Chapter 12
Energy Conservation

This Chapter presents an evaluation and plan for energy conservation, focusing primarily on new and potential initiatives for conserving energy. In relation to past plans, this is a new element of Kennett Square's Comprehensive Plan, as local energy conservation planning has become increasingly important in recent years.

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Increasing interest in local energy conservation planning is largely the result of rising energy costs in addition to concerns with global warming, climate change, and the nation's energy security. This evaluation and plan for energy conservation provides opportunities to lower energy costs for the Borough and its residents in addition to improving the environment.

The Municipalities Planning Code (PA Act 247 (MPC)) permits municipalities to address energy conservation as part of a comprehensive plan. Section 301.1 of the MPC entitled "Energy Conservation Plan Element," states that, "…the comprehensive plan may include an energy conservation plan element which systematically analyzes the impact of each other component and element of the comprehensive plan on the present and future use of energy…"

There are five key areas that should be considered when assessing energy use:

- ***Reducing Demand and Consumption*** relates to how much energy is used.
- ***Improving Energy Efficiency*** relates to how energy can be used more efficiently.
- ***Revitalization, Reuse, and Recycling*** relates to how energy use can be reduced by reusing materials, adaptively reusing buildings, or redeveloping previously developed land.
- ***Alternative and Sustainable Energy*** relates to how energy can be generated from renewable sources. Alternative energy, such as wind and solar, ultimately conserves energy because unlike

fossil fuels, it does not need to be extracted, transported, or stored, all of which require the consumption of energy.

- ***Reducing Unintentional Barriers to Energy Conservation*** relates to land use regulations that are meant to improve living conditions, but unintentionally result in higher energy costs for residents, such as accessory use standards that may preclude the installation of windmills or solar panels.

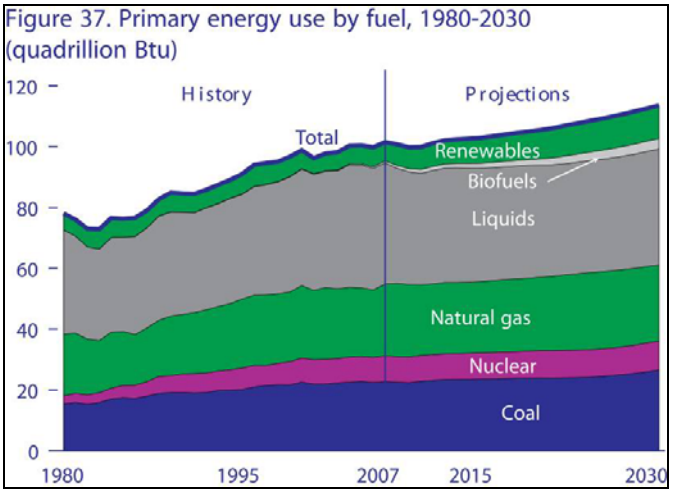
Energy consumption relates to all forms of energy use and generation by individuals, the business community, and the public sector. Although municipal planning can influence the private sector, municipal governments only have direct control over energy use in the public sector. In general, the public sector uses energy for 1) community services, 2) public infrastructure, and 3) utilities. As a result, short-term municipal initiatives for energy conservation focus on these three elements.

INVENTORY

ENERGY CONSUMPTION

There is no readily available information on the amount of energy used by Kennett Square Borough's energy consumers, who include residents, business operators, and any other users of energy. However, data on the amount of energy consumed at the national level is presented in Figure 12-1. This chart shows that on the national level, energy consumption is anticipated to rise in the coming decades with no major shift in the type of fuels consumed. It is therefore reasonable to assume that energy sources used within Kennett Square Borough are not likely to change significantly in the coming decades. However, new energy technologies are currently being investigated throughout the world, and an unforeseen new invention, or a change in the global economy could alter even the most well thought-out projections.

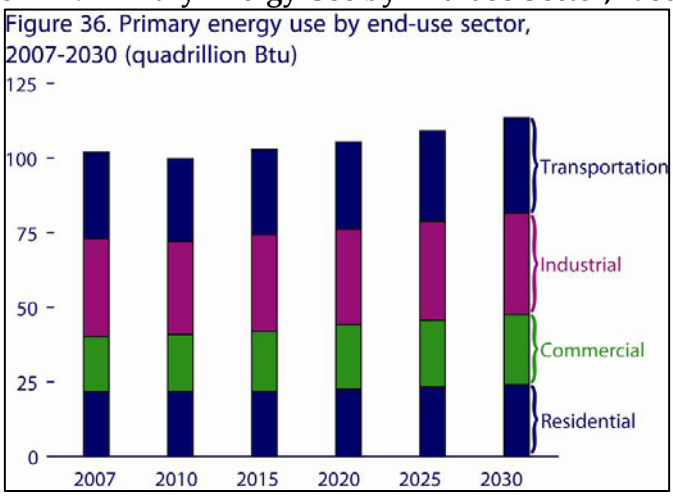
Figure 12-1: Primary Energy Use by Fuel, 1980-2030



Source: U. S. Energy Information Administration, *Annual Energy Outlook 2009*

Energy demand is the amount of energy required to make cars, factories, stores, and houses function. The people, businesses, and other entities that use energy are jointly called the "end use sector." Figure 12-2 shows energy use by end use sectors at the national level. This table shows that no one sector is dominant, although transportation and industrial use account for a large portion of energy consumption. It is likely that Kennett Square Borough reflects this national data and has an energy use mix that shows a similar breakdown, with no one sector being overwhelmingly dominant.

Figure 12-2: Primary Energy Use by End-use Sector, 1980-2030

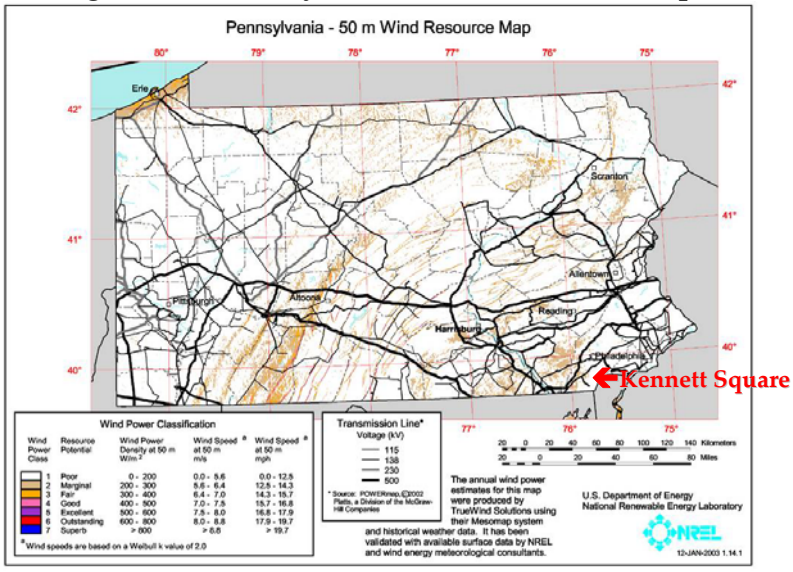


Source: U. S. Energy Information Administration, *Annual Energy Outlook 2009*

WIND POWER

Chester County is not especially well suited for wind production, as shown on the wind map in Figure 12-3. Areas designated Class 3 and 4, are suitable for most wind turbine applications, while Class 2 areas are marginal. Class 1 areas are generally not suitable. Wind power estimates apply to areas that are free of obstructions to the wind and to areas that are well exposed to the wind, such as plains and hilltops.

Figure 12-3: Pennsylvania Wind Resources Map

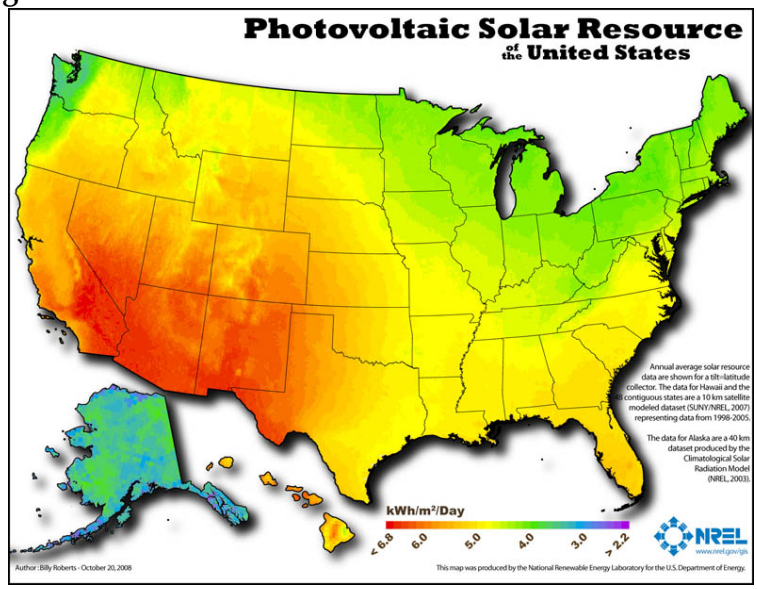


Source: United States Department of Energy, National Renewable Energy Laboratory, 2003.

SOLAR POWER

Chester County is somewhat well-suited for solar power generation in the form of photovoltaic panels as would be used on rooftops. As Figure 12-4 shows, Southeastern Pennsylvania lies in the mid-range when it come to exposure to sunlight.

Figure 12-4: Photovoltaic Solar Resource of the United States



Source: National Renewable Energy Laboratory, US Department of Energy, 2008.

GEOTHERMAL

According to the U.S. Department of Energy (DOE), most of the upper ten feet of Earth's surface maintains a nearly constant temperature of 50 to 60°F. A geothermal heat pump (GHP) system consists of pipes buried near the building, a heat exchanger, and ductwork into the building. In winter, heat from the relatively warmer ground goes through the heat exchanger into the building. In summer, hot air from the building is pulled through the heat exchanger into the relatively cooler ground. Heat removed during the summer can be used as no-cost energy to heat water. In general, GHPs use 25 to 50 percent less electricity than conventional heating or cooling systems.

According to the U.S. Environmental Protection Agency (EPA), GHPs can reduce energy consumption and corresponding emissions up to 44 percent compared to air-source heat pumps and up to 72 percent compared to electric resistance heating with standard air-conditioning equipment. GHP hardware requires less space than that needed by conventional HVAC systems, and they provide excellent "zone" space conditioning, allowing different parts of a home to be heated to different temperatures. GHPs have been in use since the late 1940s. Because they have relatively few moving parts, they are durable and highly reliable. The underground piping often carries warranties of 25 to 50 years, and the heat pumps often last 20 years or more. GHPs are in use in Chester County and, in particular, many larger scale uses have started using these systems, such as West Chester University. GHPs are suitable for use at the single-family residence level as well.

ENERGY EFFICIENCY DEVELOPMENT AND CONSTRUCTION STANDARDS

A number of new techniques can be used to make buildings more energy efficient. Part of this increased efficiency can be realized through the way a building is constructed, and part can come through the efficiency of the appliances and systems used for heating, ventilation, and air conditioning (HVAC). Some standards which are commonly used to rate the efficiency of buildings, appliances, and HVAC systems include:

- **Energy Star,** created in 1992, is now an international standard for energy efficient consumer products such as computer products, kitchen appliances, buildings, and other products. Devices carrying the Energy Star logo typically reduce energy by between 20 and 30 percent.

- **Leadership in Energy and Environmental Design** (LEED) Green Building Rating System, developed in 1998 by the U.S. Green Building Council, provides a suite of standards for environmentally sustainable construction. It has since become a standard throughout the U.S.

To date, there have been no major developments in Kennett Square Borough that have implemented LEED or Energy Star. However, an example that can serve as a model for future projects is the Dansko headquarters facility located off of Route 1 in Penn Township. It is LEED Gold Certified for new construction, and incorporates many green technologies.

ENERGY CONSERVATION EFFORTS

Energy conservation has been addressed in general terms in the prior Borough Comprehensive Plan (2001) which included Land Use and Economic Development goals/objectives that called for the revitalization of the downtown and the reuse and rehabilitation of existing buildings and properties. That Plan also supported an efficient and diverse transportation system including transit and pedestrian circulation under Transportation and Circulation goals/objectives. The Borough Revitalization Plan (2003) includes recommendations encouraging improvements and rehabilitation of structures and improvements to non-motorized transportation facilities. The Borough has completed energy audits for some Borough facilities and encourages residents to use energy saving lighting and devices. Like most municipalities, Kennett Square Borough has not addressed energy conservation in depth in its current regulations. Energy conservation has not specifically been included in the Borough's zoning or subdivision and land development ordinances, for example through provisions that permit and regulate the installation of solar panels. This photo shows how solar panels are being used on a commercial building in nearby East Marlborough Township.

Recycling is a major tool for reducing energy consumption. Pennsylvania Act 101, also known as the Municipal Waste Planning, Recycling, and Waste Reduction Act of 1988, mandates curbside recycling programs in communities with more than 5,000 people and a density of 300 people per square mile. In these communities, Act 101 mandates the recycling of glass, paper, aluminum, steel, plastics, and the composting of leaves and branches. Furthermore, Act 101 requires the creation of recycling drop-off centers at landfills and trash incinerator facilities. Act 101 also established the Recycling Fund, which provides grants to local governments to help implement recycling programs in their communities. Kennett Square participates in recycling and has its own recycling program. (See Chapter 8, Community Facilities and Services for more detail)

ENERGY CONSERVATION OPPORTUNITIES AND OBSTACLES

Pursuing a Balanced Energy Conservation Strategy

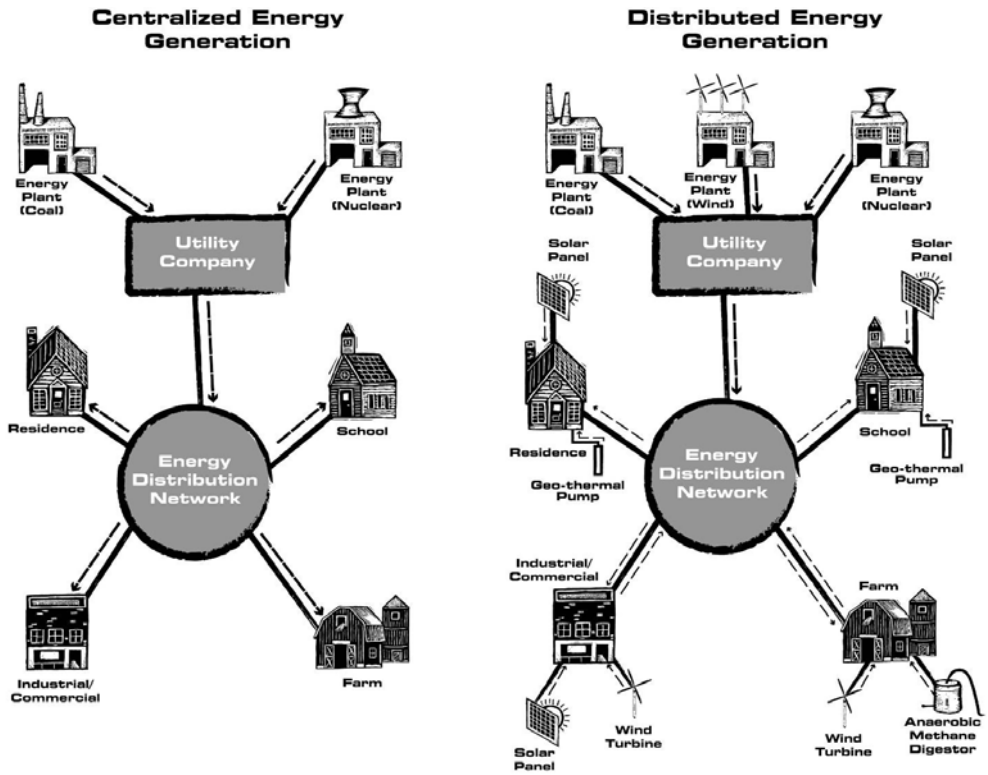
Because Kennett Square Borough is a densely developed community with significant existing infrastructure and building stock, it has many opportunities to pursue energy conservation initiatives. However, much of the Borough's aging building stock may require costly retrofitting in order to implement energy conservation projects related to structures. As well, retrofitting the Borough's aging infrastructure could require substantial funding. Thus, the strategy for pursuing energy conservation may have to employ a balance that can realistically optimize energy conservation rather than simply maximizing it. The small size of the Borough may also necessitate regional cooperation to maximize efforts such as recycling.

Transitioning from Centralized to Distributed Energy Generation

A Centralized Energy Distribution is characterized by large electric generating plants that are usually located at a distance from where the energy is consumed. The electricity is then transported through the transmission and distribution infrastructure to the energy consumer. Figure 12-5 illustrates how the Central Energy Generation system may be gradually modified into a Distributed Energy System.

In the coming years the United States is expected to experience at least a partial transition from centralized to distributed energy generation. Distributed Energy Generation refers to an energy network in which there are multiple large and small-scale energy generators, which could include wind turbines, solar panels, and conventional fossil fuels or nuclear power plants. This type of network is also referred to as "Decentralized Energy Generation" because it is a change from the "Centralized Energy Generation" network that is currently the norm.

Figure 12-5: Centralized Versus Distributed Energy Generation



Source: Chester County Planning Commission, 2009.

Energy Conservation through Borough Initiatives

The Borough has the option to initiate certain energy conservation efforts on its own, such as updating ordinances, building codes, and other regulations to either promote or permit green infrastructure and emerging technologies. Such efforts should also update those regulations already in place that may inadvertently limit the use of new energy conservation techniques. The Borough can also serve in an educational role for its residents by using its facilities, vehicle fleet, etc. as demonstration projects showcasing new technologies.

Land Use Development that Promotes Energy Efficient Transportation

The Borough's existing street grid and system of sidewalks are well-suited for transportation-related energy conservation efforts. The Borough employs mixed-use development, in which residential, commercial, and employment centers are built close enough together so that they can be reached on foot, consistent with its past development pattern. The Borough can ensure that existing vacant or underutilized land is developed consistent with the existing Borough character by requiring a mix of uses, pedestrian facilities, and higher-density residential uses which reduce the need for the use of automobiles and generate a variety of housing types.

The Borough has already implemented certain parking management strategies and maintains a parking garage (near Genesis) and several public parking lots. However, additional parking strategies should

be considered such as shared parking requirements that permit one parking lot to be shared by nearby land uses that are used at different times of the day or week. Adjusting required parking ratios, metered parking fees and locations, the addition of additional public parking (garages), and improved signage (wayfinding) should all be considered. These and other strategies facilitate efficient parking and encourage walking to reduce the number of vehicle trips, traffic congestion, and increase air quality.

Accommodating Plug-in and Alternative Fuel Vehicles

Much of the Borough may not be well-suited to accommodate plug-in electric or alternative fuels cars. Alternative fueled vehicles are only practical if there are nearby alternative fueling stations, which do not exist in the Kennett Square area as of June 2012.

Plug-in vehicles can easily be re-charged if the owner has an indoor garage, carport, or driveway which has ready and safe access to an appropriate outdoor outlet. However, recharging a car that is parked on the street, in a townhouse parking lot, or at a mall or train station would require the construction of new outdoor outlets and outlet stations. It is difficult to predict if these proposed automobile technologies will become commonplace, but it could be prudent for the Borough to establish policies that will not discourage alternative fuel stations.

Green Infrastructure and Low Impact Development

The Borough is well suited to benefit from energy conservation through the use of green infrastructure and low impact development.

Green Infrastructure refers to the use of scientifically-designed vegetation plantings and landscaping that can be used instead of brick and mortar public infrastructure, such as stormwater sewers or sewage treatment plants. In the Borough, which already contains significant investment in traditional brick and mortar infrastructure, green infrastructure could be used, at least initially, to supplement and as needed expand existing infrastructure.

According to the U.S. EPA, green infrastructure encompasses an "interconnected network of natural areas and other open spaces that conserves natural ecosystem values and functions, sustains clean air and water, and provides a wide array of benefits to people and wildlife." Green infrastructure is an effective tool for reducing energy consumption because it is usually vegetation-based, and so does not require electricity to function. Examples of green infrastructure are presented in Figure 12-6, below.

Low Impact Development (LID) describes land planning and engineering designs that manage stormwater runoff. LID emphasizes conservation and the use of on-site natural features to protect water quality and control run off. This approach implements engineered small-scale hydrologic controls to replicate the pre-development hydrologic regime of watersheds through infiltrating, filtering, storing, evaporating, and detaining runoff close to its source. LID promotes energy conservation because it improves water quality without the operation of treatment plants. The rain garden at Borough hall and the Dansko facility in Jennersville are both examples of this strategy.

Table 12-6: Green Infrastructure and Energy Conservation

Type of Green Infrastructure	Energy Conservation Impact
Development and Construction Techniques	
Greyfield & Brownfield Redevelopment is the reuse of brownfields (abandoned or underused industrial or commercial properties where redevelopment is complicated by actual or perceived environmental contamination) or greyfields (empty or economically unviable malls or office centers).	***Greyfield & Brownfield Redevelopment*** promotes energy conservation by locating development already built areas, thus reducing the need to extend utilities. It also promotes clustering, reducing transportation fuel consumption.
Infill Development and Redevelopment involves the re-use of vacant land and property within a built-up area for further construction or development, especially as part of neighborhood revitalization.	***Infill Development and Redevelopment*** promotes energy conservation by locating development already built areas, thus reducing the need to extend utilities. It also promotes clustering, reducing transportation fuel consumption.
Green Roofs are conventional roofs covered with a layer of vegetation. They absorb rainwater, providing insulation, creating a habitat for wildlife, and helping to lower urban air temperatures.	***Green Roofs*** provide insulation thus retaining energy, and they reduce runoff thus reducing the need for the construction of brick and mortar storm water management facilities and structures.
Transportation and Parking Facilities	
Permeable Pavements can include pervious concrete, asphalt, or pavers that allow precipitation to percolate through otherwise be impervious paved areas. It permits stormwater to infiltrate through to the soil below.	***Permeable pavements*** reduce runoff thus reducing the need for the construction of brick and mortar storm water management facilities and structures.
Green Parking refers to techniques that reduce the total impervious cover on a property, such as using alternative pavers in overflow parking areas, using bioretention areas to treat stormwater, and encouraging shared parking.	***Green Parking*** reduces runoff thus reducing the need for the construction of brick and mortar storm water management facilities and structures.
Green Streets & Highways refers to a street or highway that uses vegetated facilities to manage stormwater runoff at its source.	***Green Streets & Highways*** reduce runoff thus reducing the need for the construction of brick and mortar storm water management facilities and structures.
Land and Natural Resource Management	
Vegetated Swales are shallow channels with vegetation covering the side slopes and bottom. They promote infiltration, reduce the velocity of stormwater runoff, and trap particulate pollutants such as suspended solids and trace metals.	***Vegetated Swales*** reduce runoff and purify water thus reducing the need for the construction of brick and mortar storm water management and water purification facilities and structures.
Shade Trees & Urban Forestry refers to the careful care and management of tree populations in developed settings for the purpose of improving the urban environment.	***Shade Trees & Urban Forestry*** can reduce heating and cooling cost to nearby buildings. Tree leaves shade structures in the summer, and buffer winds in the winter.
Riparian Buffers are vegetated areas next to streams and lakes that protect them from nonpoint source pollution while providing bank stabilization and habitat for wildlife and aquatic species.	***Riparian Buffers*** reduce runoff and purify water thus reducing the need for the construction of brick and mortar storm water management and water purification facilities and structures.

Source: Chester County Planning Commission, 2009.

Influencing Public Utilities to Initiate Energy Conservation

The Borough can request that regional utilities and service providers cooperate with the Borough's policies on energy conservation, in addition to upgrading Borough facilities. In 2007, the Consortium for Energy Efficiency (CEE) reported that public drinking water and wastewater facilities account for approximately three percent of total U.S. electricity use. These facilities can represent up to 35 percent of municipal government energy use. The CEE is a nonprofit, organization composed of electric, gas and water utilities, research organizations, and state and regional energy offices. CEE works in cooperation with the U. S. Environmental Protection Agency and the U. S. Department of Energy.

The high energy consumption by public utility plants is partially due to facilities such as wastewater treatment plant sludge blowers, which operate 24 hours. Since the Borough owns and operates the sewage treatment facilities, the Borough has the ability to make improvements in efficiency along with policies in the comprehensive plan for improved energy efficiency by other utility providers. Section 71.21(5)(d) of PA Act 537, the Pennsylvania Sewage Facilities Act, requires that official sewage facilities plan (also known as an "Act 537 plan") identify alternatives for establishing or upgrading facilities based on municipal comprehensive plans.

For some issues, the Borough's role may be primarily limited to advocacy and education. The Borough should consider promoting energy efficient or energy saving devices through publications (website, pamphlets). Encouraging water efficient shower heads, high-efficiency light bulbs, and the use of rain barrels are some examples. The Borough may require some of these items through Borough codes, in addition to requiring the use of modern stormwater runoff techniques, riparian buffers, and other practices to increase conservation.

ENERGY CONSERVATION PLAN

In light of energy cost increases, the demand for affordable energy, cost savings, and environmental impact continues to grow. The following recommendations work in concert with the recommendations in other chapters to further emphasize means of reducing energy costs and fostering renewable energy within the Borough. Specific examples of techniques or technologies within the recommendations are not intended to limit future additional alternatives.

RECYCLING, REUSE, AND REDEVELOPMENT

EC-1 Continue to maintain consistency with the recycling requirements of PA Act 101, The Municipal Waste Planning Recycling and Waste Reduction Act. By maintaining consistency with state requirements, the Borough will be better situated to take advantage of state or federal programs that may become available in the coming years.

EC-2 Continue to promote and undertake emerging recycling and composting initiatives that improve energy efficiency and reduce public expenditures, such as the use of single stream recycling and increasing the types of material recycled. Kennett Square Borough is already

using single stream recycling, but other innovative initiatives can be used to conserve energy, such as modifying how recycling contractors schedule and map out collecting routes for recycling pick up and hauling.

EC-3 Support programs that offer consumers opportunities to re-use materials which would otherwise be disposed of, such as permitting curbside pickup for re-use or "free-cycling". Free-cycling is a growing technique where individuals post notices on free-cycling internet sites, offering to give away useful items that they no longer need, instead of disposing of these materials. The Borough could consider providing a location, such as the public works facility, as a location for drop off and collection of "free-cycling" materials.

EC-4 Encourage the restoration of existing buildings and the adaptive reuse of historic or existing structures. Reusing already built structures promotes energy conservation because new materials are not required. (Historic resources are addressed in Chapter 9.) This practice also maintains the character of the Borough by preserving existing building facades, scale, and placement. The Borough should review zoning, subdivision, building codes, permits, and fees to remove barriers to and consider incentives for restoration and adaptive reuse.

EC-5 Promote the redevelopment of brownfields, greyfields, as well as infill development on vacant properties in developed neighborhoods. There are state and federal programs that assist in brownfield and greyfield redevelopment, which often involve public-private partnerships with developers. The Borough should evaluate the need to adjust zoning to provide opportunities for infill development and encourage development that maintains the Borough character. Traditional Neighborhood Development (TND) and Form Based Codes (FBC) are two options that should be considered for redevelopment areas such as the NVF area and Birch Street. (See also Chapter 4, Land Use)

EC-6 Promote the development of energy efficient schools, government offices, and other publicly funded buildings in the Borough. As existing building infrastructure ages and needs to be replaced, the Borough and the school district should construct or restore buildings using new and more energy efficient techniques. State and federal grants that support such projects are anticipated to remain available in the coming years.

EC-7 Promote appropriate on-site energy generation such as solar, wind, geothermal, and other alternative technologies in all land uses. On-site energy generation can be installed in all land uses from residential to industrial, but it must be sensitive to surrounding land uses and to site conditions. For example, it may be appropriate to install modern solar panels in an isolated industrial site, but not in a visible manner from the public right-of-way in an historic residential district. The Borough should review ordinances, codes, and policies that may prevent the installation of new technology while ensuring proper placement.

GOVERNMENT, UTILITY, AND PUBLIC FACILITIES AND INFRASTRUCTURE

EC-8 Support the purchase of energy efficient supplies, equipment, and physical plant elements for Borough buildings and facilities. The Borough can implement this policy by determining which facilities and items are likely to be replaced in the near future and researching if or how they can be replaced with more efficient models. Such an approach will be useful in a situation where a piece of equipment fails and needs to be replaced quickly.

EC-9 Consider purchasing a portion of the Borough's energy from renewable energy sources, if or when such an option is available. Municipal governments can agree to purchase energy from companies which generate a specific percentage of their energy from renewable sources, typically wind or solar.

EC-10 Monitor opportunities for residential composting and the use of raw materials for the production of biofuels, such as cellulosic ethanol from tree and lawn clippings that result from the management of parks, public open spaces, and roadside vegetation. Tree and grass clippings have the potential to be used in "cellulosic" ethanol production, although the technology is not advanced enough at this time for mass production. Municipalities who accumulate large amounts of these clippings may be able to use them as a revenue source in the future. The Borough should consider the opportunity to utilize this technology in the future. Residents should be permitted and encouraged to properly compost yard waste and other similar materials should be considered.

EC-11 Support the upgrading of power infrastructure to promote more efficient energy conversion, storage, and transmission to meet anticipated electric consumption. The continued increase in electronic devices and the potential development of plug-in hybrid or all-electric cars would likely require an increase in the amount of electricity transmitted and stored by utilities.

EC-12 Promote the use of vegetative-based or alternative wastewater treatment and disposal technologies, such as the retrofitting of existing wastewater treatment facilities to improve energy efficiency. Because Borough policy requires new development to connect with the public sewer system, this recommendation would apply to Borough's wastewater treatment system. New technologies to make the sewer system more environmentally friendly as well as more energy efficient should be considered whenever upgrades to the facility are considered.

EC-13 Encourage the Kennett Consolidated School District to reduce energy demands through efficient bus routes, safe walking routes to school, upgrades to the fuel efficiency of bus fleets, and the reduction of energy use in buildings, athletic fields, and property management. School districts can reduce energy by using more energy efficient busses, and managing how the bus routes are designed. School districts can also promote having children walk to school or walk longer but safe and reasonable distances to bus stops, practically reducing the number of stops a bus must make, eliminating some bus stops, or eliminating bus

routes. Particularly in the Borough, the opportunity for walking to school is viable. Safe routes and programs should be considered to increase the number of students walking to school where and when appropriate. The Borough should continue to maintain, upgrade, and expand pedestrian facilities including sidewalks, crosswalks, and trails.

EC-14 Implement a comprehensive street-tree planting strategy for all parts of the Borough and maintain forested areas, greenways and parks. While many areas of the Borough have street trees, there remain certain areas where street trees are lacking. Examples include the east side of State Street, the west side of Cypress Street, and Birch Street. Street trees provide a variety of aesthetic and energy saving benefits. From an energy conservation standpoint, street trees provide cooling effects, particularly in urban areas, that can help reduce energy consumption by lowering over all temperatures and demands on air conditioning. Street trees and urban forests also increase air quality, provide wind breaks, and provide pleasant areas for pedestrians, parks, and recreation areas. The Borough should continue to maintain and expand urban forests, greenways, parks, and open space areas as appropriate. (See also Chapters 7 and 11 regarding street trees) See Figure 12-7 regarding Urban Heat Island phenomenon and street tree, forests and open space effects.

Figure 12-7

The Urban Heat Island Phenomenon

Cities are "heat islands" – zones of summer air temperatures as much as 12°F higher than surrounding areas.

Cities
- More engines and building exhaust
- Fewer trees
- Buildings, sidewalks & streets absorb and hold heat
- Dust & other airborne pollutants absorb and trap heat
- Concrete & asphalt hasten the drainage of rainfall

Open Space/Greenways
- Fewer sources of heat
- More trees to provide shade, absorb solar radiation and provide natural air conditioning through transpiration
- Cleaner air allows heat to escape into space
- Unpaved open areas retain natural moisture longer, helping to cool the air directly and to supply roots with moisture for tree health and transpiration

Source: National Arbor Day Foundation, Tree City USA Bulletin No. 21, "How Trees Can Save Money."

EFFICIENT VEHICLES, TRANSPORTATION FACILITIES, AND TRANSPORTATION MANAGEMENT

EC-15 Accommodate the future use of alternative fuel powered vehicles, the establishment of stations that distribute alternative fuels, and the retrofitting of existing buildings and parking facilities to provide for new fueling technologies, such as vehicle plug stations. This recommendation could apply to Borough buildings and facilities (parking lots, garage) as well as ensuring that there are no impediments to this type of infrastructure, for example through ordinances that would inadvertently disallow residents and businesses from using these technologies.

EC-16 Continue to promote the use of alternatives to single occupancy vehicles such as bus transit, ridesharing, carpooling, and park-and-rides. The Borough is currently served by the SCCOOT bus, and should continue to pursue improved bus service, pedestrian amenities (sidewalks, signs, shelters, benches), and park and ride lots. (See also Chapter 7, Transportation)

EC-17 Continue to promote the efficient use of parking facilities in the Borough's zoning regulations through continued parking management strategies. The Borough should continue to permit new and innovative alternatives to conventional parking, such as having lots that are shared by multiple users who use the lot at different time (nights versus day) or different days (weekdays versus weekends). A Borough wide parking study should be considered to examine specific strategies to assist with parking issues, particularly downtown. A wayfinding study should be undertaken to improve signs within the Borough, including parking signs. This strategy reduces vehicle miles traveled by visitors searching for parking spaces, encourages walking instead of moving a parked car, and increases air quality. (See also Chapter 7, Transportation)

EC-18 Promote travel demand management strategies which identify techniques that reduce travel associated with commuting to work. Travel demand management strategies include home offices, flex time, ridesharing, on-site daycare, and compressed work week schedules.

EC-19 Support non-motorized transportation options. Such options include pedestrian and bicycle facilities, and the expansion of sidewalks, crosswalks, bicycle lanes, and trail networks.

EC-20 Continue to pursue and expand opportunities for appropriate zoning and related infrastructure to provide redevelopment within key areas. Traditional Neighborhood Development (TND) or Form Based Codes (FBC) should be considered for several areas of the Borough that have greater potential for development or redevelopment and need further infrastructure improvements. The NVF site, Birch Street, and the north side of West South Street are key areas where these strategies may apply. (See also Chapter 4, Land Use Plan)

EC-21 Continue to pursue and expand mixed-use development that reduces travel distances between residential, commercial, and employment centers. This effort will likely require multi-municipal or regional coordination since Kennett Square is close to several shopping areas, primarily east and west of the Borough. Continued communication and coordination with New Garden and Kennett townships is necessary to implement this recommendation in addition to expanding pedestrian improvements from the Borough to key areas such as the New Garden Shopping Center, Toughkenamon, and the Walmart in East Marlborough Township. Ways Lane just east of the Borough in Kennett Township is another key area that may be developed in the future that should receive careful coordination between the Borough and Township.

INDUSTRIAL AND COMMERCIAL EFFICIENCY

EC-22 Promote building energy efficiency standards, such as LEED and Energy Star certification, and the installation of alternative energy generation systems in commercial and industrial operations, and where appropriate, in mixed use developments. Given that LEED certification is a relatively new concept, the Borough will likely have to initially pursue this recommendation by providing information to residents and businesses about the value of LEED certification.

EC-23 Support the county-wide expansion and promotion of manufacturing and agricultural operations which provide local products (those within approximately a 100-mile radius) to nearby major markets, and support regional efforts to promote the sale of these products. Such efforts could include promoting the County Agricultural Development Council "Guide to Local Farm Products" brochure and guide to local fresh food markets. In particular, the Borough should continue to work with the mushroom industry that has a strong presence in and around the Borough. Continuing to have seasonal farmers markets and encouraging additional food stores throughout the Borough that provide fresh foods are also ways to implement this recommendation.

LAND USE AND PROPERTY MANAGEMENT

EC-24 Promote energy efficiency standards, such as LEED and Energy Star certification for the development or redevelopment of residential buildings, properties, and neighborhoods. The Borough can promote this recommendation though education, but also by example by implementing energy efficient strategies on public property (i.e.: LED lights, etc).

EC-25 Continue to allow higher density residential and pursue walkable communities techniques through innovative development and redevelopment designs such as traditional neighborhood development and continued mixed use. The Borough should continue to investigate approaches to promote walkabilty that are found to be successful in other nearby urban centers, as well as neighborhoods in the City of Philadelphia. The Borough should promote the development of key land uses that are lacking such as additional senior housing and grocery stores in addition to keeping key facilities such as the library in the Borough. Lastly, to reduce incompatibility between adjacent uses, the implementation of landscaping, buffers, sound and glare attenuation, and other measures should be considered to promote a variety of uses while addressing minor conflicts that may otherwise arise.

EC-26 Remove restrictions that inadvertently discourage energy efficiency in local ordinance regulations and homeowner association covenants. Restrictions, such as prohibiting the hanging of laundry or height limitations for accessory uses (solar panels, wind turbines), can serve to discourage energy conservation. This effort should include a review of Borough codes and ordinances in addition to coordination with homeowner associations for review of their homeowners provisions.

EC-27 Continue to support programs that allow residents to improve energy efficiency in their homes through weatherization, efficient climate control, and the conservation of hot water. Because the Borough is a dense and close knit community, the Borough may be able to play an active roll in promoting community programs that improve energy efficiency. Such a program might involve helping to coordinate the bulk purchase of efficient faucet aerators for large numbers of residences, thus reducing overall costs.

ENERGY EDUCATION, INFORMATION DISTRIBUTION, AND DEMONSTRATION PROJECTS

EC-28 Support education efforts that encourage energy and resource saving practices at home, at school, and at the work place. Such efforts could include programs that encourage energy conservation such as encouraging school children, residents, and employees to drink tap water instead of bottled water and turn off lights in unused facilities. The Borough can support such efforts by publicizing them at community events and through the Borough newsletter and website.

EC-29 Support construction and development projects that implement energy conservation, including demonstration projects and programs. The Borough could encourage projects involving new public buildings projects which include energy conservation features such as solar panels that can be viewed by people visiting the building. Supporting the implementation of LEEDS (Leadership in Energy and Environmental Design) through Borough codes and ordinances should be considered.