<td>31.26%</td>
</tr>
<tr>
<td>Buffalo North/Amh</td>
<td>345,338</td>
<td>284,220</td>
<td>-17.70%</td>
<td>19.30%</td>
</tr>
<tr>
<td>Stony Brook</td>
<td>445,156</td>
<td>228,785</td>
<td>-48.61%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Brooklyn HSC</td>
<td>560,124</td>
<td>421,057</td>
<td>-24.83%</td>
<td>12.17%</td>
</tr>
<tr>
<td>Syracuse HSC</td>
<td>380,880</td>
<td>434,380</td>
<td>14.05%</td>
<td>51.05%</td>
</tr>
<tr>
<td>Brockport</td>
<td>174,218</td>
<td>166,604</td>
<td>-4.37%</td>
<td>32.63%</td>
</tr>
<tr>
<td>Buffalo</td>
<td>245,535</td>
<td>189,847</td>
<td>-22.68%</td>
<td>14.32%</td>
</tr>
<tr>
<td>Cortland</td>
<td>220,753</td>
<td>167,828</td>
<td>-23.97%</td>
<td>13.03%</td>
</tr>
<tr>
<td>Fredonia</td>
<td>235,584</td>
<td>214,761</td>
<td>-8.84%</td>
<td>28.16%</td>
</tr>
<tr>
<td>Geneseo</td>
<td>170,978</td>
<td>155,278</td>
<td>-9.18%</td>
<td>27.82%</td>
</tr>
<tr>
<td>New Paltz</td>
<td>174,213</td>
<td>186,906</td>
<td>7.29%</td>
<td>44.29%</td>
</tr>
<tr>
<td>Old Westbury</td>
<td>199,931</td>
<td>202,661</td>
<td>1.37%</td>
<td>38.37%</td>
</tr>
<tr>
<td>Oneonta</td>
<td>179,187</td>
<td>169,470</td>
<td>-5.42%</td>
<td>31.58%</td>
</tr>
<tr>
<td>Oswego</td>
<td>181,558</td>
<td>188,306</td>
<td>3.72%</td>
<td>40.72%</td>
</tr>
<tr>
<td>Plattsburgh</td>
<td>254,412</td>
<td>263,164</td>
<td>3.44%</td>
<td>40.44%</td>
</tr>
<tr>
<td>Potsdam</td>
<td>184,098</td>
<td>202,275</td>
<td>9.87%</td>
<td>46.87%</td>
</tr>
<tr>
<td>Purchase</td>
<td>232,971</td>
<td>203,927</td>
<td>-12.47%</td>
<td>24.53%</td>
</tr>
<tr>
<td>Utica/Rome</td>
<td>224,345</td>
<td>150,105</td>
<td>-33.09%</td>
<td>3.91%</td>
</tr>
<tr>
<td>Alfred</td>
<td>177,789</td>
<td>157,696</td>
<td>-11.30%</td>
<td>25.70%</td>
</tr>
<tr>
<td>Canton</td>
<td>214,926</td>
<td>225,100</td>
<td>4.73%</td>
<td>41.73%</td>
</tr>
<tr>
<td>Cobleskill</td>
<td>249,684</td>
<td>194,554</td>
<td>-22.08%</td>
<td>14.92%</td>
</tr>
<tr>
<td>Delhi</td>
<td>250,776</td>
<td>186,198</td>
<td>-25.75%</td>
<td>11.25%</td>
</tr>
<tr>
<td>Farmingdale</td>
<td>180,233</td>
<td>150,962</td>
<td>-16.24%</td>
<td>20.76%</td>
</tr>
<tr>
<td>Morrisville</td>
<td>154,647</td>
<td>139,797</td>
<td>-9.60%</td>
<td>27.40%</td>
</tr>
<tr>
<td>Cornell</td>
<td>271,353</td>
<td>234,327</td>
<td>-13.64%</td>
<td>23.36%</td>
</tr>
<tr>
<td>Geneva</td>
<td>313,816</td>
<td>249,352</td>
<td>-20.54%</td>
<td>16.46%</td>
</tr>
<tr>
<td>Alfred Ceramics</td>
<td>198,397</td>
<td>229,536</td>
<td>15.69%</td>
<td>52.69%</td>
</tr>
<tr>
<td>Forestry</td>
<td>223,379</td>
<td>168,065</td>
<td>-24.76%</td>
<td>12.24%</td>
</tr>
<tr>
<td>Maritime</td>
<td>141,264</td>
<td>140,305</td>
<td>-0.68%</td>
<td>36.32%</td>
</tr>
<tr>
<td>Sys. Admin.</td>
<td>254,984</td>
<td>227,297</td>
<td>-10.86%</td>
<td>26.14%</td>
</tr>
<tr>
<td>Optometry*</td>
<td>193,277</td>
<td>182,317</td>
<td>-5.67%</td>
<td>31.33%</td>
</tr>
<tr>
<td><strong>University Avg.</strong></td>
<td><strong>264,302</strong></td>
<td><strong>219,469.7</strong></td>
<td><strong>-16.96%</strong></td>
<td><strong>20.04%</strong></td>
</tr>
</tbody>
</table>

**Note:** A **negative number reflects a decrease in usage from 1989/90 baseline.**

A **positive number reflects an increase in usage from 1989/90 baseline.**

*Optometry - used baseline of 2003/04; in rental building until 2001/02*
Appendix B

State University of New York
BTUs Per OGSF

Data for 2006/07 is estimated
Appendix C

Existing and Projected Combined Heat and Power Projects

<table>
<thead>
<tr>
<th>Campus</th>
<th>Capacity</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stony Brook</td>
<td>40 MW</td>
<td>Operational</td>
</tr>
<tr>
<td>Old Westbury</td>
<td>1.9 MW</td>
<td>Operational</td>
</tr>
<tr>
<td>(Summer, 2006)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potsdam</td>
<td>3.5 MW</td>
<td>Design</td>
</tr>
<tr>
<td>Binghamton</td>
<td>5-8 MW</td>
<td>Design</td>
</tr>
</tbody>
</table>
## Appendix D

![State University of New York Emissions - Tons Per AAFTE](image)

### Data for 2006/07 is estimated
Appendix E

State University of New York
Annual Average Unit Cost Per OGSF

Data for 2006/07 is estimated
Data for 2006/07 is estimated
Appendix G

NYISO Wholesale Average Monthly Electricity Costs

<table>
<thead>
<tr>
<th>Month</th>
<th>2004-2005</th>
<th>2005-2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>May</td>
<td>$54.15</td>
<td>$57.17</td>
</tr>
<tr>
<td>Jun</td>
<td>$50.33</td>
<td>$67.91</td>
</tr>
<tr>
<td>Jul</td>
<td>$51.23</td>
<td>$74.72</td>
</tr>
<tr>
<td>Aug</td>
<td>$47.12</td>
<td>$86.78</td>
</tr>
<tr>
<td>Sept</td>
<td>$45.16</td>
<td>$103.10</td>
</tr>
<tr>
<td>Oct</td>
<td>$52.45</td>
<td>$105.40</td>
</tr>
<tr>
<td>Nov</td>
<td>$54.90</td>
<td>$96.81</td>
</tr>
<tr>
<td>Dec</td>
<td>$56.36</td>
<td>$73.00</td>
</tr>
<tr>
<td>Jan</td>
<td>$57.57</td>
<td>$67.24</td>
</tr>
<tr>
<td>Feb</td>
<td>$66.87</td>
<td>$60.92</td>
</tr>
<tr>
<td>Mar</td>
<td>$64.48</td>
<td>$59.74</td>
</tr>
<tr>
<td>Apr</td>
<td>$66.54</td>
<td></td>
</tr>
</tbody>
</table>

Average Monthly Cost ($/MWh)

- $0.00
- $20.00
- $40.00
- $60.00
- $80.00
- $100.00
- $120.00

Month

- May
- Jun
- Jul
- Aug
- Sept
- Oct
- Nov
- Dec
- Jan
- Feb
- Mar
- Apr
Appendix H

State University of New York
Electricity - Obligation & Consumption

Data for 2006/07 is estimated
Appendix I

State University of New York
Natural Gas - Annual Average Unit Costs

Data for 2006/07 is estimated
### Appendix J

#### State University of New York Wholesale Average Yearly Cost Per MWH

<table>
<thead>
<tr>
<th>Year</th>
<th>Capital Zone</th>
<th>West Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>$44.77</td>
<td>$34.38</td>
</tr>
<tr>
<td>2001</td>
<td>$40.42</td>
<td>$34.33</td>
</tr>
<tr>
<td>2002</td>
<td>$38.75</td>
<td>$31.12</td>
</tr>
<tr>
<td>2003</td>
<td>$51.30</td>
<td>$43.71</td>
</tr>
<tr>
<td>2004</td>
<td>$52.20</td>
<td>$44.75</td>
</tr>
<tr>
<td>2005</td>
<td>$77.50</td>
<td>$64.96</td>
</tr>
</tbody>
</table>
Appendix K

Peer Comparisons

There are a number of colleges and university systems throughout the U.S. and Canada that are developing sustainability strategies to meet the environmental and energy challenges of the 21st century. The following is a synopsis of various efforts that have been taken by a mix of public and private higher education institutions throughout North America.

Comprehensive Sustainability

New Jersey Higher Education Partnership for Sustainability (NJHEPS)

The New Jersey Higher Education Partnership for Sustainability is a collaborative effort of forty-two public and private higher education institutions to address climate change including the use of renewable resources. The college presidents of all the higher education facilities within the state have signed on to the New Jersey Sustainability Greenhouse Gas Action Plan. The plan involves the following steps:

- Energy reports and action plans for reducing emissions and costs for presentation to college decision makers
- Appointment of sustainability coordinators from facilities and faculty to implement the plan
- *High Performance Campus Design Handbook*, guidelines for green design
- The Building Energy Audit and Technical Assistance Initiative, a database providing baseline building energy information for use for benchmarking and goal setting in the entire sector
- Establishment of emissions and energy reduction targets at each campus
- The Renewable Energy and Global Warming Curriculum Module, a Web-based problem-solving product
- Implementation of emissions and energy reductions at multiple campuses through energy-efficiency improvements and renewable energy investments

NJHEPS acts as the coordinating mechanism for the colleges and universities and fosters sharing of information, presentation of educational material, and publication of technical information.

Comprehensive Energy Planning

University of California at Merced

As the newest campus, currently under construction in the University of California system, UC Merced is incorporating sustainable principles into its comprehensive plan. This plan includes high performance building, water conservation, recycling and transportation. All Merced’s building will meet or exceed

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Andrea Putnam and Michael Philips, APPA, NACUBO, and SCUP, 2006

3 *New Energy for Campuses: Energy-Saving Policies for Colleges and Universities*
Satya Rhodes-Conway and Brian Su of The Apollo Alliance
Billy Parish of Energy Action
LEED Silver standard and will incorporate recycling in construction and ongoing waste minimalization. Transportation planning promotes intermodal travel and storm water will provide irrigation. The campus planning process calls for increasingly stringent efficiency measures as the campus grows. Merced’s comprehensive approach can be a model for campuses undergoing major renovations, additions, and long-term planning.

Clean Power on Campus

University of Iowa

The University of Iowa is shifting its energy sources from coal to biomass. The UI power facility, which supplies 100% of campus heat and 30% of campus electricity, historically operated on coal. Recently, the plant has added oat hulls to its fuel mix. Each year, oat hulls replace between 25,000 and 30,000 tons of coal, saving the school over $500,000 in fuel costs. The switch has resulted in large reductions of NOX, SOX, CO2, particulate matter, and volatile organic compounds. These environmental improvements allow UI to sell emissions offsets on the Chicago Climate Exchange.

Efficient Generation through Combined Heat and Power (CHP)

University of North Carolina – Chapel Hill

UNC-Chapel Hill’s CHP plant provides the campus with one-third of the electricity and 100% of all its heating needs. The plant utilizes the latest technologies to reduce the emissions and the thousands of tons of fly ash produced annually are reused for sewage treatment and structural fill. The facility has won multiple awards from the U.S. EPA.

Buying Renewable Power

California State University System (CSU)

CSU has committed to meeting 20% of its energy demand with renewable power by 2010. CSU will begin by purchasing 34,000 Mwh worth of Renewable Energy Credits (RECs) from 86% wind and 14% landfill gas. The CSU system plans to reduce demand by 15% by 2010 and to complete 50 MW of self-generation capacity. This capacity will include clean technologies such as solar and CHP. All told, the CSU policies will avoid 80,000 tons of CO2 release by 2010 and will reduce emissions by 17% below their 2004 levels.

Efficiency

University of Michigan

Over a six year period, the University of Michigan completed energy efficiency projects in 123 campus buildings. The measures included lighting upgrades, efficient appliance procurement, adjustments to

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4 Ibid
5 Ibid
6 Ibid
7 Ibid
mechanical systems, and environmental control systems. The University expects $9.7 million in annual savings from these efforts.

**Operations**

University of Vermont

The University of Vermont uses a centralized environmental control system to operate many of its large buildings. The system adjusts both lighting and temperature for periods of high and low occupancy. This ensures consistent efficiency by removing the possibility of human error. Buildings that are not integrated into the central control system have been retrofitted with programmable thermostats that adjust temperature during low occupancy periods.

**Purchasing Policies**

Duke University

Duke University includes heating and cooling systems under its procurement policies, giving preference to state of the art efficiency technology, as well as calling for Energy Star compliant equipment whenever possible.

**Improving Mass Transit**

Cornell University

Cornell University implemented a package of incentives and disincentives to manage growing campus traffic. Higher parking fees were coupled with a redrawn parking system which favors carpooling. The University also worked with surrounding municipalities to integrate their transit systems for more efficiency. Faculty, staff, and students who forego a parking pass can have unlimited use of public transport anywhere within Tompkins County. These efforts have saved the University 417,000 gallons of fuel and 10,000,000 vehicle miles traveled each year. Over 12 years, Cornell’s transportation system has saved over $36 million in construction, infrastructure maintenance, and transportation costs.

**Clean Energy Funds**

Harvard University

Harvard University established a revolving loan fund to finance clean energy projects on campus. Total average rate of return for all projects was 27.9%. These projects have achieved considerable savings (FY 2003 = $550,000, FY 2004 = $820,000).
STATE UNIVERSITY OF NEW YORK

ENERGY AND SUSTAINABILITY POLICY

I. INTRODUCTION

Based on the recommendations of the University Strategic Energy Planning Task Force, this establishes the State University of New York’s Policy on Energy Conservation and Sustainability.

The supply of oil and natural gas is dwindling, greatly increasing costs and making prices volatile. The environmental damage from air pollution and greenhouse gases is changing world climates and adversely affecting society. The State University of New York must take action now to reduce its environmental impact and assume a national leadership in the transformation to sustainability through its actions, teaching, research, and the analysis and enactment of good public policy.

II. MISSION/OBJECTIVE

SUNY will assume a national leadership role in energy sustainability, education, technology, economics, and public policy through the integration of practice, teaching, and research. SUNY will meet and exceed the requirements of Executive Orders 111 and 142.

III. GOALS

A. Conservation and Sustainability:

1. Reduce energy use to lowest level possible. By 2010 reduce energy use in buildings by 37% as compared to FY 89-90 on a BTU/sq. ft. basis. (Campus specific goals are attachment A)
2. Cap green house gas emissions to current levels and reduce emissions of carbon dioxide by 20% by 2014.
3. Increase the use of renewable electricity (purchased or generated on-site) to 30% by 2014.
4. Increase the use of bio diesel to 10% of total usage by 2008.
5. Increase the use of bio heating oil to 10% of number 2 oil use by 2010.
7. Design new buildings and rehab existing ones in accordance with Leadership in Energy and Environmental Design (LEED) silver rating, higher standards are encouraged.
8. Procure energy and fuel at competitive prices, while managing price risk.
9. Continue to take a proactive role in rate cases before the New York State Public Service Commission and the Federal Energy Regulatory Commission, to protect the University’s interests.
B. **Transformational Opportunities:**

1. Advance SUNY’s educational mission in energy and the environment.
   a. Academic Programs - Develop and expand energy related curriculum and cross-disciplinary programs.
   b. General Education - Develop curriculum within campus general education programs related to energy and the environment.
   c. K-12 Teacher Education - Support Teacher Education Programs to strengthen their offerings in the energy-environment area.
   d. Work Force Training - Develop academic programs at the technical level through Continuing Education Programs to meet the needs of SUNY, energy service companies, regulators, and Local Delivery Companies.
   e. Raising Awareness - Utilize capabilities of the University to educate students, faculty, staff, local community and global community about the nexus between energy and the environment.

2. Expand energy related research to achieve national leadership in the development and use of renewable energy.

3. Build strategic alliances with public and private sector partners by providing research and analysis to regulators, elected officials, private industry, and New York’s citizens.

C. **Management and Planning:**

1. Use SUNY’s size and individual campus expertise to the benefit of all campuses. Encourage and facilitate cooperation regarding best practices, campus based initiatives, and externally funded projects

2. Procure energy and fuel at competitive prices while managing price risk in accordance with a prudent, clearly defined, and documented University Risk Management Policy that utilizes financially sound market based products.

3. Take a proactive role in rate cases before the New York State Public Service Commission and the Federal Energy Regulatory Commission to protect the University’s interests.

IV. **EXECUTION**

A. Energy Conservation and Sustainability plans and procedures will be based on attachment B Energy Conservation and Sustainability Implementation Plan. Reporting on milestones will be to SUNY Energy Office.

B. Transformational Opportunities planning and reporting will be developed on campuses and coordinated with the Office of the Provost.
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9...... Improve Operational Effectiveness
10...... Optimize Enrollment
11...... Drive Decisions with Relevant Information
12...... Focus on Sustainability
12...... Create an Active and Enriching Campus Life
13...... Build Greater Awareness of SUNY Canton

13 Implementing the Plan

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PRESIDENTIAL MESSAGE

Over the last several months, the SUNY Canton community has been engaged in a Strategic Planning process to help us reaffirm who we are as an institution, and determine what we want the College to look like in the year 2020. The process has also established a roadmap for how we can get to where we want to be in 2020 and helped define the fundamental principles that will guide us along the way.

The Council on University Strategic Planning (CUSP) has gathered input from all campus constituencies. Through Town Hall Meetings, Working Groups, and countless hours of collaboration, CUSP has created a new mission and vision statement, affirmed the College’s core values, and set seven strategic goals with underlying objectives and action items that will carry SUNY Canton forward through 2020.

SUNY Canton’s resulting ten-year Strategic Plan charts the future direction for the campus in terms of making critical decisions, implementing change, reducing risk, and reaching consensus on issues that affect the College. The Strategic Plan also helps us to align our priorities with those of the SUNY system. I am confident that the Strategic Plan will serve the institution well as we move forward during the next decade.

Our challenge as an institution is to make this plan a reality to assure that we become the College we want to be in 2020. To that end, the Strategic Plan is a starting point in an ongoing process of change, adaptation, and continuous improvement. With the Strategic Plan as a roadmap, we must work together to implement key strategies, measure our progress, and continually adapt to the unforeseen realities that will impact us between now and 2020.

I want to take this opportunity to thank all of you who devoted your time, energy, input, and enthusiasm to this process. Your participation has made SUNY Canton a stronger institution as we collectively set our course for the future.

Joseph L. Kennedy
President
SUNY Canton is dedicated to providing a progression of accessible, affordable, high-quality applied programs that enable students in the North Country, New York State, and beyond to achieve their highest potential both personally and professionally.
THE STRATEGIC PLANNING PROCESS

The SUNY Canton community has been actively engaged in Strategic Planning since the fall of 2009. The process has included several town hall meetings, retreats off-site, on-campus discussions within functional areas, website input, and extensive coordination with the SUNY statewide strategic planning effort.

It has also included extensive collaboration among the College Strategic Planning Leadership Team and the efforts of area-specific and operational unit work teams.

- Academic Assessment
- Athletics, Student Life, Wellness
- Data and Institutional Analysis
- Employers, Alumni, Key External Stakeholders
- Facilities
- Faculty
- Human Resources
- Marketing and Enrollment
- Non-Academic Assessment, Technology and Information Management Planning
- Student Perspectives

GUIDING PRINCIPLES

As part of the Strategic Planning process, members of the SUNY Canton community have created a set of principles to inform and guide our educational mission and align that mission with the strategic direction of SUNY statewide as we move toward our goals for 2020. These principles articulate the purpose of our collective educational endeavor, our vision for a SUNY Canton education, and key values that will guide us in our efforts.

MISSION STATEMENT

SUNY Canton is dedicated to providing a progression of accessible, affordable, high-quality applied programs that enable students in the North Country, New York State, and beyond to achieve their highest potential both personally and professionally.

VISION STATEMENT

Educating the leaders of tomorrow for careers in the global technological economy.
VALUES STATEMENT/
DISTINCTIVE IDENTITY

We Value…

• A Student-Centered Philosophy... by keeping students’ best interests at the center of everything that we do.

• Excellence... by challenging everyone to perform at a consistently high level through continuous quality improvement.

• Integrity... by treating others with honesty and respect during every interaction.

• Success... by creating an environment that encourages maximum personal and professional growth and helps students translate that growth into meaningful action.

• Diversity... by fostering a culture of inclusiveness that values individual differences, gives voice to all in the campus community, promotes the free exchange of ideas based on merit, and encourages a global perspective.

• Access... by offering affordable career-oriented public higher education to motivated, mature and disciplined students through innovative delivery methods.

• Sustainability... by implementing viable long-term options for resource usage, disaster management, transportation, and waste management in connection with all campus activities and weaving sustainability concepts throughout the curriculum.

• Flexibility... by embracing change to better address the needs of the college community and society at large.

STRATEGIC THEMES

Several key themes running through all goals, objectives, and action items emerged during the Strategic Planning process both locally and for the SUNY system as a whole.

• Student Success: All institutional activities should ultimately focus on assuring that SUNY Canton students have the tools and skills required to thrive in every aspect of college life, work, and beyond.

• Applied Learning: Integrate technological literacy with a strong foundation in the arts and sciences to shape graduates who can think critically, lead others, and innovate in their respective areas of expertise.

• Vibrant Community: Encourage campus and cross-campus collaboration in ways that strengthen intellectual and social connections among students, faculty, staff, and the larger local and global community.
• **Organizational Effectiveness**: Achieve outcomes in all areas of College operations that are efficient and provide exceptional value to the constituencies served.

• **Expert Assessment and Planning**: Ensure comprehensive evaluation, forecasting, and decision making at all levels of the institution based upon current, relevant, and necessary information.

### GOALS AND OBJECTIVES

As the College moves toward 2020, there are seven key goals critical to educating students and assuring that the institution thrives.

1. Promote Academic Excellence  
2. Improve Operational Effectiveness  
3. Optimize Enrollment

4. Drive Decisions with Relevant Information  
5. Focus on Sustainability  
6. Create a Robust, Active and Enriching Campus Life  
7. Build Greater Awareness of SUNY Canton

Each of these goals has multiple underlying objectives, supporting initiatives, and action items that must be accomplished. In some cases, a goal represents a reaffirmation of what the institution has already achieved. In other instances, the goal, or some of the underlying objectives and action items are aspirational and/or chart a new direction for the College.

### PROMOTE ACADEMIC EXCELLENCE

The College will continue to promote academic excellence as we complete the ongoing transition to a Baccalaureate institution with a greater selection of four-year and Master’s programs. Simultaneously, SUNY Canton will retain unique two-year and certificate programs to serve the educational needs of the larger community and to serve as access points for students preparing to enter a growing array of Baccalaureate programs. This part of the educational pipeline will offer unique connections to traditional age students entering college for the first time and will simultaneously serve adults looking for career-oriented and other lifelong learning opportunities.

The College will focus at all instructional levels on applied learning that integrates technologi-
cal literacy with a strong foundation in the arts and sciences. Our goal is to shape graduates who can think critically, lead others, and innovate in their respective areas of expertise. The entire SUNY Canton experience will focus on developing graduates who not only understand technical fields, but who also have the broader intellectual capacity and global perspective required to assume leadership roles and drive productive change through innovation in those fields.

Faculty teaching and scholarship that serve students well must form the basis of any plan to assure academic excellence. To that end, the College will strive to increase both the total number and percentage of full-time faculty teaching students while continuing to strategically employ adjunct faculty with specific professional and technical expertise. The College will implement a specific plan to attract and retain exceptional new faculty with a global perspective. We will create procedures to encourage, recognize, and reward faculty excellence based upon performance and innovation in teaching, scholarship, and service both for the success of the College and SUNY as a whole. As part of this initiative, the institution will create a stronger peer review process to evaluate faculty teaching and will standardize the content of identical courses taught across multiple sections and delivery channels—in the classroom, through distance learning, and online.

An equally important part of promoting academic excellence at SUNY Canton involves improving student learning outcomes. In addition to focusing on the quality of instruction, the College will implement a series of strategies to assure that more students finish what they start at SUNY Canton. These strategies include optimizing the use of assessment data to improve program quality, establishing appropriate class sizes by discipline to further learning, restructuring existing systems to identify and assist students who are struggling academically, making innovative use of academic support services, and refining student academic advising. These strategies are designed to help students develop critical thinking, innovation, and leadership skills, through exposure to a broad range of knowledge in the arts and sciences plus applied knowledge in professional and technical fields.

Finally, the College will achieve the goal of promoting academic excellence by developing new courses and degree programs. This development will focus on Baccalaureate and Master’s programs that appeal to students in terms of content, delivery format, and career prospects. The new programs will be designed
to attract talented students from around the world and simultaneously enhance the overall academic profile of SUNY Canton.

**IMPROVE OPERATIONAL EFFECTIVENESS**

In looking toward 2020, the College will focus on key areas of operational effectiveness to assure financial strength and vitality, improve campus infrastructure both in terms of physical plant and technology, inside and outside the classroom, and undertake several key human resources initiatives.

The strategic planning process has taken place in the midst of one of the most difficult economic climates for higher education in more than a generation. This reality has compelled the College to focus even more time and energy on mission critical tasks related to preserving and enhancing short-term financial security. While the College has taken appropriate steps to manage its finances in a time of economic uncertainty, it is an equally important cornerstone of the Strategic Plan to chart a course for the future financial strength of SUNY Canton and the SUNY system as a whole.

As part of our long-term financial plan, the College will create and use a multi-year budget process that emphasizes greater transparency. In addition, the College will launch several institutional advancement initiatives to grow the foundation endowment and increase alumni giving both in terms of actual dollars and total participation. The institution, both independently and with the assistance of the SUNY system, will develop initiatives to seek other significant, independent, and unique sources of revenue to fund faculty research, teaching and campus operations.

Over the coming decade, the College will continue to invest in state of the art technology to enhance student learning outcomes, aid in curriculum development, and augment course offerings. This investment in technology will permit SUNY Canton to blend online, distance learning, and classroom course offerings. It will also help us to expand offerings to geographically dispersed students, optimize the use of faculty resources, give students exposure to cutting edge technologies in all academic disciplines, and become an operating system neutral campus.

Streamlining and reengineering back office
processes using cutting edge technology to create efficiencies and cost savings will be a key element of improving operational effectiveness. The College will implement plans to rationalize and simplify inefficient administrative processes, eliminate the unnecessary use of paper, take advantage of SUNY centralized purchasing opportunities, and collect and maintain electronic records.

The College will also utilize the State University Construction Fund to make targeted improvements to campus facilities pursuant to the campus master plan. This will include upgrading classroom space and other common areas and expanding student residential facilities.

Finally, as SUNY Canton looks forward to 2020, the College will undertake key human resource initiatives. We will develop an institutional leadership succession plan, implement new strategies for recruiting faculty and staff with a global perspective, adjust faculty and professional staffing levels to support priority campus initiatives, address rising health care costs, and enhance the work environment for all who serve the institution in a professional capacity.

OPTIMIZE ENROLLMENT

A fundamental component of SUNY Canton’s ten-year plan involves establishing realistic targets for the number of students attending the College each year through 2020. Planning for the right number of students will drive decision making across the campus. In 2020, the College will plan to serve between 4000-5000 full-time domestic (including online) and 1000 international students each semester. Of these students, 1500 will reside in housing on campus. The College will reach these enrollment numbers through traditional and new recruiting methods focused on students interested in starting, or transferring into, four-year programs. These will include streamlining the process for establishing articulation agreements with other institutions, increasing online course offerings, and establishing greater visibility for the College’s online course offerings on the Internet. Recruiting efforts will also seek to increase the number of students from outside New York State, attract former and current members of the military and their families, and enroll lifelong learners. In addition to traditional semester enrollments, the College will employ strategies to dramatically increase the number of students enrolled in online and distance learning courses during Winterterm and Summer Sessions by 2020.

SUNY Canton will also undertake aggressive
efforts to retain enrolled students. This work should culminate in significantly increased graduation and retention rates by 2020. To retain and graduate more students, the College will reassess its current probation and suspension process, evaluate the effectiveness of existing student support and academic improvement programs, and start new initiatives to improve student learning outcomes. The faculty will identify those courses and programs that require remedial attention or delivery format changes to better serve students.

In addition to increasing both enrollment and retention, the College will work to improve the academic qualifications of incoming students while maintaining campus accessibility to selected groups of students who demonstrate non-academic characteristics that indicate a likelihood of success in post-secondary education. To be more selective in admissions without sacrificing access to qualified applicants, the College will work aggressively to attract a larger pool of students with a demonstrated aptitude for Baccalaureate study. This will require development of more sophisticated qualitative and quantitative tools to evaluate both the academic and non-academic qualifications of prospective students.

**DRIVE DECISIONS WITH RELEVANT INFORMATION**

SUNY Canton will implement a wide-ranging initiative to make timely, accurate, relevant, and complete information readily available to all campus constituencies for the purpose of better planning, decision making, and measurement of progress. Collection, analysis and dissemination of data for all types of campus decision making will become part of the SUNY Canton culture. By 2012, we will make an annual fact book, on-demand customized reports, course audits and other tools routinely available to appropriate campus groups and individuals.

Information collected and reported will include data on campus performance, demographics, student achievement, financial metrics, plus assessment and institutional effectiveness. Data from external sources will include competitive information regarding peer, aspirational, and other academic institutions, along with information about market segmentation, market share, and market trends.

Information will be available to measure and compare, to inform relevant campus and external constituencies, and to allocate resources in ways that improve the quality of campus programs and services.
FOCUS ON SUSTAINABILITY

The SUNY Canton community will collaborate with the SUNY system statewide to make sustainability a top priority as the institution looks toward 2020. Initiatives will include a plan to implement sustainable options to power the campus while reducing overall energy consumption. Recycling programs will be integrated into the fabric of campus life. Programs and course offerings will be expanded to include a strong focus on green initiatives. These offerings and the other capabilities of the College will be used to educate students, faculty, staff, plus the local and global community about the nexus between energy and the environment.

In operational terms, the College will establish a center to coordinate activities related to sustainability. The focus will be on a broad range of best practices as they relate to all aspects of campus life. This will include development of detailed plans for continued operations in the face of major disruptions including natural disasters, large scale medical emergencies, and utility disruptions.

CREATE AN ACTIVE AND ENRICHING CAMPUS LIFE

Recognizing the need to support students’ personal as well as academic growth, and to promote integration of all aspects of college life, SUNY Canton will undertake several important campus initiatives to be completed by 2020. Many of these initiatives will leverage the newly constructed Convocation, Athletic, and Recreation Center (CARC) scheduled to be completed in 2011. These projects will enhance the overall college experience for SUNY Canton students.

In keeping with the SUNY strategic focus on health and wellbeing, the College will establish a campus wellness center that integrates counseling services, the campus health center, fitness center, and campus ministries. This will provide a more seamless mix of physical and mental wellness counseling, fitness programs, medical treatment, and exploration of spirituality for all interested students.

SUNY Canton will implement a plan to have all athletic programs compete at the NCAA Division III level by 2016. This will require coordination and collaboration between athletics and admissions to recruit more athletes to field an increased number of sports teams. The College will also implement a series of programs aimed at increasing game attendance and creating a culture where athletics serve as a focal point for campus spirit and pride.

Recognizing the power diversity brings to SUNY, the College will develop initiatives to increase the number of students from different socio-economic and ethnic backgrounds. This will include attracting more international students to SUNY Canton and building upon
a tradition of providing access to a broad cohort of domestic students. Plans to promote social integration of students, renovate and modernize the campus dining facilities to offer contemporary food options, and increase the size of the College police force by 2020 to keep pace with the increase in enrollment will also be put in place.

BUILD GREATER AWARENESS OF SUNY CANTON

In an effort to enhance the profile of SUNY Canton and the SUNY system across a full range of both internal and external constituencies, the College will execute several essential promotional projects over the coming decade.

The first project will focus on evolving the SUNY Canton brand. The branding initiative will position SUNY Canton as a Baccalaureate granting, career-oriented, applied learning institution with a strong cohort of four-year and graduate degree programs growing out of unique two-year and certificate foundational programs. Constituent groups will come to think of SUNY Canton in terms of our ability to integrate technological literacy with a strong foundation in the arts and sciences to shape leaders who can think critically and drive innovation. Students will associate SUNY Canton with a variety of delivery formats including online and other distance learning technologies. To accomplish this goal, the College will couple the existing power of the SUNY brand with a broad range of marketing activities.

With a refined message, the College will undertake a comprehensive marketing initiative to highlight both online and classroom programs. We will leverage our geographic proximity to higher cost markets, target community colleges to reach students seeking to build on two-year degrees, and work with a consortium of other schools to create greater name recognition.

The College will also expand enrollment marketing, develop a comprehensive plan to communicate to all campus stakeholders, and promote internal recognition events to a wider audience.

IMPLEMENTING THE PLAN

The next challenge for SUNY Canton is to bring about the changes represented in the Strategic Plan that will transform the College during the coming decade. The plan helps define and facilitate our ongoing process of change, adaptation, and continuous improvement. With the direction provided by our own Strategic Plan and the SUNY strategic planning effort, the College is well positioned to implement key strategies, measure our progress, and continually adapt to the unforeseen realities that will impact SUNY Canton between now and 2020.
Educating the leaders of tomorrow for careers in the global technological economy
ACKNOWLEDGEMENTS

SUNY Canton would like to acknowledge all members of the campus and wider community who shared their ideas, perspectives, and time to make the planning process a success. Particular thanks go to members of the Strategic Planning Leadership Team and the Strategic Plan Work Teams.

**Strategic Plan Leadership Team**
- President Joseph Kennedy
- David Butler
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- Jondavid DeLong
- Ryan Deuel
- Kenneth Erickson
- Charles Fenner
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- Randy Sieminski
- Judith Singh

**Strategic Plan Publication Team**
- Gregory Kie
- Travis Smith
- Joanne Thornhill
Energy Policy Statement

The SUNY Canton Campus is comprised of a seventeen building complex and associated facilities of approximately 750,000 square feet. The majority of the structures were built during the late 1960’s. These structures are typical of the period but do not meet current energy codes. SUNY Canton’s focus on energy concerns is a result of the Governor Pataki’s Executive Order 111, deregulation of the energy sector and the institution of energy related curriculums at the college.

SUNY Canton commits to be aware of the following tenets regarding our energy related actions:

- To achieve steady progress on energy conservation and cost control, top level leadership is necessary.
- Energy efficiency and conservation should be one of the primary factors in the decision making process of all campus departments and entities.
- As a public institution we have a responsibility to promote energy efficiency and awareness among students, staff and the community at large.
- Promote opportunities to employ renewable energy technologies on campus, support clean energy research and community based clean energy initiatives.
- Commit to principles of environmentally sustainable building design for all new construction and renovations using LEED as the guiding principle.
- Equipment selection criteria will include consideration of energy efficiency, life cycle cost and suitability for the purpose intended.
- Heating and Air Conditioning policies will be regularly reviewed and implemented with sensitivity to the importance of energy conservation.
- Utility consumption will be tracked on a monthly basis and cumulative rolling totals compared with historic consumption, to benchmark use against Executive Order 111 and the yearly utility budget.
- Participate with SUNY Energy Buying Group to aggregate electrical and natural gas loads to reduce utility expenditures.
- Investigate non traditional funding sources and private companies to develop energy conservation and efficiency projects.
- Consider the reinvestment of savings realized due to energy conservation projects to fund additional conservation measures.
SUNY Canton College of Technology


### SUNY Central Model 1989-1990

#### Natural Gas Calculations

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<tr>
<th>1000 btu</th>
<th>84161.4 Ccf</th>
<th>1000 cf</th>
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<tr>
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<td>1 ccf</td>
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#### Electricity

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<th>7319 MKwh</th>
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<th>3412 btu</th>
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#### Fuel Oil

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Total Btu: 109,748,068,000.00
OGSF: 734,976.00
Btu/OGSF: 149,321.98

### SUNY Canton : 2009-2010

#### Natural Gas Calculations

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#### Electricity

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</table>

Total Btu: 93,311,444,000.00
OGSF: 754,818.00
Btu/OGSF: 123,621.12

Percentage Reduction 2009-2010 from 1989-1990 baseline: 17.21%