PENNSYLVANIA

Commonwealth of Pennsylvania

Green Plan 2006-2007

PENNSYLVANIA

Governor's Green Government Council
Edward G. Rendell, Govenor

www.gggc.state.pa.us

Dear Governor Rendell,

With the spiraling cost of energy commanding national attention, Pennsylvania has emerged as a leader in the production of clean, renewable power. The nation's most progressive energy portfolio standard will make almost 4,000 megawatts of renewable power available to commonwealth energy users and is expected to result in an additional $3 billion in earnings and as many as 4,000 new jobs for residents over the next 15 years.

Realizing the need to lead by example in reducing statewide energy usage, you challenged state government to cut energy use, and the Governor's Green Government Council is pleased to report that agencies are meeting that challenge head-on. Adjusting building temperature set points and eliminating personal appliances in facilities operated by the Department of General Services reduced energy usage by 8 percent in the second calendar quarter of 2006. Continued construction of new buildings to high performance specifications reduces energy consumption, and increased participation in the Guaranteed Energy Savings Act has saved taxpayers $5.4 million over the last fiscal year. In addition to energy conservation, commonwealth agencies have also been working with the private sector to help develop indigenous sources of clean renewable power.

The ultimate goal of the Governor's Green Government Council has always been to bring about organizational change resulting in each employee routinely considering the environmental impacts of their actions regardless of their particular jobs. The degree to which agencies effectively responded to your energy challenge demonstrates how “systems thinking” is taking hold. Today, we see employees looking beyond the confines of their individual responsibilities and crossing agencies lines, where necessary, to assure a smooth transition from one job function to the next. Whether developing innovative ways of making one agency's waste another agency's feed stock, finding ways to turn waste to energy or making fuel from Pennsylvania-grown crops, agencies are incorporating environmentally responsible practices into day-to-day operations.

With world energy in tight supply and even more austere predictions for the future, successful energy strategies must be long term. So must be the commonwealth's commitment to ongoing organizational change. Green thinking began eight years ago as a collection of isolated, small-scale agency initiatives. It is now becoming common currency, enabling employees to bring innovative ideas into the workplace, and allowing agencies to tackle more challenging environmental issues by involving the whole management chain.

James P. Creedon, Secretary
Department of General Services
Co-chair, Governor’s Green Government Council

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Department of Environmental Protection
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Commonwealth of Pennsylvania

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Table of Contents

6 Introduction

7 Green Buildings

Department of Environmental Protection, Pennsylvania Housing Finance Agency, Pennsylvania Turnpike Commission, Department of Education, Pennsylvania School Building Authority, Department of Conservation and Natural Resources, State System of Higher Education, Department of Labor and Industry, Pennsylvania Historical and Museum Commission, Department of Corrections, Department of General Services, Department of Military and Veterans Affairs, Department of Public Welfare, Historical and Museum Commission

12 Green Land Use

Pennsylvania Infrastructure Investment Authority, Department of Environmental Protection, Department of Transportation, Pennsylvania Historical and Museum Commission, Pennsylvania Fish and Boat Commission, Department of Conservation and Natural Resources, State System of Higher Education, Department of Military and Veterans Affairs, Game Commission, Fish and Boat Commission, Pennsylvania State Police, Department of Public Welfare, Department of Agriculture

16 Green Energy

Public Utility Commission, Department of Environment Protection, Pennsylvania Energy Development Authority, Department of Community and Economic Development, Department of Agriculture, Department of General Services, Department of Conservation and Natural Resources, Fish and Boat Commission, Game Commission, State System of Higher Education, Department of Public Welfare, Department of Transportation, Department of State, Turnpike Commission, Department of Corrections, Pennsylvania State Police

22 Green Management

Department of Environmental Protection, Department of Conservation and Natural Resources, Department of Transportation, Department of Military and Veterans Affairs, State System of Higher Education

24 Green Procurement

Department of General Services, Department of Military and Veterans Affairs, Independent Regulatory Review Agency, Pennsylvania Commission on Crime and Delinquency, State Employee's Retirement System, School Employee's Retirement System, Department of Transportation, Department of Labor and Industry, Department of Environmental Resources, Pennsylvania State University

28 Green Transportation

Department of General Services, Department of Environmental Protection, Department of Conservation and Natural Resources, Department of Correction, Department of General Services, Fish and Boat Commission, Public Utility Commission, State System of Higher Education, Turnpike Commission, Pennsylvania Commission on Crime and Delinquency, State Employee's Retirement System, Pennsylvania Rural Development Council, Department of Public Welfare, Pennsylvania Historical and Museum Commission

31 Green Recycling

Department of General Services, Department of Corrections, Department of Environmental Resources, Department of Military and Veterans Affairs, Department of Public Welfare, State System of Higher Education, Pennsylvania State Police, Department of Education, Independent Regulatory Review Commission, State Employee's Retirement System

33 Agency Honor Roll

36 Green Council Members

38 Green Team Leaders

40 Executive Order

Introduction

With continuing price volatility and future supply uncertainty, one of Governor Edward G. Rendell's top priorities has been to develop an environmentally responsible energy strategy that will assure the commonwealth's future economic vitality. By reducing usage and developing clean, indigenous sources of supply, the Governor is setting a course to stem the loss to the state's economy of $30 billion spent on imported fuels, stabilize costs for both industrial and residential consumers, and create jobs in a new alternative energy sector.

The foundation was laid with passage late in 2004 of the commonwealth's Alternative Energy Portfolio Standard, which requires 18 percent of all power delivered in Pennsylvania to come from clean, renewable sources by 2020. State government has just demonstrated its own commitment by making the nation's largest voluntary state purchase of green electricity, doubling it to 200,000 MWh, 20 percent of the commonwealth's electrical load. The **Public Utility Commission**, in collaboration with the **Department of Environmental Protection**, continues developing the comprehensive regulations necessary to implement the standard, including net metering and interconnection protocols. The commission has also begun hearings to consider measures for maintaining price stability as the generation rate caps are lifted between now and 2010.

At present, the commonwealth has 153 MW of wind generation installed and a further 1,000 MW are planned. Equally importantly, the industry is striking roots here, most recently with the Spanish wind giant, Gamesa, already headquartered in Philadelphia, investing $84 million in four manufacturing plants which will bring approximately 1,000 new jobs to Pennsylvania. Helping to promote clean alternative energy development, the commonwealth's **Energy Harvest** grant program and the recently reactivated **Pennsylvania Energy Development Authority** are providing financial incentives. To date their joint investment of $31 million has leveraged private investment of $243 million.

Pennsylvania's portfolio standards are unique in promoting indigenous sources of generation by including clean coal technologies, such as integrated gasification combined cycle and coal liquefaction. It was also the first standard to incorporate energy efficiency and conservation. To lead the way, the Governor issued executive order 12-04 requiring all state agencies to reduce energy usage. Building energy usage has been reduced by 8 percent. The state fleet reduced 1,000 vehicles, will tend towards smaller vehicle purchases and work toward a goal of 25% vehicle purchases being hybrids by 2011. The Guaranteed Energy Savings program has been streamlined. Twenty-eight major building retrofits will return major energy savings to seven agencies and cover the capital costs out of the savings. The first seven projects to be completed will save taxpayers $59 million on a capital outlay of $42.5 million. Future energy bills will be reduced by specifying stringent performance goals for new construction. Out of the 38 high performance green buildings in Pennsylvania certified under the US Green Building Council's LEEDR rating system, nine are occupied by state agencies, an increase of four from 2005.

However, electricity generation is only half of the energy picture, the other half being liquid fuels, addressed recently by Governor Rendell's PennSecurity Fuels Initiative. Pennsylvania has abundant agricultural resources as well as reserves of both new and waste coal. Over the next decade the fuels initiative aims to replace 900 million gallons of the state's liquid fuels with alternative sources, such as bio-based ethanol and biodiesel and fuels derived from coal liquefaction processes equipped with carbon offsets. The nation's first coal liquefaction plant is under development for Schuylkill County, turning environmentally damaging waste coal into 40 million gallons of transportation or heating fuel and generating enough electricity to power 40,000 homes. The initiative would also establish a clean fuels “standard,” requiring that a certain percentage of transportation fuels sold at retail in Pennsylvania contain eligible renewable fuels, and invest $30 million from the state's Alternative Fuels Incentive Grant program over the next five years to build refueling and production infrastructure to support the standard. The private sector has already responded with the opening of the state's first public biodiesel filling station and biodiesel blending facility as well as the Northeast's first public ethanol pumps. The commonwealth is responding by letting its first bio-based heating fuel contract to be followed shortly by a similar transportation fuel contract.

Spiraling energy costs and the instability of fuel supplies are challenging the nation to find innovative ways to meet its energy needs. Pennsylvania is well on its way to reducing usage and developing an indigenous energy industry to create new jobs and a stable price environment in which both commerce and the residential sector can flourish.

High-Performance Buildings

According to the federal Department of Energy, buildings in the United States consume 39 percent of the nation's primary energy and 71 percent of its electricity, while generating 36 percent of its carbon dioxide emissions. Given escalating energy prices, decreasing stability of supply, the impending removal of Pennsylvania's remaining electricity generation rate caps, and concerns over global temperature changes, it becomes increasingly important to minimize building energy consumption and its related air emissions and move towards zero net energy buildings. This entails both constructing new buildings to the highest standards and retrofitting existing building stock to maximize performance.

New Buildings

Pennsylvania is among the leaders in constructing high-performance buildings. The only easily accessible measure is the number of buildings certified and registered under the US Green Building Council's Leadership in Energy and Environmental Leadership (LEED®) rating system, where the commonwealth ranks in the top three. Liberty Property Trust has just received Pennsylvania's first platinum rating for its One Crescent Drive property, built on a brownfield site at the former Naval Shipyard. That addition brings the total number of certified buildings to 39; 1 at the platinum, 17 at the gold, 9 silver and 12 at the certified levels. Both Liberty Property Trust and Pittsburgh-based PNC Financial Services have committed to high-performance, LEED-certified buildings as their standard. In addition to its certified buildings, Pennsylvania has approximately 129 buildings registered for LEED certification, in both the public and private sectors. They include 17 K-12 schools, 13 college and university facilities, 57 offices and a range of other building types, including banks, laboratories, museums, hospitals, apartments and condominiums.

These numbers reflect only those projects seeking actual LEED certification and do not include the many other buildings being built to high performance standards. For instance, since 2000 the American Institute of Architects' Committee on the Environment has been compiling an annual list of Top 10 US buildings. At least one Pennsylvania building has been on this list for eight of the award's 10 years. The Philadelphia Police Department's Forensic Science Center, adapted by the Croxton Collaborative from a former school building, represented Pennsylvania on the 2006 list. Last year, both the Barn at Falling Water and the Pittsburgh Glass House were named. The **Department of Environmental Protection**'s Cambria District Mining Office made the 2000 list.

State government has been a leader both in promoting the concepts and in demonstrating their cost effectiveness. The **Department of Environmental Protection**'s Southcentral Regional Office building was one of the USGBC's original LEED pilot buildings in 1997. The agency now occupies six LEED-certified facilities, five certified at the gold level, and both the **Pennsylvania Housing Finance Agency**'s and The **Pennsylvania Turnpike Commission**'s headquarters are LEED-rated, and six more state facilities are presently registered for LEED certification.

Schools are an important target, and several initiatives are in place to help districts improve their building stock, reduce operating costs and improve student performance. The **Department of Education**:

- Under the **General Assembly**'s recent amendments to the School Code, which increased the state's basic reimbursement levels for school

construction and renovation, is now able to provide an additional 10 percent reimbursement for schools achieving a silver or higher LEED certification or equivalent rating.

- In conjunction with the increased reimbursement, collaborates with the **GGGC** and the **Pennsylvania School Building Authority** in administering a program of small High Performance Green Schools Planning Grants to help school districts cover the costs of LEED certification and other design costs not traditionally included in the standard fee. The first grant round provided funds for eight schools in a six-month period.
- Incorporated discussion of green building concepts and integrated design processes in architectural reviews held on reimbursable school construction projects.
- Included membership in the Green Building Association of Central Pennsylvania for its architectural staff.

Three more state agencies are joining the three already occupying LEED certified buildings.

- The **Department of Conservation and Natural Resources** aims at achieving LEED ratings for all its new construction, primarily at the silver level or above. Three buildings are registered for LEED certification with registration of at least six further buildings planned within the next two years. Those currently registered are:
  - The Tom Ridge Center at Presque Isle State Park, a 30,000-square-foot building that houses park administrative offices as well as study facilities, including a laboratory and display areas for environmental education. The native, drought-resistant landscaping reflects the vegetation and ecoculture of the Lake Erie shoreline. Efforts towards renewable energy and energy independence include a packaged photovoltaic parking lot lighting system and the planned installation of a 10MW wind turbine.
  - The new administration building at Penn Nursery was designed for more than 75 percent of its space to be daylit. All the lumber for the timber-built structure was harvested sustainably, and storm water is managed on site by rain gardens and infiltration trenches. To minimize site disturbance, the new building was constructed on the site of the old one, with much of the demolition waste being salvaged for siding, trim, fence and signage. At least 50 percent of the construction waste was diverted from the landfill.
  - With a need for increased space, the Department renovated and expanded its District 10 Forestry Office. To minimize energy costs, it uses a ground source heat pump and high-efficiency structural insulated panels for the new addition's walls and roof, as well as high-efficiency lighting and occupancy sensors. Recycling was a major focus. The structural steel, floor decking, doors and windows, gypsum board, floor tile and carpet all contained recycled content. At least 75 percent of the construction waste was diverted from landfills, and the internal wood paneling was milled from wood salvaged from state forests damaged by forest fires.
- Three universities in the **State System of Higher Education** have new facilities registered for LEED certification.

- **Clarion University** is replacing its 118,000 square foot Peirce Science Center with a high performance laboratory facility. It is designed to reduce energy usage by 40 percent through use of energy efficient lighting, heat recovery, motion detectors, and low-flow control devices on all fume hoods and in office and classroom spaces. The building is also designed to reduce water use by 30 to 40 percent, using waterless urinals and a rain harvesting system which will be used for non-potable uses such as flushing toilets. Thirty kW of photovoltaic tiles will cover approximately a quarter of the high albedo roof and produce an estimated 35,000 kWh annually. The project demonstrates true integrated design. Condensate from the air-handling units will be run into the rainwater-harvesting cistern and offset the evaporation and drift losses from the cooling tower. Construction materials will include materials from the demolition of the old building and an obsolete residence hall.
- **Millersville University** is building a new Education Center.
- The Swope Music Building and Performing Arts Center, **West Chester University**'s, and the State System's, first building to seek LEED certification, is due to open for the fall semester and is on target to achieve a silver LEED rating. The university is now considering seeking certification for its renovation of the former Swope Hall.

- The **Department of Labor and Industry** required that the renovated building in which they are leasing office space from the Fayette County Community Action Corporation in downtown Uniontown be energy efficient and achieve a LEED new construction (NC) silver rating. The Community Action Corporation will use the building as a demonstration for builders and community organizations as well as tying it in with the science curriculum of local schools. It is designed to reduce energy use by 22 percent through a ground source heating and cooling system with a dessicant energy recovery ventilation system, solar-thermal domestic hot water system, and a heat reflecting white roof. The dual flush toilets and waterless urinals are anticipated to reduce water use by 30 percent while the on-site construction waste recycling program aims at diverting 96% of the waste from the landfill. To further augment the demonstration value of the building, Allegheny Power donated four photovoltaic panels expected to generate approximately 4,500kWh of electricity per year.

Agencies are using high performance building principles and the LEED criteria to inform the design of projects which, for various reasons, are not necessarily slated for actual certification.

- The **Turnpike Commission** has adopted the LEED certified level as a standard to which it will design a new State Police barracks serving the Mon/Fayette Expressway, replacements for four of its maintenance facilities, and the system-wide redevelopment of its service plazas.
- The **Department of Conservation and Natural Resources'** new Visitor Center and Park Office at Ricketts Glen State Park is located on a

connecting park trail so as to cut down auto traffic, and features a ground source heat pump for heating and cooling as well as a high proportion of recycled content materials. Its Worlds End State Park Visitor Center and Park Office has been retrofitted using EnergyStar® rated windows, occupancy sensors, high efficiency lighting, low-flow plumbing fixtures and low VOC paints.

- Within the **State System of Higher Education**:
  - **Cheyney University** renovated its Student Union Building to provide 75 percent more daylight and has converted incandescent lighting to compact fluorescents.
  - **Edinboro** and **Mansfield Universities** are each designing a major new facility to LEED silver standards - the institute for Human Services and Allen Hall, a $5.6 million arts building, respectively.
  - **Kutztown University**'s new recreation center and academic forum both feature clerestories dimming systems to maximize daylight, energy efficient building envelopes, and low maintenance landscaping.
  - **Shippensburg University** renovated two residence halls, replacing single pane windows and installing low flow toilet fixtures, waterless urinals, and energy efficient fluorescent lighting fixtures. The university is recognizing the value of full building commissioning which it performed on the newly constructed Performing Arts Center and has included from the schematic design phase in the specifications for its renovation of the Dauphin Humanities Center.
  - **Slippery Rock University** adapted a 1920s farmhouse to accommodate some functions of the Robert A. Macoskey Center whose mission is to promote the transition to sustainable systems. The renovation of Harmony House included a passive solar greenhouse, super insulation, composting toilets, a constructed wetland for greywater remediation, a solar thermal/wood fired domestic hot water system, low/no toxicity building materials and a photovoltaic energy system. The timber framed Harmony Barn was also renovated with straw bale and clay-straw infill, a slate roof and rooftop rainwater collection system.
  - Several universities including **Indiana and Shippensburg**, are beginning to formally commission their new buildings.
- The **Pennsylvania Historical and Museum Commission** renovated the Bitzer Barn at the Landis Valley Museum, including installation of a closed loop ground source geothermal system for heating and cooling. Its storage capacity was expanded without increasing its footprint by the use of high-density mobile systems for most of the site's important artifact collections.

Existing Buildings

While constructing new buildings to high performance standards has a major payoff for the future, the immediate impact on energy usage and greenhouse gas emissions comes from increasing efficiency in existing buildings. The Commonwealth's Guaranteed Energy Savings program enables agencies to upgrade their facilities, often eliminating deferred maintenance backlogs, without the need for capital budgets. Contracting with energy service companies from a Commonwealth qualified list, agencies use the utility savings realized by the building and equipment upgrades to pay off the costs over contract terms of up to 15 years.

The **Departments of Corrections, General**

Services, Labor and Industry, Military and Veterans Affairs, Public Welfare, **Transportation**, the **State System of Higher Education**, and the **Historical and Museum Commission** have a total of 37 projects enrolled in the Guaranteed Energy Savings program.

Seven of the early projects are now in repayment status. They will generate combined savings of more than $16 million over the lifetimes of the contracts. To date these seven projects have reduced water usage by 2,263,317 gallons and energy use by 226,899 MMBtus, thereby eliminating nearly 27,000 tons of carbon dioxide, 51 tons of nitrogen oxides and 211 tons of sulfur dioxide.

The program's success can be measured both by the number of agencies involved but perhaps more revealingly by the percentage of their facilities enrolled. At this point, the **State System of Higher Education** is seeking contracts for all its constituent universities and its headquarters building. After completing upgrades which guarantee energy savings of more than $34 million at its Ft. Indiantown Gap headquarters and the Scotland School for Veterans' Children, the **Department of Military and Veterans Affairs** is now upgrading virtually all of its remaining facilities, including its armories and veterans homes. The **Department of Corrections**, the first agency to negotiate a guaranteed energy savings contract, has added four more prisons to its original three facilities. The Hiram J. Andrews Center, the only facility owned by the **Department of Labor and Industry**, was the first project to begin repayment. It was so successful that the Center has undertaken a second phase, to include replacement of single pane, aluminum framed dormitory windows, inefficient hallway light fixtures, and original antiquated air handler units with direct digital control units.

The original purpose of the Guaranteed Energy Savings Program was to reduce utility expenditures for energy and water, with concomitant reductions in pollution. On a case-by-case basis it is also possible to address other high performance building objectives, such as improved indoor environmental quality, use of sustainable materials, and better handling of demolition and construction waste. In order to enhance the value of the Guaranteed Energy Savings program by including other high performance considerations, the **GGGC** and the **Department of General Services** are exploring the use of LEED-EB (Existing Building) in conjunction with the Commonwealth's retrofit projects. As a pilot, the Rachel Carson State Office Building and the Governor's Residence, which together comprise one of the state's 37 guaranteed energy savings projects, have both been registered for certification under LEED-EB version 2.0. If the outcome is satisfactory, the GGGC and General Services intend to work cooperatively to incorporate the resultant LEED-EB documentation into the standard project requirements for all future Commonwealth guaranteed energy savings contracts with the ultimate goal of LEED-EB certification for those applicable facilities.

Under the Guaranteed Energy Savings Act, the Department of General Services has initiated an outreach program to market the commonwealth’s Guaranteed Energy Savings Program and Act 57. Through legislative workshops and local government gatherings, a structured Guaranteed Energy Savings Program has been presented with help offered to local governments and K-12 schools. To date the program has reached 3 K-12 schools, 4 county and 3 city governments and 2 universities.

Land Use

While Pennsylvania has one of the slowest growing populations, it also has one of the highest rates of per capita land consumption, according to *Better Models for Development in Pennsylvania* by Edward McMahon and Shelley Mastran. Between 1982 and 1997 population grew by only 1.4 percent while development consumed over 1.2 million acres. The Brookings Institute stressed the same issue in its report, *Back to Prosperity; A Cooperative Agenda for Renewing Pennsylvania,* and recommended that "Pennsylvania create a statewide vision for economic competitiveness and land use and get serious about planning and coordination."

One response was executive order 2004-9, under which the **Governor's Policy Office** and the **Governor's Center for Local Government Services** reconvened and co-chaired the commonwealth's 23-member Interagency Land Use Team. Last year the group undertook two major initiatives.

- At the statewide level, the Team worked to integrate state agency decision-making more effectively with the planning processes of local governmental jurisdictions. Pennsylvania's unusually large number of local government entities, from counties through townships, complicates district and regional planning, which is further hampered by the fragmentation of permitting and other activities within individual state agencies. Last year, the Team developed a consistent policy for all state agencies to use in fully implementing their authority to review, and rely upon, local and county comprehensive plans and zoning ordinances when making funding and permitting decisions for infrastructure and facilities. The policy applies in those municipalities that have adopted the appropriate land use laws. It requires state agencies to consider local planning and zoning when reviewing proposed projects and allows them to make decisions supportive of local zoning and planning. It also encourages municipalities and counties to modify their zoning and planning to benefit from the more rational land use established by multi-municipal planning.

- At the state government level, the team finalized the Keystone Principles for Growth, Investment & Resource Conservation, a comprehensive set of criteria to be used by state agencies to focus investment of public funds on attracting new private-sector investment, creating jobs, fostering business growth and protecting the environment. The feasibility of applying a common set of criteria across the full spectrum of commonwealth funding programs was tested successfully in selected programs. Agencies then identified how they would apply the criteria to major programs and the Interagency Team is now starting a process of individual agency meetings to assess progress. The range of applications is broad.

  - The **Pennsylvania Infrastructure Investment Authority** (PennVEST) will only fund infill projects and projects on brownfield sites. Projects not consistent with agricultural preservation efforts will also not be funded.

  - The **Department of Environmental Protection** incorporated the principles into its 2006 Energy

Harvest and Growing Greener grant solicitations.

- The **Department of Transportation** will consider impact on environmentally sensitive areas, consistency with local comprehensive vision and with county or multi-municipal plans, use of brownfields or previously developed sites, and proximity to existing or planned public transportation when scoring applications for the Home Town Streets/Safe Routes to School Program and Transportation/Land Use Coordination Initiative.
- The **Pennsylvania Historical and Museum Commission** will apply the Principles to both the Keystone Historic Preservation Grant Program and the Pennsylvania History and Museum Grant Program.
- The **Pennsylvania Fish and Boat Commission** will apply the Principles to:
  - ▶ The Stream Access and Boating and Access Grants programs, where reuse of existing infrastructure and expanded use of recreational and heritage resources are emphasized.
  - ▶ The State Wildlife Action Plan, and the Landowner Incentive Program where there is emphasis on restoration and enhancement of the environment and on conformity with local and regional planning.
- The **Department of Conservation and Natural Resources** will now assess applications for its Community Conservation and Partnerships Grant program on additional criteria, including brownfield development, reuse of existing buildings, promotion of efficient infrastructure, provision of sidewalks and green trails, design and installation of storm water facilities that promote reduced runoff and increased on-site groundwater recharge, support for sustainable business, restoration and enhancement of the environment, and consistency with county and multi-municipal planning.

- The **Department of Environmental Protection**'s Land Recycling and Cleanup program is responsible for managing a nationally known land recycling program, which supports the voluntary land recycling cleanup and reuse of contaminated commercial and industrial sites, promoting redevelopment of sites with existing roads, sewers, water lines and utilities rather than pristine tracts of land. In 2004, Pennsylvania's voluntary cleanup program approved 246 remediation applications. Six sites were processed through the Special Industrial Area process, which encourages redevelopment of land located within an Enterprise or Keystone Opportunity Zone and of property where no financially viable responsible entity exists. These programs bring the total number of approved remediations to 2,194 and affect approximately 25,000 acres of land. One such brownfield in Fairless Hills, Bucks County, is the site of three new plants being built by the Spanish wind-energy company Gamesa to produce wind turbine blades, towers and housings. This expansion represents an investment of more than $34 million, creating 300 new jobs, and

promoting the use of clean, renewable wind power.

In addition to these centralized programs, agencies are taking individual actions.

- The **State System of Higher Education** actively encourages its universities to adopt sound land-use policies. Examples include:
  - Previously used sites will be redeveloped for new construction at **Clarion University**.
  - **Edinboro University** is leasing a building in Meadville, formerly a locomotive repair shop, located on a brownfield. The university is also using bio-retention cells or rain gardens to manage storm water in its newly constructed parking lots.
  - Under **West Chester University**'s Grounds Initiative, a professional landscaping design team is developing a campus-wide standard with the long-range goal of increasing open, green spaces, establishing stands of more long-lived trees and creating pods of native plant material throughout the campus, reducing impervious surfaces and promoting increased on-site storm water infiltration. The University recently converted one of its hockey fields to an artificial turf system that incorporates a multi-level subsurface infiltration system designed to recharge groundwater. Water that formerly lay stagnant on the field's surface is now collected by a series of underground, perforated pipes and filtered through layers of sand, schist and stone to remove contaminants before returning to groundwater.
  - **Cheyney University** recently demolished a water tower and an old classroom building creating new green space.
  - **Shippensburg University**'s Grounds Department planted 101 trees and 522 shrubs on campus last year.
- The **Department of Military and Veterans Affairs** continues to improve on its award-winning land management program.
  - This year it updated its five-year Integrated Natural Resources Management Plan at the National Guard Training Facility at Ft. Indiantown Gap.
  - The Department continues its collaboration with the Pennsylvania Game Commission, the Fish and Boat Commission, and the U.S. Fish and Wildlife Service in designing and implementing its Natural Resources Management Program. This partnership provides for many divergent disciplines of ecosystem and wildlife management to be channeled into an integrated plan for the management of over 18,000 acres of training land at the National Guard Training Center.
  - Ninety-nine staff in Dauphin, Lebanon and Schuylkill counties volunteered in an installationwide cleanup, contributing over a ton of scrap metal and more than 100 bags of trash to the Great Pennsylvania Cleanup.
- Under a grant from the Chesapeake Bay Targeted Watersheds program, the **Pennsylvania State Police** will

partner with the Susquehanna River Basin and Paxton Creek Watershed and Education Association to provide bio-retention beds and riparian buffer zones between streams and open lands at its headquarters in Harrisburg to intercept and filter storm water runoff from parking lots and building downspouts.

- The **Department of Public Welfare** continues its program of environmental site investigations prior to closing facilities to identify and mitigate hazard conditions. An investigation at the Laurelton Center resulted in proper disposition of old roof tar and adhesive, oil-based and latex paints, mercury, silver, aluminum and waste oil. At Embreeville, spent hydraulic fluids, lubricating oils, vehicle batteries and corrosive water-treatment chemicals were removed. Other projects include erosion control at the Clarks Summit State Hospital to prevent surface water from affecting the potable water supply and reducing impacts to Falls Creek.

- The **Department of Agriculture** continues to lead the nation in farmland preservation. To date it has preserved over 2,800 farms totaling more than 320,000 acres. This year, the Growing Greener II grant program helped provide over $100 million in state funding for farmland preservation. This is the single largest commitment of funds in the program's history. Currently Pennsylvania has 7.7 million acres of farmland representing 27 percent of the state's land base and contributing $45 billion to the economy annually.

- The **Department of Conservation and Natural Resources**' TreeVitalize program aims to restore tree cover in the five-county Philadelphia region by planting 20,000 shade trees over a four-year period in older cities, townships and boroughs where tree cover is below 25 percent. To date, it has provided more than 3,000 trees with nearly half planted in 21 neighborhoods this past year.

Energy

Increasing worldwide demand for energy, dwindling availability of easily accessible petroleum and natural gas, geopolitics and market speculation contribute to rising costs for energy and decreasing stability of supply. Petroleum has doubled in the past two years and natural gas has risen by 30 percent. Before these price increases, Pennsylvanians were already spending $30 billion a year to import energy.

One of the Rendell Administration's major initiatives has been development of a strategy to help the commonwealth import jobs, not energy, by developing indigenous energy sources and the related infrastructure to provide supply stability, affordable pricing, and create an economic driver for a 21st-century economy. The overall strategy addresses both electricity and liquid fuels.

- The foundation of an electricity generation strategy, marrying efficiency and conservation with development of an indigenous generation infrastructure, was laid late in 2004 with passage of the Alternative Energy Portfolio Standard.
  - The standard requires that 18 percent of the electricity sold at retail in the commonwealth come from alternative energy sources, including approximately 8 percent from renewable sources, by 2021. Its Tier 1 sources include coalmine methane, a highly potent greenhouse gas, as well as the conventional renewables and a 0.5 percent solar set aside, projected at 650 MW. Among the Tier 2 resources are waste coal, distributed energy systems and energy efficiency and conservation measures. A study funded by the Heinz Endowments and the Community Foundation for the Alleghenies in 2004 projects that the portfolio standard will generate an increase of $10.1 billion in gross state product and 3,500 more jobs over 20 years
    - ► Draft regulations, developed jointly by the **Public Utility Commission and the Department of Environment Protection**, are presently out for public comment. Also out for comment are final rules on net metering. Final rules governing credits for energy efficiency and conservation are complete. Those governing interconnection are expected shortly. The Pennsylvania Jersey Maryland Interconnection's Generation Attributes Tracking System is being adopted to provide consistency across the regional power pool, and a program administrator is expected to be working by February 2007.
  - To promote wind generation, the commonwealth has taken a number of steps.
    - ► The Garrett wind farm in Somerset County, which went on-line in 2002, was the first wind generation facility in the eastern US. Now Pennsylvania has 153 MW of wind capacity installed and more than 1,000MW are planned.
    - ► In 2000, to set a leadership example, Pennsylvania made a voluntary purchase of 5 percent of its electric load from green generation sources, the first state in the nation to do so. The **Rendell Administration** doubled this purchase to 10 percent in 2004 and in 2006 doubled it again

to buy renewable energy credits equal to 20 percent of its load, 200,000 MWH, making it the only state on the federal Environmental Protection Agency's Green Power Partners Top 25 list. A full 40 percent of the purchase is from wind power.

► Besides becoming a major wind generator, the state is interested in the manufacturing and installation jobs associated with wind power. A joint effort by the **Department of Environmental Protection** and the **Governor's Action Team** attracted the Spanish wind giant, Gamesa, to locate its US headquarters in Philadelphia and invest $84 million in four Pennsylvania manufacturing plants, creating nearly 1,000 new jobs.

► The recently reactivated **Pennsylvania Energy Development Authority** awarded a $193,000 grant to Southwest Windpower to place 15 small, advanced technology wind turbines in highly visible locations across the state, such as schools and public buildings to raise public interest in alternative energy. Each of the turbines will generate enough electricity to power a typical residence.

► Under the auspices of the **Pennsylvania Consortium for Interdisciplinary Environmental Policy**, 56 Pennsylvania colleges and universities are together buying a total of 150,000 MWh of wind-generated electricity each year.

► The **Department of Environmental Protection** has drafted a model ordinance to help jurisdictions make decisions on siting wind turbines and was a founder of the Pennsylvania Wind and Wildlife Collaborative, developing best practices for wildlife protection.

- In parallel with its alternative electricity strategy, the **Rendell Administration**, in collaboration with the **Departments of Environmental Protection, Community and Economic Development**, and **Agriculture** as well as the **Governor's Action Team**, has developed the PennSecurity Fuels Initiative, again focusing on indigenous energy sources and designed to provide supply stability, jobs and affordability. Between its agricultural sector and its liquefied coal production, the state expects to add 900 million gallons of domestically produced bio-based and liquefied coal fuels to the nation's gasoline, diesel and home heating supplies over the next decade. The foundation of the program is the proposed clean fuels standard which will:

  ► Mandate delivery of 900 million gallons annually of alternative fuel to Pennsylvania consumers within the next 10 years.

  ► Invest $30 million in funds from the state's Alternative Fuels Incentive Grant program over the next five years to build refueling and production infrastructure.

  ► Create incentives to open new markets to Pennsylvania farmers who grow the feedstock to produce ethanol and biodiesel, and encourage clean technology that puts to use the state's vast coal reserves. Extra credits will be provided for fuels derived from

Pennsylvania feedstock.

- ► Establish a credit trading system to further enhance the suite of compliance options.

- The state's first public biodiesel fueling station opened in Lancaster County in 2004, followed in 2005 by the state's first biodiesel blending facility and in May 2006 by the first public ethanol pumps in the Northeast, dispensing E85, a blend of 85 percent ethanol and 15 percent gasoline. To support this nascent industry, the commonwealth let its first contract for bio-based heating fuel in May 2006 for use in state buildings in Lebanon County. This pilot contract is to be followed in late summer by expanding the statewide contracts for traditional heating and transportation fuels to include bio-based fuels for both purposes.

- Pennsylvania has an abundance of both new and waste coal, which has value beyond conventional combustion.

  - One option is conversion to liquid fuels. The first US coal liquefaction plant is planned for Schuylkill County, using waste coal to produce 40 million gallons of zero sulfur diesel and generate 41 megawatts of low-cost electric power, enough to power more than 40,000 homes. Construction of the Mahanoy Township plant will create as many as 1,000 jobs, and its operation will produce another 600 permanent high-paying positions. The commonwealth is supporting the Schuylkill County initiative with $47 million in tax credits and has spearheaded a buying consortium to guarantee the sale of virtually all the fuel output. The state government is entering into a 29-year contract for 15 million gallons per year.

  - Another option is being explored under the EDGE (Energy Deployment for a Growing Economy) initiative. It would move to replacing conventional electricity generation from coal combustion with cleaner coal polygeneration that would supply not only electricity but a range of possible co-products, including liquid fuels, synthetic natural gas, additional chemical feedstocks and process heat.

There has also been considerable activity at the state agency level.

- The **Department of General Services** has been working with all agencies to reduce building energy usage in both owned and leased facilities, as mandated under the December 2004 executive order requiring:

  - ► Each executive agency to have a long-range energy use and conservation plan and write enforcement responsibilities into appropriate job descriptions.

  - ► All new state construction and building renovation projects to address energy conservation and use life-cycle cost analysis in the selection of all energy sources for construction and renovation projects.

  - ► During the first quarter of 2006, facilities operated by the Department of General Services reduced usage of electricity, natural gas and steam by 6.5 percent simply through low-cost/no-cost measures such as establishing new building temperature set points and

eliminating personal appliances such as fans and coffee pots.

- As noted in the High Performance Building section, there are now 29 projects enrolled in the commonwealth's guaranteed energy savings program. Seven of the early projects are now in repayment status and will avoid use of 899 MM Btus of energy.

- The **Department of Conservation and Natural Resources** is committed to educating the public on renewable energy. It is:
  - Deploying 10 kW wind turbines and public education displays at seven state parks.
  - Placing 2kW solar voltaic cells at six state parks.
  - Working with the **Governor's Office**, the **Department of Environmental Protection**, the **Fish and Boat** and **Game Commissions**, the U.S. Fish and Wildlife Service and the wind power industry to establish a Pennsylvania Wind and Wildlife Collaborative to develop a consistent policy for avoiding ecosystem impacts from wind turbines.
  - Developing a process for evaluating potential wind development sites, including a Geographic Information System-based screening tool.
  - Preparing an Energy Conservation and Conversion Plan that will establish policy for procurement, the use of sustainable design principles for construction, and parameters for seeking LEED certification. It will also set goals for energy efficiency and establish appropriate institutional and public education programs.
  - Field-testing a control device for reducing energy usage by heating and cooling systems.

- The **State System of Higher Education** promotes energy efficiency throughout its constituent universities.
  - California University's ongoing, aggressive commitment to energy efficiency has made it the State System's leader in reducing energy usage for the past 12 years. Its current consumption of 66,493Btus/sq.ft. /year is nearly 57 percent lower than the average for the System's universities as a whole. This very low energy consumption is attributed to strong senior management support, which allows employment of a full-time energy manager, the freedom to experiment, and staff who assiduously monitor and adjust operations. Major initiatives include:
    - Adoption of a master plan mapping out the energy sources that will be used for the next 20 to 25 years.
    - Use of energy-efficient technologies in new construction, including ground source heating and cooling. Three new residence halls that opened in 2004 are performing in the range of 56,000 to 60,000 Btus/sq.ft. /year, a major improvement over the previous buildings. Three more replacement residences, scheduled to open over the next two years, will further lower the University's energy

footprint.

- ◆ The new Duda World Culture classroom incorporates state-of-the-art HVAC controls and energy-efficient lighting, including occupancy sensors in all areas. The Manderino Library's centrifugal chillers will supply cooling for the Duda Building, not only lowering the initial construction cost but also increasing overall efficiency by increasing the load on the chiller which had been significantly reduced through a prior lighting retrofit.

► **Clarion University**'s high performance Peirce Science Center will include a 30kW building-integrated photovoltaic roof system, and a solar tracker will also be installed on campus under the Solar Scholars program. The University realized an overall 5 percent reduction in energy use, attributable to a range of load-shedding actions, including an expansion of the holiday period shut down of vending machines, water coolers, corridor lights and computers.

► **Lock Haven University** is researching the possibility of using methane from a local landfill. So far, results indicate that the project would be economically feasible.

► **Slippery Rock University**'s Macoskey Center for Sustainable Systems Education has several demonstration PV systems including a 1.4 kW grid inter-tied PV array, a 225 W building-mounted array with battery storage, a 150W cart-mounted array with battery storage for remote power applications and a 60W portable, PV-charged battery system for fence energizing.

- The **Department of Public Welfare** expects the **Danville State Hospital** to save $500,000 in the first year of its guaranteed energy savings contract. Reductions from lighting retrofits, HVAC upgrades, repair of underground steam condensate leaks, automated management systems, and window replacements have provided savings at the **Clarks Summit State Hospital** and **Hamburg** and **White Haven Centers**.
- The **Department of Transportation** used ground source heating and cooling for its new Tioga, Delaware Water Gap and Erie welcome centers.
- The **Public Utility Commission**:

  ► In collaboration with the **Department of Environmental Protection**, has been working on rules for implementing the Alternative Energy Portfolio Standard, covering uniform net metering and interconnection, the 15-year reporting timeline and compliance exemption periods, demand-side management and energy efficiency measures, alternative energy systems, and alternative energy credits.

  ► Issued an order to begin a process that may lead to the development of policies, including conservation and demand-side response, which could mitigate significant rises in electricity prices as the generation price caps, established under the commonwealth's electricity deregulation statute, expire between 2007 and 2010. The first

step was a special public hearing to gather input from interested parties. The Commission identified some options, including educating consumers well in advance of the expiration of rate caps, helping customers to conserve energy and use electricity more efficiently, and adopting policies that lower demand for electricity during peak-usage periods in order to reduce price spikes in the wholesale energy market.

- ► Building on its prior work on demand-side response programs that reward consumers for reducing electricity use during peak-demand periods, introduced new energy-saving programs for residential and small commercial customers and expanded other programs to include more customers.
- ► Led an effort to update the Pennsylvania Sustainable Energy Board's bylaws, to reflect the passage of Act 213 of 2004, the Alternative Energy Portfolio Standards Act, as well as best practices demonstrated by the regional funds. Over a 10-year period beginning in 1998, various restructuring and merger settlements from electric competition allocated nearly $80 million in ratepayer funds to regional sustainable energy funds for renewable and clean energy technology projects. The Commission is responsible for oversight of the regional boards, which have funded projects including wind farms, photovoltaic applications and renewable energy education.

- The **Department of State** experienced increased energy usage in its One Penn Center Plaza Office. The culprit was determined to be the continuous operation of the air handlers, which are now being adjusted according to weather conditions and the number of employees in the building. Two-thirds of the roof has received additional insulation, as has the ductwork.
- The **Turnpike Commission** is replacing old fluorescent fixtures and lamps in its Allegheny, Blue Mountain and Kittatinny tunnels with high-pressure sodium fixtures. The net effect will be reduced energy usage in the Allegheny tunnel and an increase of 50 percent in light levels at the Blue Mountain and Kittatinny tunnels with no increase in energy usage.
- The **Department of Corrections**' State Correctional Facilities at **Fayette** and **Greensburg** use waste coal-fired boilers to generate a portion of their electricity. Plans are underway to increase the amount of electricity generated to meet the full facility loads and also sell power back to the grid.
- The **Pennsylvania State Police** are expected an appreciable energy savings with the installation of high-efficiency cooling system chillers. 28-year-old antiquated chillers accounted for close to 50 percent of the agencies' building energy consumption. With a 27 percent boost in efficiency, the agency expects to save $42,304 per year, resulting in a seven-year project payment period. Another energy efficient program is the replacement of magnetic light ballasts with more energy-efficient electronic ballasts and T-8 fluorescent tubes for an annual savings of $36,158 and a four-year payback period.

Green Management

Protection of the environment is not the sole purview of the **Departments of Environmental Protection and Conservation and Natural Resources**. Succinctly put by Senator Gaylord Nelson, “The economy is a wholly owned subsidiary of the environment, not the other way around,” and, consequently, its protection is the responsibility of every state employee. The ultimate goal of the Governor's Green Government Council is to have every Commonwealth employee routinely integrate environmental considerations into his or her decisions and actions, regardless of agency mission and job function. Achieving this entails both responsibility on the individual employee's part and support throughout the organization's culture. Evidence of this kind of organizational change can be seen in the increasing substance and scope of agency activity, most notably in the Governor’s comprehensive energy and clean fuel policies.

At the individual agency level, the most formal approach to incorporating environmental responsibility has been taken by the **Department of Transportation**. It manages its responsibilities for the commonwealth's roads through 11 engineering districts, which in turn manage 58 maintenance districts. The first state transportation agency in the nation to do so, the Department has achieved certification of its environmental management system in accordance with the International Standards Organization's (ISO) 14001 standard. The process, begun in 1997, was completed this year with the phasing in of the final districts. Major physical changes, resulting from the continuous improvement process required under the standard, include improved wetland preservation, erosion and sediment control and stockpile management at the maintenance units, and optimized use of anti-icing, de-icing and anti-skid materials.

The **Department of Military and Veterans Affairs'** headquarters at Ft. Indiantown Gap has a long history of outstanding environmental performance, last year winning an unprecedented second Governor's Award for Environmental Excellence as well as the Clean Air Technology Category of the federal Environmental Protection Agency's Clean Air Excellence Awards. With strong upper management support, the Department is now the second state agency to seek ISO 14001 certification. Environmental management plans are under development for all significant aspects of the military training program, providing guidance to trainees in all aspects of environmental control and land management. To support implementation of the plan, a multimedia awareness program is under development. It includes a web-based training tutorial as well as contractor awareness briefings. A related environmental improvement and suggestion form has already saved energy, reduced costs and reduced air emissions.

The State System of Higher Education has enrolled all 14 of its member universities in the **Pennsylvania Consortium for Interdisciplinary Environmental Policy** (PCIEP). The Consortium, supported by the **Departments of Environmental Protection** and **Conservation and Natural Resources** provides a forum for academia and government to collaborate on environmental policy and education. Its four committees focus on climate change and energy policy, human health

and the environment, a sustainable Pennsylvania, and greening colleges and universities.

The State System also promotes environmental studies.

- **California University**'s Department of Biology and Environmental Sciences and the Department of Earth Sciences provide distinct areas of specialization such as environmental conservation and ecology.
- **Clarion University**'s Center for Natural Resources and the Environment serves as a focal point for regional environmental studies and outreach activities.
- **Shippensburg University**'s Geography-Earth Science Department was recently named one of the 10 best undergraduate departments in the country by the Association of American Geographers.
- **Indiana University of Pennsylvania** is home to the National Environmental Education and Training Center of Excellence, whose mission is to perform research and training support on emerging environmental technologies as they relate primarily to the work force.
- **Edinboro University** routinely offers in excess of 300 individual courses in basic natural sciences across five departments and 30 majors.
- **Slippery Rock University** offers a number of programs dedicated to environmental issues. One of the more innovative requires all students in the elementary education department to take a compulsory ten10-hour service-learning component called Teaching Math and Science. Students participate in a sustainability seminar that includes hands-on application of the material taught.
- The **West Chester University** Environmental Council underwrites the Robert B. Gordon Natural Area for Environmental Studies, which supports various research programs between local watershed organizations, the Brandywine Valley Association and the Departments of Biology, Geology and Geography.

Several universities within the State System actively encourage student leadership in environmental responsibility and advocacy.

- The student-led **Clarion Awareness of Resources & Environment Program)** continues to promote energy conservation. Its most recent initiatives include researching the feasibility of bringing new forms of renewable energy to the campus and expanding its energy conservation competition to include all on-campus residence halls as part of the university's five percent energy reduction achieved by the university in 2005.
- **Shippensburg University** created an environmental steering committee, which is working on recycling, paper reduction, and energy conservation. An environmental web page and a series of information bulletins are under development.

Green Procurement

"The economy is a wholly owned subsidiary of the environment, not the other way around," said Senator Gaylord Nelson. The economy has yet to acknowledge this dictum, still relying heavily on the transformation of raw materials into marketable products and continuing to take a toll on an already heavily taxed environment. Depletion of nonrenewable resources and the cumulative effects of water and air pollution continue to threaten the planet's ability to sustain future generations. These negative effects can be significantly reduced by increasing the durability of goods, designing them for disassembly and reuse of materials, eliminating toxics, increasing the use of renewable materials and energy, and sourcing materials locally. Efforts in this direction are beginning to be made in many areas. It is important to encourage them by exerting market pull and systematically buying those products that are environmentally preferable, perform as well or better than the traditional products, and are cost-competitive

Developing an effective program for incorporating environmentally preferable products into a large procurement system is not easy. One fundamental problem is determining among the myriad products and their manufacturers' claims which products are indeed environmentally preferable. For some products this is relatively simple. Water-based degreasers are clearly more environmentally friendly than those using VOC-laden solvents. For other products, in-depth technical knowledge, not usually available to procurement staff, is needed to make accurate judgments. In yet other cases, it is difficult to assess the overall environmental preferability, given conflicting environmental considerations. Is it better to wash the dishes by hand or turn on the electric dishwasher? The dishwasher wins IF it is water-and energy-efficient, is run only when fully loaded and the dishes are not pre-rinsed. But these types of analyses are often quite complicated and difficult to assess with any degree of accuracy. The ultimate answer lies in industry moving to manufacturing products without toxics, complete closed-loop recycling, and use of rigorous, scientific, third-party-verified life cycle analysis to assess the impacts of all embodied energy and resource requirements for the production, use, distribution and disposal of the products.

While industry must take final responsibility for the change to environmentally responsible goods, the market can exert a significant pull. Buyers can support responsible manufacturers by switching to environmentally preferable products as they become available. With the fourth-largest state procurement budget, Pennsylvania is poised to use these specifications to identify major environmental improvements, incorporating them into statewide procurement contracts and ultimately force manufacturers to move toward more sustainable products.

Another important aspect of a successful "green" purchasing program is agency accessibility to environmentally preferable procurement contracts. The **Department of General Services**, which contracts for goods and services on behalf of commonwealth agencies, continues to increase access to environmentally preferable products. Nineteen contracts covering everything from environmentally preferable office supplies, nontoxic Green Seal-certified janitorial and custodial cleaning materials, paints with no volatile organic

compounds, IT and dietary supplies are now readily available. This past year commonwealth agencies used these "green" contracts to purchase nearly $19 million in environmentally preferable products.
Some of these contracts include:

- The development of a biodiesel heating fuels contract for Ft. Indiantown Gap, which has broken ground for a more comprehensive transportation and heating fuels contract utilizing fuels derived in part from the by-products of soybeans. Currently written for a 5 percent blend of biodiesel with 95 percent heating oil, subsequent contracts will establish up to 20 percent blends of biodiesel for both transportation and heating, statewide. Production of soy-based biodiesel would help retain a portion of the $30 billion annually that the commonwealth currently exports out of the state for fuel.

- The **Department of General Services** is currently reviewing the National Sanitation Foundation's Sustainable Carpet Standard for inclusion in a statewide sustainable carpet contract. This is the first attempt by the commonwealth to incorporate a standard that uses life cycle analysis to grade the attainment levels of sustainable products into a procurement contract, and when successful should establish Pennsylvania as a leader in environmentally preferable purchasing.

- An agency contract for the procurement of paper towels has been modified to use only unbleached, brown paper in production. The bleaching process in the making of paper accounts for large-scale emissions of environmentally degradating organochlorines and dioxins, organic compounds that contribute to cancers and serious damage to the immune and developmental systems in humans. Commonwealth purchase of unbleached paper towels should remove over 8.25 tons of these organochlorines from the environment while saving over 758,500 gallons of water per year.

- Strategic sourcing is a statewide initiative to reduce costs for goods and services that has achieved more than $180 million in annual savings by leveraging the commonwealth's immense buying power. The strategically sourced office supply contract provides agencies with the option of purchasing some products containing recycled materials. Tracking of the last quarter of the past fiscal year indicates that state agencies have spent almost $1.25 million on "green" purchases. As use of this contract increases these numbers are expected to grow considerably.

Some other examples of agency "green" purchasing include:

- **Cheney State University** has developed a "micro quantity" control program in the ordering of its laboratory chemicals to help keep hazardous chemical storage to a minimum and promote product rotation. **The Department of Military and Veterans Affairs** uses a pharmacy concept for disbursement of supplies at its Aviation Support Facility, ensuring that only needed product is dispensed in small quantities. Both of these initiatives eliminate excessive waste and the need for large-scale storage and disposal of hazardous materials.

- **Slippery Rock University's** Macoskey Center and **Edinboro University** use only 100 percent

post-consumer recycled content office paper for all printing applications. For every ton of this paper used approximately 24 trees are saved, 7,000 gallons of water are conserved, 4,100 kWh of electricity and 60 pounds of air pollutants are avoided.

- **Edinboro University's** McKeever Center purchased replacement bunk beds that have head and footboards made from 100 percent recycled plastic.
- **Cheney State University** purchases low-VOC-content paints and environmentally preferable, dilution-control cleaning supplies, as do most of the other State System Universities.
- The **Independent Regulatory Review Agency** and the **Pennsylvania Commission on Crime and Delinquency** purchase from the recycled-materials catalog whenever practical.
- Approximately 99 percent of the **State Employee's Retirement System** monitors were upgraded to flat-panel LCD monitors. LCD monitors use approximately 30 to 50 percent less energy than conventional CRT monitors and generate much less heat, thereby reducing the cooling load.
- Energy Star-rated equipment is purchased through existing **Department of General Service** Contracts by many agencies including the **Public School Employee's Retirement System**, the **Department of Military and Veterans Affairs** and the **Department of Transportation.**
- **The Department of Labor and Industry's** Hiram G. Andrews Center replaced its 20-year-old dishwasher with an Energy Star-rated model that uses less water. The garbage disposal that required a steady flow of water for about four hours a day was also replaced with a more water-efficient model, now using only one-fifth the water
- As part of the Strategic Sourcing Initiative, a newly created “costars” program that allows municipal government, school districts and other nonprofit organizations that enroll to access to state contracts, thereby increasing the spread of “green products” throughout the public sector. This last quarter, these “costars”-eligible organizations purchased $75,828 of environmentally preferable products.

Paramount to the environmentally preferable purchasing program are the benefits to human health. With indoor air pollution ranking among the nation's top five environmental risks and the correlation of increased asthma and breathing problems tied to homes and office buildings that routinely contain up to 15 times the safety standard for volatile organic compounds, the emphasis is on ridding toxic chemicals associated with industrial-strength maintenance and office products. The reward is not just the mitigation to human health but also an economic stimulus. Poor indoor air quality has resulted in as much as a 130 percent increase in total worker sick leave, with nationwide productivity losses escalating to as much as $50 billion annually. Toxic air emissions have been significantly reduced through the strategically sourced janitorial dilution-control cleaning products contract. Now into its second year, the contract has replaced toxic dilution-control cleaning products with less hazardous and less volatile substitutes.

In other areas of toxic air emission

reductions:

- **the General Services** and **Military and Veterans Affairs departments** have substituted water-based vehicle maintenance degreasing products for the more volatile petroleum-based cleaning products.
- Pennsylvania's green electricity purchase, which provides for 20 percent of the entire commonwealth government load coming from renewable sources, has helped to reduce harmful emissions of nitrogen and sulfur by 219.95 and 785.25 tons respectively. It has also cut greenhouse gas emissions by more than 101,150 tons annually.

In most industry today, avoided disposal costs represent a significant savings to shareholders. Likewise in state government, avoided disposal costs represent significant savings to the taxpayers.

Disposal costs can be avoided by the purchase of products that have extended natural lives, reduced hazardous and toxic components and major components that are easy to recycle. In areas of IT, commonwealth agencies have reduced their disposal costs by purchasing computers, monitors, peripherals, copiers and printers from manufacturers that guarantee environmentally friendly and affordable recycling options at the end of the products' useful lives. Even better, agencies like the **Department of Transportation** are taking advantage of the commonwealth's computer leasing program, which guarantees that the manufacturers will take back and either reuse or appropriately recycle the antiquated components.

Environmentally preferable purchasing can also increase the effectiveness of recycling programs by opening markets for recycled products. By purchasing "green," the commonwealth can help increase the value of recycled materials by opening markets, lowering the cost of products manufactured with recycled-content materials and stimulating research and development of manufacturing technologies for recycled-content products. In an effort to achieve these goals, the commonwealth, through the **Department of Environmental Protection** and in conjunction with the **Pennsylvania State University,** developed the **Pennsylvania Recycling Markets Center.** The Center's mission is to expand and develop more secure and robust markets for recovered materials by helping to overcome market barriers and inefficiencies. Comprising a 14-member Board of Directors and a staff of five, the Center has already generated over 80 active projects and garnered 71 clients from 48 different types of businesses in 33 counties. To date, 17 completed projects have generated economic benefits in excess of $443,781 with an annual total forecasted to reach more than $1.8 million.

- Noteworthy in terms of project success was the use of glass cullet as a filtration media in the construction of on-lot sewage disposal systems. In one instance, 257 tons of recycled glass cullet replaced quarried sand, for a savings of more than $1 million. This project alone used the equivalent tonnage of waste glass recycled in Schuylkill County for seven months. While waste glass culet has been used in the past to stabilize construction foundations and as hardstand for road projects, this is the first time that it has been used as a sand replacement for the filtration of waste effluent.

Green Transportation

The Environmental Protection Agency estimates that Americans currently drive over three trillion miles a year, using 3.5 million barrels of oil per day or about 21 percent of the nation's 17 million barrel daily consumption. The resulting emissions of more than 1 billion tons of carbon dioxide account for about 17 percent of total U.S. yearly carbon dioxide generation. Nationally, the number of miles driven continues to grow by about 2 percent per year. In Pennsylvania, last year's increase was only about 0.5 percent. Motorists are driving about 295 million miles on Pennsylvania roads every year. Passenger vehicles account for over 70 percent of miles driven; 48 percent in urban areas and 23 percent in rural areas. Small and medium trucks make up about 23 percent of the overall vehicle miles, while tractor-trailers are responsible for only 4.4 percent.

With high fuel costs and increasingly scarce and potentially unstable supplies, the Rendell Administration has taken several initiatives.

- Building on his leadership in developing an energy policy designed to provide energy security and create jobs, Governor Rendell has initiated the “PennSecurity Fuels Initiative.” Taking advantage of Pennsylvania's resources, the initiative looks to:
  - Replace an increasing amount of the state's transportation fuels over the next decade with alternatives such as ethanol, biodiesel, or fuels derived from coal liquefaction processes equipped with carbon offsets. The goal at the end of the 10-year ramp up is to annually replace 900 million gallons of transportation fuels, which is the forecasted amount of fuels that will be imported to Pennsylvania from the Persian Gulf at that time.
  - Establish a clean fuels standard requiring a certain percentage of transportation fuels retailed in Pennsylvania to contain eligible fuels, such as ethanol, biodiesel, coal-derived fuels, methane gas derived from landfills or coalmine methane. Substitution of biofuels for petroleum-based home-heating products and biodiesel used as a replacement for petroleum engine lubricants would also receive credit.
  - Invest $30 million in existing funds from the state's Alternative Fuels Incentive Grant program over the next five years to build the refueling and production infrastructure to supply alternative fuel to consumers.
  - Create incentives that open new markets to Pennsylvania farmers who grow the feedstock to produce ethanol and biodiesel, and encourage clean technology that puts to use the state's vast coal reserves to reduce foreign fuel dependency, creates new jobs, improves the environment and builds a diversified energy base. Extra credits will be provided for fuels derived from Pennsylvania feedstock.
  - Provide safeguards against price increases by allowing alterations or delays in the compliance schedule if prices of eligible alternative fuels rise above conventional fuels by a certain level for a prolonged period. Additionally, a credit trading system will be set up to further enhance the suite of compliance options.
- To further support the production and

deployment of indigenous, clean, alternative fuels the Rendell Administration is investing another $3.67 million from the Alternative Fuels Incentive Grants program to leverage more than $16 million in private funding for projects including:

- $2 million to promote use of liquefied natural gas produced from methane gas generated from the Seneca Landfill in Butler County. Seneca will construct both a liquefaction facility to produce 6,000 gallons of LNG per day and a LNG refueling facility.
- Grants to schools, municipal governments and authorities, business and nonprofit entities for hybrid passenger fleet vehicles.
- Helping to buy down the difference between the cost of conventional diesel fuel and B20 biodiesel for selected school districts.
- Continued demonstration of hydrogen and compressed natural gas blends in Centre Area Transit buses and Penn State vans.
- Support for a vehicle to compete in the U.S. Department of Energy Advanced Vehicle Technology Competition.

- Commonwealth agencies are also taking actions to minimize fuel use.
  - The **Department of General Services** cut a further 124 vehicles from the state's fleet. Over the past two years 216 SUVs have been eliminated. Overall, the Department of General Services is moving to downsize new purchases. By the end of this year it will have bought 45 U.S. made hybrid electric vehicles for use by the departments of **Environmental Protection, Conservation and Natural Resources, Corrections, and General Services** and the **Fish and Boat Commission**. The **Public Utility Commission** is also ordering its first hybrid electric vehicle.
  - Universities within the **State System of Higher Education** have responded in a variety of ways to help “green” their transportation systems.
    - ► **Edinboro University** has expanded its popular shuttle service, operated in conjunction with the municipality, and shuttle bus programs have been instituted at **Bloomsburg, Clarion and East Stroudsburg universities**.
    - ► Universities are downsizing their fleets: **Clarion University** recently replaced three 15-passenger vans with smaller vehicles; **Millersville** exchanged three pickup trucks for smaller, more fuel-efficient vehicles; and **Shippensburg** replaced two SUV police vehicles with more economical sedans.
    - ► Alternative fuel vehicles continue to find their way into the state system.
      - ◆ **West Chester University** is the leader, maintaining a fleet of more than 20 compressed natural gas vehicles and replacing four older gasoline-powered trucks with new compressed natural gas vehicles this year. The university hit a new high by increasing the gasoline gallon

equivalents of CNG used last year by 3.4 percent. The compressed natural gas program began in 1998 with the opening of a quick-fill refueling facility. The initial fleet of four vehicles quickly expanded to nine, using approximately 8,350 cubic feet of natural gas. Plans are under way to expand its alternative fuels capacity by providing the infrastructure to use biodiesel fuels.

- **Shippensburg University** replaced two gasoline-powered maintenance vehicles with battery-powered vehicles, and **Cheyney University** replaced its gasoline powered maintenance vehicles with battery-driven turf carts.
- **Cheyney, Clarion, East Stroudsburg, Edinboro, Indiana, Kutztown, Shippensburg** and **West Chester Universities** have all either switched to, or increased existing use of, bicycle or foot security patrols, which offer the added benefit of a heightened sense of security resulting from the direct interaction with students.

- Other agencies maintaining alternative fuel vehicles include the **Turnpike Commission**, with a fleet of 150 autos, 26 SUV's and 48 pickup trucks that are all ethanol-85-compatible and over 300 biodiesel-fueled construction vehicles, and the **Department of Environmental Protection,** with 11 ethanol-85-compatible vehicles and two compressed natural gas vehicles.

- A number of agencies are limiting travel, reducing costs and pollution.
  - Every year the **Pennsylvania Commission on Crime and Delinquency** expands its video conferencing program to reduce the need for travel. This year it conducted 15 video and four teleconferences, saving $12,439 and 1,080 gallons of fuel.
  - The **State Employee's Retirement System** held over 40 videoconferences with investment advisors in 2005 and approximated the savings at $20,000.
  - The **Pennsylvania Rural Development Council** continues to provide video conferencing services so that people in remote locations can take part in important Rural Issues Forums. An average of seven forums are held annually, each “attended” by at least 75 people.
  - Video conferencing capabilities are available at all major **Department of Public Welfare** facilities, as well as the majority of County Assistance Offices. The Bureau of Juvenile Justice Services uses video conferencing throughout its system, enabling staff to conduct court hearings, probation officer meetings and family conferences with greatly reduced physical risk.
  - The **Pennsylvania Historical and Museum Commission** has installed video conferencing equipment at its headquarters and all sites across the state. The agency calculates that it has held approximately 129 conferences since 2004, resulting in significant savings.

Recycling

Accounting for the employment of over 1.1 million workers nationwide, with average wages over $32,700 per year, the recycling industry totals annual sales receipts in excess of $236 billion. Once again, the commonwealth continued to recycle at a rate that keeps it at the top of the recycling industry's national employment, payroll and sales tables.

Last year Pennsylvania's recycling businesses employed over 81,322 people and generated over $18 billion in sales. The industry currently accounts for more than $2.9 billion in state wages and generates $305 million in commonwealth taxes annually. Totaling steel and aluminum cans, white goods, glass, plastics, corrugated cardboard and office paper, Pennsylvanians amassed close to 1.5 million tons of material valued at over $50 million. Adding 3.3 million tons of other recycled materials and the avoided cost of land filling them, the total value of Pennsylvania's recycling effort amounts to more than $372 million annually. In addition to recovering usable resources and avoiding adding them to landfills, Pennsylvania's recycling efforts saved over 66 trillion BTU's of electricity, enough to power 643,000 homes, avoiding emissions of 2 million metric tons of carbon equivalents and 587 billion tons of other air pollutants, as well as saving over 2 million gallons of wastewater.

Recycling activity within state government included

- Expansion of the **Rendell Administration**'s support for the municipal recycling program with 116 new recycling grants, totaling $20 million, increasing access to recycling services for some 10 million commonwealth residents.
- Total reported commonwealth recycling activity netted over $648,600 in taxpayer savings, while recycling 5,132 tons of paper, 4,846 tons of cardboard and many other commodities, including scrap metal, brass, aluminum, engine oil, tires and vehicle batteries. Many facilities outside the reach of the Commonwealth Agency Recycling Office have operated recycling programs through the volunteer efforts of employees using their own resources to collect and transport materials to municipal recycling facilities or with the cooperation of their landlords.
- Continued activity by the **Department of General Service**'s Commonwealth Agency Recycling Office, which is responsible for recycling within government agencies in the Harrisburg area. The Office has:
  - Recycled over 3,836 tons of office, newsprint, turnpike tickets, cardboard and shredded paper
  - Generated net revenue of $32,190 from paper recycling and more than $545,800 from scrap metal, aluminum, waste oil, tires and automotive batteries.
- The **Department of Corrections** is partnering with the **Department of Environmental Protection** to establish an in-vessel composting program at the **State Correctional Facilities** at **Huntingdon** and **Rockview**.
- The **Department of Military and Veterans Affairs** recycled over 140 tons of combined paper and cardboard, 276 tons of assorted scrap metals and waste oil, wooden pallets and fluorescent lamps from its National Guard Training Facility at Ft. Indiantown Gap. Total Revenue

generated from its recycling effort last year was $64,651.

- The **Department of Public Welfare** recycles paper and cardboard from its Clark Summit, Danville, Norristown and Torrance state hospitals, as well as the Ebensburg, Polk and Selinsgrove centers. The total for recycled office paper was 1,632 tons and 4,366 tons of cardboard. Other recycled commodities include scrap metal, tires, auto batteries, waste oil and antifreeze, copier cartridges and fluorescent tubes.
- Universities under the **State System of Higher Education** have undertaken recycling initiatives at their respective campuses. Some of these initiatives include:
  - **East Stroudsburg University** recycled computers, which were surplused during upgrades to computer labs through *Computers for Kids USA, Inc.* To date, over 500 computers have been donated to underprivileged children and their families.
  - Demolition waste from the old Peirce Science Center and Campbell Hall at **Clarion University** has been used as construction material for the new science center, as is the crushed masonry and concrete debris from the demolition of **Indiana University of Pennsylvania's** Wahr Hall. All metal recovered from the Wahr Hall demolition project is also recycled.
  - Any trees removed as a result of **Indiana University of Pennsylvania's** privatized student housing project are milled by the University's Wood Turning and Furniture Design Center and used as furnishing in the academic center.
  - **Bloomsburg University** has expanded its “Trash to Treasures” program, making it an annual occurrence. The program combines the sale of unwanted items from student's dorm rooms with other material surplused by the university.
- The **Pennsylvania State Police** recycled 113.73 tons of copier and printer toner cartridges, 1,912 gallons of used engine oil, 343 automotive batteries and retreaded 3,083 vehicle tires.
- **The Scranton School for the Deaf**, Under the **Department of Education**, continues to recycle at a rate of 3.46 tons per year of paper, cardboard and yard waste. The Student Council also recycles aluminum cans as part of its membership requirement at the school.
- The **Independent Regulatory Review Commission** recycles nearly 100 percent of all paper generated through office operations each year. Also, 15 printer cartridges were recycled. Following the purchase of new copiers, 20 antiquated toner and 7 developer cartridges were sent to the Good Brother program for resale. In addition, old computer disks and back copies of the Pennsylvania Bulletin were recycled in mass volumes.
- The **State Employee's Retirement System** recycles office paper, newspaper, aluminum cans, glass bottles and toner cartridges.
- The **Department of Education** has added a battery recycling program to its already thorough recycling program.

Agency Honor Roll

Turnpike Commission

The Turnpike Commission continues to support the development of the Pennsylvania Green Power Market by becoming a Partner in the U.S. Environmental Protection Agency's Green Power Partnership. The Commission continues to purchase almost 4.2 million kWh of wind-generated electricity annually. This is comparable to 10 percent of the total electric load and exceeds the annual output of one 1.5-megawatt wind turbine.

Rural Development Council

During the past year, the Council used electronic mail to distribute its newsletter, *The Rural Focus*, to more than 7,500 partners. In the past, partners received hard-copy announcements of Council activities and *The Rural Focus* newsletters. By using electronic mail, the Council saved 75 reams of paper, more than 7,500 large envelopes and $3,500 in postage. The Council uses its Web site to carry its message to its partners in a timely manner. On an average, the Web site receives approximately 3,000 inquiries a month.

State Employee's Retirement System

SERS knowledge management strategy will be enhanced with the implementation of an Electronic Content Management System. This management system electronically creates, modifies, archives and removes information resources from an organized repository. In the fall of 2006 the agency will implement the first phase of the electronic management system, which includes scanning, importing and indexing documents. The system will also have tools for publishing, format management, revision control, indexing and search and retrieval.

Labor and Industry

The Hiram G. Andrews Center continues to use the Guaranteed Energy Savings Program to expand the scope of its 2002 facilities upgrade. Currently, a number of energy issues are being addressed through energy savings contracting, including:

- The single-paned aluminum framed windows in the dormitories are being replaced with energy-efficient windows with thermal broken frames, dual panes and low-E glass.
- The original air handler units with no controls are being replaced with energy-efficient air handlers with direct digital controls.
- The light fixtures in the hallways were replaced with energy-efficient units that provide increased lumens at a lower cost.

Transportation

The Department of Transportation has conducted several energy saving programs over the last year. A few of the noteworthy programs include:

- Requesting the Department of Labor & Industry to remove lighting in all snack bar vending machines.
- Specifying EnergyStar equipment.
- Approving and funding many HVAC and lighting projects throughout the commonwealth's District, County and stockpile sites.
- PennDOT Facility Management staff has attended many demonstrations and seminars showing controls that curtail energy use during both peak

and off-peak times with the intention of implementing pilot projects to test their effectiveness.

Insurance

The Insurance Department has increased online applications for insurance producers, allowing the producers to print their licenses, rather than going through the agency. This initiative has saved the commonwealth over $100,000 in postage, envelopes and printing on certificate-grade paper. The agency also recycles ink cartridges, office paper and aluminum cans.

Military and Veterans Affairs

The agency is piloting a project to contract cardboard recycling statewide for all of its readiness centers, armories and maintenance facilities. Working with the recycling section of the Department of Environmental Protection, the agency is developing specifications for cardboard dumpsters and is regionalizing the state in order to receive the most cost effective service. The contract is expected to be implemented in the summer of 2006.

Public Utility Commission

The Public Utility Commission continues to review possible resource conservation measures and the suggestions posed by the Commission's bureaus for future implementation. New initiatives for this year include:

- Beginning to order its supplies online, eliminating paper requisitions.
- Ordering its first hybrid fuel-efficient vehicle.
- Eliminating the hard-copy requisition process for its internal high-speed copier service, moving to online ordering.
- Buying only refurbished copier and printer toner cartridges for the environmental and economic benefits, and moving to multi-functional machines that function as a copier, printer, fax machine and scanner.

Pennsylvania State Police

The State Police are expecting returns on two major energy efficiency upgrades to their Central Headquarters:

- Replacing existing 28-year-old chillers with new higher-efficiency chillers. Accounting for almost 50 percent of the facilities' electric consumption, replacement of the chillers should equate to a 27 percent energy savings or about $42,304 per year, resulting in a payback period of about seven years.
- Replacing antiquated T-12 lights and magnetic ballasts with electronic ballasts and T-8 bulbs is expected to save approximately $36,158 annually, resulting in a payback period of only four years.

Fish and Boat Commission

The Commission is currently working on the installation of state-of-the-art filter systems for capturing and removing waste particulates from fish hatcheries at Tylersville and Pleasant Gap. Construction of these facilities is expected to provide the facilities with a consistent, compliant, high-quality effluent stream from the filtering system. The completion date for these projects is projected for the winter of 2007. It is anticipated that continued construction of these filter facilities will continuously improve hatchery discharge effluent to

receiving streams at all Commission-owned fish hatcheries within the next three years.

Pennsylvania Health Care Cost Containment Council

The Council's “green” management initiatives include:

- Offering online access to all its public reports and providing hospitals with their reports on compact disk, cutting paper and distribution costs as well as its environmental impacts.
- Recently instituting a process by which documents that have traditionally been stored in hard copy can now be scanned and maintained electronically.
- Recycling waste paper and aluminum cans at its Harrisburg headquarters. A Council staff member took this on voluntarily and independently. Fostering personal responsibility for the environment among employees is a prime goal of the Governor's Green Government Council.

Independent Regulatory Review Council

Last year, IRRC used 48 fewer reams of paper than during the previous year. This is due to the success of the following initiatives:

- Posting the annual report and the IRRC Process Booklet on its Web site, making them available to the public for downloading or electronic viewing.
- Scanning all regulation materials, thus limiting the use of paper copies.
- Replacing work paper hard copy files with electronic versions
- Using the IRRC Database to compile important information instead of using paper files.
- Using electronic forms, documents and interoffice communications as well as the electronic calendar on its computers for scheduling meetings and noting staff leave.
- Redesigning its Web site to include electronic comments, saving paper internally as well as for the public, state agencies and legislative staff who would previously have submitted comments on paper.

Pennsylvania Commission on Crime and Delinquency

The agency has substantially reduced the number of forms mailed to its clients by providing downloading capabilities from the agency Web site. Last year the agency added more downloadable documents to its Web site and promoted the use of the Web site for obtaining those documents. From July 1, 2005, through June 30, 2006, 504,862 files were downloaded. Savings were also realized when the Victim Compensation Assistance Program created a one-page claim form, which shortened the process of filing a claim by capturing basic information as the victim/claimant answers either “yes” or “no” to a series of questions. Submitting the new form will start the claim process just like submitting the standard multi-page form.

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Commonwealth of Pennsylvania
GOVERNOR'S OFFICE

EXECUTIVE ORDER

Subject:			Number:
Governor's Green Government Council			1998-1
Date: March 25, 1998	Distribution: B	By Direction Of: Thomas J. Ridge, Governor	

WHEREAS, the Constitution of the Commonwealth declares that the people of the Commonwealth have the right to clean air, pure water, and the preservation of the natural, scenic, historic, and aesthetic values of the environment; that Pennsylvania's public natural resources are the common property of all the people, including generations yet to come; and that the Commonwealth, as trustee of these resources, shall conserve and maintain them for the benefit of all the people (Pa. Const. Art. I, § 27); and

WHEREAS, Pennsylvania's economy, health and safety, and quality of life of its citizens are dependent on the careful stewardship of resources, a healthy economy and the development of technologies to enable economic growth while improving the Commonwealth's environment; and

WHEREAS, the Commonwealth has long recognized its own responsibility for cleaning up Pennsylvania's environment, specifically under *Executive Order 1973-9, Environmental Protection by State Agencies,* which addresses compliance by all agencies with environmental laws and regulations and minimizing pollution in building design and construction, and *Executive Order 1980-3, Life Cycle Costing,* which requires agencies to use life cycle costing for building construction and major equipment acquisition; and

WHEREAS, in January 1996, Pennsylvania established the Office of Pollution Prevention and Compliance Assistance within the Department of Environmental Protection to spear-head efforts to assist Pennsylvania's businesses and industries to achieve economic savings while improving environmental quality; and

WHEREAS, Commonwealth agencies can demonstrate their commitment to improving the environment by using Strategic Environmental Management to realize economic savings and environmental enhancement; and

WHEREAS, with the approach of the twenty-first century, the Commonwealth's government needs to join Pennsylvania business and industry in shifting its environmental expectations beyond compliance toward the goal of zero emissions achieved through pollution prevention and energy efficiency; and

WHEREAS, Commonwealth agencies, through their management practices, can have quantifiable, positive environmental, and economic impacts;

NOW, THEREFORE, I, Thomas J. Ridge, Governor of the Commonwealth of Pennsylvania, by virtue of the authority vested in me by the Constitution of the Commonwealth of Pennsylvania and other laws, do hereby establish the **Governor's Green Government Council** (hereinafter referred to as "Council").

1. Purpose of the Council. The purpose of the Council is to, cooperatively across agency jurisdictions, facilitate the incorporation of environmentally sustainable practices, including Strategic Environmental Management, into Commonwealth government's planning, operations, and policymaking and regulatory functions, and to strive for continuous improvement in environmental performance with the goal of zero emissions. Strategic Environmental Management includes an environmental management system with a strong pollution prevention and energy efficiency program, effective community involvement, measurable economic and environmental performance goals, environmental accounting, and life cycle analysis.

2. Responsibilities of the Council.

a. The Council is responsible for providing advice and assistance in the preparation and review of agency Green Plans and the implementation of initiatives undertaken to fulfill these plans.

b. The Council is responsible for providing advice and assistance in prioritizing initiatives undertaken to incorporate environmentally sustainable practices into Commonwealth government's planning, operations, policymaking, and regulatory functions and to strive for continuous improvement in environmental performance with the goal of zero emissions.

3. Composition of the Council. The Council shall consist of the following members, each of whom shall be appointed by and serve at the pleasure of the Governor:

a. The Secretaries of the Departments of Environmental Protection and General Services, who shall chair the Council jointly.

b. Such other individuals as the Governor shall appoint.

c. Independent agencies shall be invited and encouraged to participate fully in the Council's efforts to foster the incorporation of environmentally sustainable practices throughout Commonwealth government.

4. Responsibilities of Commonwealth Agencies.

a. Each executive agency, and all independent agencies participating voluntarily in this initiative, shall develop an annual plan, to be known as a Green Plan, outlining the actions the agency will take in the coming year to incorporate environmentally sustainable practices into its planning, operations, policymaking, and regulatory functions and to strive for continuous improvement in environmental performance with the goal of zero emissions. The Green Plan will also include the measures to be used to evaluate the effectiveness of the agency's actions. To facilitate their incorporation into the annual budget process, these plans shall be submitted to the Council for advice and assistance on or before June 1 of each year.

b. Each agency shall assign a deputy secretary or individual in an equivalent position to be responsible to the agency head for overseeing agency activity directed toward incorporating environmentally sustainable practices into the agency's management and operations.

c. Each agency shall identify a Green Team Leader responsible for assuring the development and implementation of the agency's activities to incorporate environmentally sustainable practices into their management and operations and assign resources, as necessary, to support them.

d. Initially, participating Commonwealth agencies shall focus on planning and operations, particularly energy efficiency, including building design and management, procurement of environmentally friendly commodities and services, vehicle purchases and management, and recycling.

e. All agencies under the Governor's jurisdiction shall cooperate fully with the Council and provide staff assistance and information as needed for the Council to carry out its functions effectively.

5. Responsibility of the Department of Environmental Protection. The Department of Environmental Protection shall assemble the individual agencies' Green Plans and submit them, together with an executive summary, including a progress report, to the Governor on or before September 1 of each year.

6. Cooperation with other Commonwealth entities. The Council shall cooperate with other Commonwealth entities, including but not limited to, the 21st Century Environment Commission; the Privatize, Retain, Innovate, Modify and Eliminate Initiative (PRIME); and the Governor's Market Development Task Force for Recycled Materials. The Council shall use information from these entities in developing the Commonwealth's Green Plan and shall, in turn, provide them with information.

7. Environmental Compliance. All Commonwealth agencies shall ensure that their government facilities and activities comply with all applicable federal and Commonwealth environmental laws and regulations. Source reduction and resource efficiency, including energy efficiency, shall, where feasible, be used to achieve compliance.

8. Funding. Each agency shall provide sufficient funds to develop and implement its Green Plan.

9. Effective Date. This order shall take effect immediately.

10. Termination Date. This order shall remain in effect unless revised or rescinded by the Governor.

This report was prepared by:

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Commonwealth of Pennsylvania

Green Plan 2006-2007

PENNSYLVANIA

GGGC

Governor's Green Government Council

Commonwealth of Pennsylvania
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Kathleen A. McGinty, *Secretary*
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Department of General Services
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For more information, visit DEP's web site at www.depweb.state.pa.us, Keyword: "GGGC"

GGGC-BK-000008 September 2006

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