Climate Action Plan
West Chester Borough
Chester County Pennsylvania

Prepared by
Borough Leaders
United for Emissions Reduction

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West Chester Borough Council

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Table of Contents

Chapter 1: Introduction ................................................................. 1-1 — 1-4
Chapter 2: Community Greenhouse Gas Inventory ............................. 2-1 — 2-3
Chapter 3: Greenhouse Gas Emissions Reduction Target ..................... 3-1 — 3-2
Chapter 4: Phase One Actions ......................................................... 4-1 — 4-9

Appendix:
  Delaware Valley Regional Planning Commission Climate
  Change Initiative ................................................................. A-1
  BLUER Guide to Financial Incentives/LIURP ................................. A-2
  Sample “Power Breakfast” Workshop Flyer .................................... A-3
  Industrial Outreach Letter ......................................................... A-4

Attachments:
  BLUER Guide to a Greener Home (brochure)
  BLUER’s Working List of Reduction Strategies for the Future
I Chapter 1: Introduction

Call to Action: The Issue

When we look to the future, no issue is more pressing than climate change. While dangerous climate change has not yet arrived, the effects of global temperature increases are accelerating faster than many researchers expected. Researchers now say that levels of greenhouse gases are high enough to have brought us dangerously close to a climatic tipping point—a point at which substantial and irreversible changes will occur. The changes include sea level rise, severe weather events (including periods of intense precipitation interspersed with droughts), habitat disruption that could lead to species extinction, migration of infectious diseases, drinking water shortages, and potentially serious disruption of the food supply.

BLUER has performed substantial research into this issue. We have identified two types of arguments against the existence of climate change:

1) **False arguments designed to maintain the status quo.** Substantial anti-climate-change propaganda has been funded by the fossil fuel industry to prevent action that would affect their bottom line. Arguments that take pieces of scientific information out of context are prevalent. See the Climate Change Q&A at [www.wcbluer.org](http://www.wcbluer.org) for a deeper look into the science of climate change.

2) **Contrarian views.** A few reputable scientists legitimately question climate models or question whether addressing climate change should be a priority. These views should not distract us from the evidence accepted by the vast majority of scientists: climate change has already begun and the physical evidence is everywhere—from the surprisingly rapid melting of arctic sea ice to the increasingly severe global weather patterns.

Greenhouse gas emissions

This rise in global temperature is largely the result of greenhouse gas pollution. The primary greenhouse gas is carbon dioxide (CO2), which results from fossil fuel combustion.

Burning fossil fuels like oil, coal and gas releases carbon into the air that has been naturally stored in these materials over millions of years. In the natural carbon cycle, carbon is removed from the air and stored in trees, shells, minerals and all organic formations. It is then slowly re-released back into the air as a natural byproduct of decomposition, volcanic eruption and other processes. This process of release-uptake is known as the natural carbon cycle.

When we burn fossil fuels, we accelerate the release of fossil carbon, putting this cycle out of balance. We are forcing vast amounts of CO2 into the air in a time span too short for the natural carbon cycle to store it. Greenhouse gases therefore accumulate in the air, and they change the composition of the atmosphere, altering the balance between incoming energy from the sun and outgoing heat from the earth. Essentially, they act like a blanket in our atmosphere that causes heat to accumulate underneath it. As we put more greenhouse gases into the air, the “blanket” holds in more heat. The additional heat causes higher temperatures but it also adds energy to the atmosphere that causes more vigorous thermal convection and increased capacity to evaporate water.

Source of greenhouse gases

Although we don’t see them, greenhouse gases go into the air whenever we burn fossil fuels. In our daily lives, this occurs regularly and in three main ways:

- **Electricity.** Every time we switch on the lights, wash our clothes, plug in our hair dryers, use our computers, turn on the TV, or use electricity in any other way. This is because 59% of West Chester’s electricity comes from coal combustion, and when utilities burn coal, they release substantial amounts of greenhouse gases into the air.
- **Driving.** Greenhouse gases also come out of the tailpipes of our cars and trucks, as a result of fuel combustion.
- **Home heating and cooking.** The same thing happens when we use oil or natural gas to heat our homes, and when we use natural gas for cooking and running our clothes dryers.
Other sources of greenhouse gases include land use changes, agriculture, and industrial processes.

The BLUER Plan

The impacts of climate change are both global and local. On a municipal level, climate change threatens to stress infrastructure. Intense precipitation interspersed with periods of drought, as some predict, would substantially intensify runoff and significantly strain the water/sewer system. This would also reduce the quantity and quality of fresh water supplies. Saline intrusion into the Delaware River, due to rising sea levels, would further reduce the fresh water supply for the entire Philadelphia region, including West Chester. Soil erosion and flooding due to extreme rain events are also serious considerations for any municipality, as deterioration of the food supply.

These effects would clearly impact the municipality economically. Climate change is also expected to impact the broader statewide economy by reducing the productivity of Pennsylvania’s most important agricultural industries—including dairy, grapes, apples and corn.

There are two essential approaches for addressing climate change at the municipal level:

1) Reduce greenhouse gas emissions to slow climate change. This is the purpose of the BLUER Committee.

2) Develop climate change adaptation strategies. Local governments across the country have already formed adaptation task forces to create coordinated plans to adapt roads, water/sewer systems, utility distribution systems and other critical infrastructure to the coming effects of climate change. This is beyond the scope of BLUER, but we highly recommend that the Borough create an adaptation task force as a priority action.

BLUER’s mission

The purpose of BLUER is to follow the Cities for Climate Protection Campaign, sponsored by the International Council for Local Environmental Initiatives (ICLEI).

West Chester Borough Council committed to this campaign when it adopted Resolution #3 of 2002. This resolution signaled the Borough’s commitment to take a leadership role in promoting public awareness about the causes and impacts of climate change and take steps to reduce our community’s greenhouse gas pollution. By establishing West Chester BLUER (Business Leaders United for Emissions Reduction), Borough Council put this resolution into action. The campaign has 5 important milestones.

<table>
<thead>
<tr>
<th>The 5 Milestones of the Cities for Climate Protection Program</th>
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<tbody>
<tr>
<td>1. Conduct a baseline emissions inventory and forecast.</td>
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<td>2. Adopt an emissions reduction target for the forecast year.</td>
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<tr>
<td>4. Implement policies and measures.</td>
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<td>5. Monitor and verify results.</td>
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To date, the BLUER Committee has completed the first three milestones and received unanimous support from Borough Council along the way. The baseline emissions inventory and forecast results are summarized in Chapter 2. The emissions reduction target is explained in Chapter 3. This Action Plan represents the third milestone.
A Note About BLUER

The BLUER Committee is an ad-hoc group formed by West Chester Borough Council. BLUER stands for Borough Leaders United for Emission Reduction. The Committee is an advisory, informational group with no authority or power. It will help the Borough, its residents and businesses reduce greenhouse gas emissions.

The Committee is comprised of a cross-section of our community and includes Borough Council-appointed representatives from businesses, residents, West Chester University, and Chester County.

Our Mission:

West Chester will work to secure a safer and more sustainable energy future by reducing community-wide CO₂ and other greenhouse gas emissions at least 10% by 2015.

Our Goals:

✓ Reduce community-wide CO₂ and other greenhouse gas pollution through conservation, waste & energy reduction, and increased demand for cleaner, renewable energy sources.

✓ Inform the community on the benefits of the initiative and enable residents to take personal steps to reduce their own greenhouse gas pollution.
Chapter 2:  
Community Greenhouse Gas Inventory

The BLUER Committee completed the first milestone of the 5-step ICLEI Climate Protection Plan in May of 2008: A Borough-wide greenhouse gas inventory. We chose a baseline year of 2005. While this inventory took us approximately a year to complete, it was worthwhile. It tells us where our emissions are coming from, and it helps us understand what we need to do to reduce them. This information will also serve as the baseline for measuring the successes of the Climate Action Plan and will help us all make the best possible decisions as we move forward.

Overall Emissions

We estimate that 222,000 tons of CO$_2$ were emitted from the Borough into the air in 2005. The chart (right) shows how much the various sectors of our community contributed. In line with other municipal inventories, we found that the operations of government were a small proportion of overall emissions. For example, all Borough services (police, fire, public works, sewage treatment, library, garages, traffic lights, and street lights) contribute only 3.0% of the Borough’s emissions. The largest portion of emissions (53.1%) came from commercial and industrial sources, and residential and vehicular emissions are also substantial (42.5%). This tells us that government by itself cannot solve the emissions problem directly; all sectors need to be involved.

To understand how we generate CO$_2$, we also looked at the sources of emissions, or the type of energy consumption. As you can see from the chart (below), almost half of the CO$_2$ comes from electricity consumption in homes and businesses. We are responsible for these emissions even though they occur at power plants and not in the Borough. (The inventory process takes into account the mix of fossil fuel, nuclear, and renewable generation of electricity in our region.) Another quarter of emissions comes from burning natural gas and fuel oil within the Borough. Most of the remainder (18%) comes out of the tailpipes of our cars and trucks. A smaller amount comes from the coal-burning steam plant on West Chester University’s campus. The smallest proportion comes from CO$_2$ and methane (another greenhouse gas) that results when waste and refuse is placed in landfills.
Sectors with the Most CO\textsubscript{2} Emissions

**Industrial/Commercial**

The industrial and commercial sector is responsible for 53% of emissions. This sector consists of industries (which use energy to create materials or products) and a spectrum of businesses such as West Chester University, restaurants, retail stores, and offices (which use energy to light, heat and cool their buildings). The chart (right) shows that using electricity creates almost two-thirds of emissions in this sector. Commonly used fuels, including natural gas and fuel oil, create an additional 23% of emissions in the commercial/industrial sector. West Chester University’s coal-powered steam plant generates one-eighth of emissions. This information tells us that reducing emissions in businesses will be closely connected to reducing electricity consumption. The cost of energy may be a powerful motivation to reduce CO\textsubscript{2} emissions through energy efficiency measures.

**Residential/Vehicular**

The residential sector and vehicle use is responsible for an additional 42% of emissions. Residences (houses and apartments) use energy for lighting, heating and cooling, water heating, and electrical devices ranging from large appliances to a plethora of smaller electronic devices. Most vehicles burn gasoline, diesel fuel or natural gas, all of which produce emissions. We examine residential and vehicular emissions together because both are related to individual or household actions and decisions. The fact that both are important (vehicles emit 41% of CO\textsubscript{2}; residences emit 57%) tells us that changes in both our home energy consumption and driving choices will be needed. Waste disposal (2%), though formally categorized in the Borough government sector, is shown here because it is affected by household choices about consuming and recycling.

Simply put, this aspect of the inventory tells us that if we conserve energy in our homes, buildings, and businesses, we can make a big impact on our greenhouse gas emissions. In addition, we need to make fewer trips in the car and drive more conservatively whenever we possibly can.
Bringing the Inventory to a Personal Scale

The inventory is formally expressed in units of ‘tons of CO\textsubscript{2}.’ This is consistent with the way ICLEI inventories are done but it leads to two problems. First, CO\textsubscript{2} is an invisible gas and is not something that we ordinarily think about as having weight. How can we think about CO\textsubscript{2} in a way that is more easily visualized and understood? In this section, we converted CO\textsubscript{2} gas into the weight of carbon (C) in that gas, and then expressed it in terms of a common carbon-containing material, charcoal briquettes, that we can see and feel. If the briquettes were burned, they would yield the amount of CO\textsubscript{2} in the inventory.

The second problem is that our inventory covers all sectors of a community with a population of over 18,000, so it is difficult to personalize it. We bring our inventory into personal focus by converting the residential and vehicle emissions into a per-capita quantity. The chart (right) shows the approximate number of 9-pound bags of charcoal briquettes that represent an individual’s emissions for a year; each bag contains about 100 briquettes. A total of 430 bags, or 3,870 pounds of briquettes, represent a single person’s emissions. This number of bags could be stacked in a pile 6 feet wide on the side and 4 feet high.

In the next chapter, we will see how this visualization helps us understand each person’s role in achieving the Borough’s emissions reduction goal of 10% x 2015.
Chapter 3: Greenhouse Gas Emissions Reduction Target

The Climate Action Plan targets an emissions reduction of 10% by 2015 over 2005 baseline levels. This goal has been unanimously approved by Borough Council and is the foundation of the reduction initiatives outlined in the next chapter. Having a goal will also help foster the political will that is needed to carry out the greenhouse gas-reduction initiatives.

An important step

The ultimate goal of many respected organizations, experts and legislators is an 80% reduction in emissions by the year 2050. This, they agree, is the target we must hit in order to avoid catastrophic climate change. BLUER’s goal of a 10% reduction by 2015 over baseline emission levels of 2005 may seem small in comparison, but it represents a critical first step.

As the chart shows, we will need to pass a crucial turning point to meet the BLUER goal. We will need to halt a historic rise in greenhouse gas emissions and begin to reduce them. Arguably, this represents our hardest work, because it requires a fundamental shift in the way each one of us thinks about and uses energy. It is BLUER’s belief that if we achieve the 10% goal, we will have achieved a critical educational/awareness milestone, and we will have succeeded in our objective to set our community on a path toward even more substantial reductions beyond the year 2015—and toward a more sustainable future.

Bend the curve

The fastest and cheapest way to “bend the curve” downward is to reduce energy consumption through conservation and efficiency. In buildings, conservation alone can produce an average 20%+ reduction in electricity consumption and utility costs. Energy conservation is, in itself, an educational process that informs people about the importance of energy. This establishes a foundation for further changes that may require capital investment—like renewable energy and transportation improvements—but which will help West Chester achieve more substantial and sustainable emission reductions in the future.

Conservation vs. Efficiency

Conservation: Using less energy, typically by eliminating waste; i.e., turn off the lights and computer when not needed; don’t make unnecessary car trips.
Efficiency: Installing appliances, fixtures and other elements (like weather-stripping) that help an appliance, electronic device or even a building run as intended, only with less energy.
Reaching our personal goal

To effectively conserve energy, we need to understand how CO₂ emissions are created, and think about how and why we use energy. When we visualize our emissions as charcoal briquettes, each resident’s annual emissions from home and cars/trucks amount to about 430 bags of briquettes. Meeting the 10% goal means avoiding the emissions represented by 43 bags, or about 4,300 briquettes, each year.

Here are some general guidelines for reducing emissions that can be achieved through energy conservation or efficiency:

- Each kWh of electricity not used saves 6 briquettes.
- Each hundred cubic foot (ccf) of natural gas not consumed saves 50 briquettes.
- Each gallon of gasoline or diesel fuel not burned saves 80 briquettes.
- Each gallon of home heating oil not burned saves 92 briquettes.

How could you change your personal energy consumption to reduce your emissions? A few examples:

- Replace one 100-W incandescent bulb in a light used one hour each day with a 26-W compact fluorescent bulb that gives the same illumination: saves 1.7 bags (168 briquettes).
- Turn off a cable box (20 W) otherwise left on all day and instead use it only 4 hours a day when the TV is on: saves 9 bags (907 briquettes).

- Instead of using a 2400-W clothes dryer 4 hours a week, cut down to 2 hours a week by line-drying in good weather: saves 15.5 bags (1,550 briquettes).
- If you drive your car 15,000 miles a year and you get 25 miles per gallon, check tire inflation and drive conservatively to improve to just 26 miles per gallon: saves 18.5 bags (1,850 briquettes).
- If you drive your car 15,000 miles a year and you get 25 miles per gallon, plan your trips so you can drive 12 fewer miles each week: saves 20 bags (2,000 briquettes).

**Take the actions in all of the preceding items and you will reduce your individual emissions by 15% and save money!** These small changes take little effort, save money, and can reduce Borough-wide emissions. To be successful, we have to be mindful of the many things that consume energy and create emissions.
Chapter 4:
Phase One Actions

The BLUER Committee proposes implementing greenhouse gas reduction initiatives in phases. This will help us address at least three challenges. First, it enables the Borough to begin taking action in all sectors of the community with minimal up-front investment. Second, it helps the BLUER Committee focus its limited, volunteer resources on several projects at a time. Third, it gives the BLUER Committee time to further evaluate the feasibility and impact of future initiatives.

Two-Part Strategy

There is a deliberate two-part strategy behind the Phase One plan:

1. It enables the Borough to set the tone for the community by reducing energy use on a municipal level. The Borough will not be in a position to call for community-wide change unless it first establishes itself as a leader.

2. The Phase One plan also lays the foundation of a community-wide awareness campaign that will focus on conservation and efficiency. This begins the hard work of engaging all sectors of the community in West Chester’s “10% x 2015” mission.

Part One: Municipal Actions

A. Put New Construction on a Path Toward Carbon Neutrality

• Develop a “Green Features” Guide.

BLUER will develop a “green features guide” for new construction projects. The guide will serve two purposes:

1- It will help developers make important decisions that affect energy use and greenhouse gas creation. The Borough will give the guide to developers with each building permit application. The relative merit of the green features will be presented in the context of the ultimate objective of carbon neutrality and community-wide sustainability.

2- It will be a resource for Borough Council members, so they can advocate and negotiate for appropriate green features as development applications progress.

» Next Steps: BLUER projects the draft guide will be ready for PREP Committee review 3 months after approval of the Phase One Action Plan.

COUNCIL ACTION REQUIRED:
• Endorse the concept and plan.
• **Adopt Zoning Incentives to Promote ENERGY STAR Compliant Buildings.**

In 2008, the Borough adopted a zoning amendment requiring buildings >45 feet to meet the EPA ENERGY STAR standards as part of the conditional use process. Recognizing the economic and environmental value of compliant buildings, the Borough should further amend the Borough zoning ordinance to include incentives for all future buildings to comply with ENERGY STAR standards.

» **Next Steps:** BLUER will engage a select group of stakeholders to develop a list of appropriate incentives for PREP Committee review within 6 months after approval of the Phase One Action Plan.

**COUNCIL ACTION REQUIRED:**
- Endorse the concept and plan.

• **Support a Mandatory State-Wide Green Building Program.**

Team up with regional municipalities to create a unified voice to the Pennsylvania Department of Labor and Industry for developing a mandatory green building program in future revisions to the Unified Construction Code. Specifically, the Borough will sign on to the DVRPC’s *Climate Change Initiatives Program*, and will advocate within the surrounding West Chester Area for presenting a multi-municipality argument to the Commonwealth for a mandatory green building program within the UCC. See Appendix A-1 for a description of the DVRPC *Climate Change Initiatives Program*.

**COUNCIL ACTION REQUIRED:**
- Authorize BLUER to sign the Borough on to the DVRPC *Climate Change Initiatives Program* and advocate for UCC upgrades as a top priority.
- Authorize BLUER to seek the involvement of additional Chester County municipalities.
B. Initiate a 5-Year Wind Energy Awareness Program

BLUER recommends that the Borough purchase 100% wind power for its municipal operations’ electricity needs in increments of 20% per year. Under this plan, within five years, by June 2014, the Borough’s entire electrical demand will be powered by a renewable resource.

The incremental purchasing plan enables the Borough to put the program in the public eye and keep it there, through a five-year awareness campaign. It enables the Borough to gain EPA “Green Power Partnership” status, and challenge local businesses and residents to follow suit, with repeat messaging and multiple press opportunities.

Based on electrical use of 6,164,400 kWh/year for all municipal operations, the estimated rate increase is approximately $4,930/year*:

- Year 1: $4,930 ($1.25 per tax parcel)
- Year 2: $9,900 ($2.50 per tax parcel)
- Year 3: $14,800 ($3.75 per tax parcel)
- Year 4: $19,600 ($4.97 per tax parcel)
- Year 5: $22,700 ($5.75 per tax parcel)
- Year 6 and beyond: $22,700

* Based on a current estimate from New Wind Energy. Reflects a 0.8% annual increase over 2005 rates for the first 4 years and a 0.4% increase for year 5 due to a volume price break. This example does not adjust for utility rate increases associated with the removal of the rate cap scheduled for Jan. 1, 2011.

This wind power purchasing plan enables West Chester to achieve approximately 1.5% of its “10% x 2015” greenhouse gas reduction goal by 2014. BLUER believes this is an essential step, and that the Borough must lead by example in order to help our community meet the goal. By adopting this plan, West Chester Borough will join the ranks of several other local municipalities that are already purchasing wind power—including East Bradford, West Vincent, Tredyffrin and Swarthmore.

COUNCIL ACTION REQUIRED:
- Approve the 20% Per Year Progressive Wind Power Purchasing Plan.
C. Create an Efficient Borough Fleet

Fuel consumption is an essential consideration in the cost of municipal fleet management. In 2008, the Borough purchased approximately 84,000 gallons of fuel for the entire fleet (police patrol, fire department, wastewater, recreation, parking) at a cost of more than a quarter of a million dollars (nearly $270,000).

BLUER proposes factoring fuel costs and emissions into every new vehicle purchase. This will enable the Borough to buy the most fuel-efficient car or truck for the intended purpose, and this will save both economically and environmentally over the life cycle of the vehicle. Specifically, BLUER proposes a three-step process for evaluating the life cycle costs of vehicle purchases:

**Step #1: Identify the Best Environmental Options Using EPA SmartWay Certified.** This free program benchmarks the environmental performance of cars and trucks by giving vehicles an Air Pollution Score and a Greenhouse Gas Score, on a scale of 1-10. For the SmartWay designation, a vehicle must receive a 6 or better on both scores, and have a total score of at least 13. Vehicles that receive the SmartWay designation are very good environmental performers.

**Step #2: Define Lifecycle Costs.** BLUER proposes integrating ICLEI Clean Air Climate Protection (CACP) software with the new Dossier software recently purchased by the Public Works Department in order to quantify the lifecycle costs of vehicles under consideration. Dossier is a fleet management software now in the initial stage of database development. It includes options to calculate gallons of fuel spent per vehicle, cost of maintenance, and other important maintenance and inventory features. It can be used to assess fuel efficiency of individual vehicles and the entire fleet, and will help determine the true financial costs of fleet management. The ICLEI software enables CO2 emissions calculations for each vehicle. Together, these tools will provide a powerful decision-making tool for vehicle purchases.

**Step #3: Recommend Most Appropriate Model.** Using this information, BLUER will work with the fleet manager to make a joint recommendation based on the appropriateness of the vehicle, environmental performance and lifecycle cost. Whenever possible, replacement automobiles should be hybrid vehicles, vehicles that use alternative fuels such as natural gas, electricity, or biodiesel (e.g., waste grease from Borough restaurants). BLUER will aim to increase our average fleet efficiency above the current average of 14 mpg.

According to a BLUER analysis of a portion of the current Dossier data, the 46 vehicles owned by the Borough (excluding police patrol and fire department vehicles, and including vehicles for the wastewater, recreation, parking, administration and codes departments) have an average fuel efficiency of 14 mpg and a carbon footprint of 283 tons per year.

**COUNCIL ACTION REQUIRED:**
- Authorize BLUER to work directly with the Public Works and Finance Departments to evaluate the fuel efficiency of the existing fleet and provide input into the decision-making process for all future vehicle purchases effective immediately, so the most fuel efficient (and cost effective) options that serve the intended purposes can be recommended to Council.
D. Create a West Chester Borough Energy Office

An Energy Office within the municipal operations will enable the Borough to institutionalize this energy and climate work and sustain it over the longer-term. The release of the 2009 Federal Stimulus Plan and the clear national emphasis on energy efficiency and alternative energy presents an opportunity to make this a reality. According to ICLEI, implementing a successful and self-financing energy program is the single best way for a local government to reduce greenhouse gas emissions and has proven to reduce energy costs to the government.

The role of the West Chester Energy Office will be to:

- Effectively and routinely inform all sectors of the community about the importance of reducing energy use and converting to renewable energy sources;
- Provide access to existing financing, programs and other tools that residents, businesses and developers need in order to achieve cost-effective energy reductions and conversions;
- Create a Borough financing option for residents and businesses to use to perform energy audits and efficiency upgrades; and
- Identify and implement opportunities for the Borough municipal operations to move toward a path of carbon neutrality.

» Next Steps: BLUER will investigate best practices for establishing a West Chester Energy Office and recommend granting opportunities.

COUNCIL ACTIONS REQUIRED:

- Endorse the general concept of the Energy Office and endorse the efforts of BLUER Committee members to reach out to elected representatives and other community leaders to create and fast-track this plan of action.
- Provide BLUER leeway to authorize expenditures (within the existing BLUER budget) to undergo ICLEI and other relevant training as it deems necessary.
Part Two: Outreach

A. Implement a Residential Outreach Program

BLUER will actively inform the West Chester residential community about the importance of improving energy efficiency in buildings, provide tips and techniques for reducing energy loss, and offer resources for obtaining energy audits and weatherization.

This effort began in earnest with the completion of BLUER’s first Energy Efficiency Workshop (fall ’08) and publication of the BLUER Guide to a Greener Home. Future plans include holding annual energy efficiency workshops, and distributing the following resources to the community (see Appendix A-2 and attached BLUER Green Home Guide for sample resources):

• The BLUER Guide to A Greener Home;
• Financial Resources/Programs for Residential Weatherization;
• List of Local Energy Auditors/Weatherization Experts.

Outlets for these communications include churches, local publications, local advocacy and neighborhood groups, local nonprofits, business organizations, educational institutions, individuals who have signed up as BLUER supporters at various events, and the BLUER website.

Cost estimate for printing of resources: $500

» Next Steps: BLUER will finalize its outreach list and disseminate the three resources to the community upon approval of this Phase One Action Plan.

COUNCIL ACTIONS REQUIRED:
• Endorse all components of the campaign.
• Approve printing expenses to be drawn from the BLUER budget.
B. Implement A Business/Commercial Outreach Campaign

The business/commercial outreach campaign will be conducted as follows:

- **Phase 1: Energy Breakfast for Local Businesses**, featuring guest speaker Tom Tuffey, PhD, Director of Citizens for Pennsylvania’s Future’s Center for Energy, Enterprise and the Environment, 212 West Gay Street, West Chester. The session will focus on the economic benefits of reducing energy use and will help inform business and building owners of new programs and opportunities for achieving energy reduction goals. The food and venue are to be donated. See Appendix A-3 for a sample flyer.

  The Energy Breakfast will serve as a kick-off event for BLUER’s efforts to engage the local business community. At the breakfast, BLUER will issue a “CALL TO ACTION” to the Borough businesses to volunteer to work with us to become leaders of energy conservation and efficiency, by taking advantage of new programs and financing opportunities. This will enable BLUER to publicize several local case examples for others to follow. At this event, BLUER will also announce its second and third phases of the business/commercial campaign.

  The Breakfast will be managed and publicized with the assistance of the Greater West Chester Area Chamber of Commerce.

  Cost estimate: Paid for through donations, with a minimal printing charge of $50 for posters to hang in store windows.

- **Phase 2: A Q&A Energy Workshop** for business and industry owners who have a serious intent to take advantage of energy conservation and efficiency opportunities. The workshop will give them an opportunity to ask detailed questions and work through their plans of action with an expert (Tom Tuffey). Fall 2009. The Workshop will be managed and publicized with the assistance of the Greater West Chester Area Chamber of Commerce.

  Cost Estimate: Paid for through donations, with a minimal printing charges of $50 for posters to hang in store windows.

- **Phase 3: BLUER Business & Industry Awards** event. The **BLUER Business Award** will recognize businesses operating in the West Chester area that have taken the initiative to:
  - Conserve energy through building improvements/design (e.g., upgraded lighting systems, energy audits, personnel training, IT energy management, etc.) and/or policy changes (e.g., car share, car pooling, work-from-home programs, etc.);
  - Convert to renewable, cleaner energy sources (e.g., wind, solar, biodiesel heating fuel, geothermal); and/or
  - Reduce waste by reducing purchasing/packaging, reusing materials, and/or recycling aggressively.

  This program is loosely modeled after a “Go Green” awards program in Cambridge, Mass. For information about this program and to view their award recipients, visit: [http://www.cambridgema.gov/cdd/et/ggm/gg_bawhist.html](http://www.cambridgema.gov/cdd/et/ggm/gg_bawhist.html).

  The awards program will honor businesses in the greater West Chester area, with special recognition to Borough-based businesses. This wide geographic area will enable businesses outside of the Borough confines to acts as models for our community, and this will ensure that the program is successful and well-attended.
All recipients will be highlighted on the wcbluer.org, BID, Greater West Chester Area Chamber of Commerce, and PennFuture websites. Any business that achieves goals in all three categories (conservation, conversion, waste reduction) will be given a special “gold” award. The award itself will include a BLUER sticker that the business may apply to its front door or window.

**Target Date: Winter 2009.**

Cost estimate: Through PennFuture, BLUER Committee will raise $2,000 to $2,500 to fund the Business Awards through a partnership with PennFuture. This will enable BLUER to honor the award recipients with a luncheon and awards ceremony.

> **Next Steps:** BLUER will prepare the marketing materials and venue and publicize the first Breakfast event, primarily through electronic/email notification. Spring/Summer 2009.

COUNCIL ACTIONS REQUIRED:
- Endorse all components of the campaign.
- Approve printing expenses of approximately $100 to be withdrawn from the BLUER budget.

C. **Implement An Industrial Outreach Initiative**

BLUER will publicize its highly positive experience with Sartomer in an effort to show other industrial entities in West Chester how they can partner with the cost-free DOE Industrial Assessment Center Program to reduce energy use with an excellent payback. See Appendix A-4 for the industrial outreach letter.

Cost estimate for printing/mailing of industrial outreach letter: $50

COUNCIL ACTIONS REQUIRED:
- Endorse all components of the campaign.
- Approve the expense of printing/mailing the letter in the amount of $50.
D. Expand and Enhance the BLUER Website

The BLUER website can be found at [http://webluer.org](http://webluer.org). It contains a wealth of information about BLUER, climate change and reducing our carbon emissions in the Borough of West Chester.

The site was built by a student at West Chester Henderson through an Earth Day Network grant and a 3E seed grant, and was administered by students and BLUER volunteers for the first year. Continued hosting and domain name registration for the website will be provided by Triton Web Studios at a cost of $200 per year. The site will continue to be administered by BLUER volunteers until the Borough’s climate and energy work can be institutionalized.

**COUNCIL ACTION REQUIRED:**
- Approve the $200 annual hosting expense (already incurred) to be withdrawn from the BLUER budget, with BLUER volunteers continuing to maintain and update the website for the short-term future.
Climate Change Initiatives

- Inventory Overview

DVORPC’s Climate Change Initiatives program area, leads, supports, and coordinates efforts in our region to reduce greenhouse gas emissions and to prepare for climate change. Over 90 percent of greenhouse gas emissions are from stationary or mobile energy consumption. The latest science indicates a reduction in GHG emissions of 80 percent is required by 2050 to keep global climate change within an acceptable range. A 50 percent reduction by 2035 would put our region on track to achieve this. DVORPC firmly believes addressing this issue now as a region will help our region’s long-term economic competitiveness.

This program area has four major tasks:
1. Regional GHG Inventory and Forecast, Allocated to Counties and Municipalities
2. Evaluate Greenhouse Gas Reduction Options and Develop a Regional Climate Change Action Plan through Stakeholder Engagement
3. Integrate Climate Change and Energy Concerns Throughout DVORPC Activities
4. Assist Member Governments with GHG Emissions Inventories and Forecasts for their Operations

These are described below.

Regional Greenhouse Gas Emissions Inventory and Forecast
The first task of this project was to produce a regional greenhouse gas emissions inventory and forecast for the DVORPC region. This inventory will help regional policy makers and citizens understand the sources of GHG emissions so that we can make well-informed decisions for regional and local policies to reduce these emissions. Because 90 percent of greenhouse gas emissions are from energy consumption, this effort will also produce an inventory of regional energy use.

In addition, the inventory is allocated to the municipal level, supporting local action in cities, boroughs, and townships across the region. This work is being carried out in close coordination with an advisory group made up of municipal, county, state, and federal officials, as well as with national organizations such as RLNE Local Governments for Sustainability and the US Conference of Mayors Climate Protection Agreement. US EPA headquarters has been actively engaged with our work as a pilot for developing a standard national protocol for carrying out greenhouse gas emissions inventory work at the metropolitan level.

Evaluate Greenhouse Gas Reduction Options and Develop a Regional Climate Change Action Plan through Stakeholder Engagement
There are many actions that can be taken to reduce greenhouse gases. It is important that these options be rigorously evaluated to determine which are likely to be most effective, both from a political and cost standpoint. This task will carry out such an evaluation of a range of potential strategies and activities to reduce GHG emissions in the region. This will result in a catalog of options to consider in policy making discussions.

Early in 2009, DVORPC will initiate activities to educate and engage a broad set of regional stakeholders, including the public, elected officials, and the business community to create a regional GHG action plan comprised of regional and sub-regional actions for climate protection and adaptation to climate change.

Integrate Climate Change and Energy Concerns Throughout DVORPC Activities
This project will work with DVORPC staff to integrate climate change and energy concerns into all appropriate aspects of DVORPC’s work, including the long range plan. This might include, for example, evaluating the greenhouse gas emissions and energy usage implications of various TIP projects or assisting that projects are designed and planned taking climate change impacts into account. In addition, this project will work to elevate the positive implications for climate change and energy conservation of long-standing DVORPC goals, such as brownfield development, commute reduction, and transit-oriented development.

Assist Member Governments with GHG Emissions Inventories and Forecasts for their Operations
Separate from the regional inventory and forecasting effort, this task will coordinate support tools, and training for county and municipal officials that wish to conduct analyses of GHG emissions associated with their own government operations, including energy efficiency audits. One key vehicle for this task will be continued participation in the Local Governments Implementing Conservation for Sustainability (LGICS) project, together with US EPA, PEC, PA DEP, TRP’s SDF, PennFuture, and other organizations.
Looking for Financial Assistance with Energy Bills?

The Pennsylvania Low Income Usage Reduction Program (LIURP) may offer the help you need...

Lower-income residents may receive **FREE**
Energy Audits,
Conservation Counseling, and
Weatherization Upgrades
to your home or apartment.

---

**Applying for this program is EASY!**
Call the PA Housing Development Corporation toll-free at
1800-732-3554
Or go online to
http://www.hdcweb.com/weatherization.htm

To qualify, you must make 60% or less of the state’s median income
(see chart) and have high electrical usage.

<table>
<thead>
<tr>
<th>Estimated PA median income for a 4-person family</th>
<th>60 Percent of Estimated State Median Income* (2009)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$74,072</td>
<td>1 Person Family $23,110 2 Person Family $30,221 3 Person Family $37,332 4 Person Family $44,443 5 Person Family $51,554 6 Person Family $58,665</td>
</tr>
</tbody>
</table>

* Note that these statistics are only an estimate as of 2009 and do not guarantee acceptance in the program.

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**Weatherization works!**
It saves an average of 32% on heating bills
& cuts energy bills $358 per year at current prices!
Costs are going to rise substantially, so you’ll save
even more if you act now!
The Borough of West Chester’s BLUER Committee and PennFuture are pleased to sponsor a Breakfast Seminar:

ENERGY CONSERVATION & EFFICIENCY: OPPORTUNITIES FOR WEST CHESTER BUSINESSES

Did you know that managing your energy use wisely will cut costs and can even help you grow your business? Going truly “green” means building a foundation of energy conservation and efficiency that not only helps protect your bottom line but gives your business a clear marketing advantage.

Learn about new programs and financing opportunities that can help keep your business going and growing in the new energy economy.

Featuring Tom Tuffey, PhD
Director, Center for Energy, Enterprise and the Environment
Citizens for Pennsylvania’s Future
212 West Gay Street, West Chester

Coming 2009.
West Chester BLUER guide to a Greener Home

wcbluer.org
In 2007, BLUER calculated the Borough of West Chester’s greenhouse-gas emissions and found that 40 percent come from heating, cooling, and lighting our homes and apartments, and from appliances in our homes.

Since BLUER’s goal is to reduce West Chester’s carbon emissions by 10 percent by 2015, and since our homes and apartments make up such large part of our emissions, we know that reaching our goal will require us all to reduce our residential energy use. We can reduce energy by simply using less, and by not using it at all when we really don’t have to. BLUER will be offering conservation tips in our newsletter, which you can find here: www.wcbluer.org.

The objective of this guide, however, is to help improve the energy efficiency of our homes and the things in it that use electricity. It does so by showing where the average home uses and loses the most energy; by showing where your home ranks in terms of energy efficiency; and, most importantly, by showing how to lower your energy use and utility bills.

We hope you enjoy the BLUER Guide to a Greener Home and that you use it to make your home or apartment more energy efficient and comfortable and less costly to live in. Together, we can make the Borough of West Chester a leader in decreasing greenhouse gasses and protecting our environment. Our hope is that this guide will help get us there.

Respectfully,

Dianne Herrin (Chair), David Ward, Martin Indars, Courtney Marm, Tim Lutz
CONSERVATION
turn down thermostat in winter,
turn off TV, turn off lights, drive less,
hang wash out to dry, etc.

ENERGY EFFICIENCY
compact fluorescent lights,
ENERGY STAR appliances, good
insulation, weatherstripping, etc.

ALTERNATIVE ENERGY
wind power,
solar panels,
geothermal, etc.

Energy Use Pyramid
The Steps to Our Energy Future

When it comes to saving energy and reducing greenhouse gas emissions, **CONSERVATION** is the foundation and is the essential first step.

**ENERGY EFFICIENCY** comes next.

Once you make these changes, *then* consider **ALTERNATIVE ENERGY**.

For example, it doesn't make sense to invest in solar panels to pay 30% of your energy bills, when 30% of your energy is being wasted because it is leaking out your roof and your thermostat is set too high.

**Use this guide and the information on the following pages to evaluate, conserve and improve your energy efficiency!**

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**TABLE OF CONTENTS**

- Page 6  Energy Uses & Their Costs in the Average Home
- Page 7  Ranking Your Home: Energy Star Home Yardstick
- Page 8-9  Sealing Air Leaks, Insulating Your Home
- Page 10-11  Weather-Stripping Doors & Windows
- Page 12-13  Phantom Loads
- Page 14-15  Computers & Energy
Energy Uses & Their Costs in the Average Home

The U.S. Department of Energy estimates that the average homeowner in our part of the country spends $3,000 a year or $250 a month to heat, cool, light and power his or her home.

More than one-third of that, $1,800 a year, is spent on natural gas or heating oil to heat our homes. The other $1,200 is for electricity to cool our homes, to light them, and to run our appliances, televisions and computers.

The accompanying graphic breaks down the $250 monthly energy bill by use and helps us see how much we spend, and potentially save, in how we heat our homes, refrigerate our food, dry our clothes, etc.

<table>
<thead>
<tr>
<th>Electric (PECO)</th>
<th>$100 per month</th>
</tr>
</thead>
<tbody>
<tr>
<td>USE</td>
<td>% OF BILL</td>
</tr>
<tr>
<td>Lighting</td>
<td>9%</td>
</tr>
<tr>
<td>Space Heater</td>
<td>10%</td>
</tr>
<tr>
<td>TV/DVD/Cable (one)</td>
<td>5%</td>
</tr>
<tr>
<td>Air Conditioning</td>
<td>16%</td>
</tr>
<tr>
<td>Refrigerator (one)</td>
<td>14%</td>
</tr>
<tr>
<td>Clothes Dryer</td>
<td>6%</td>
</tr>
<tr>
<td>Electrical Hot Water Heater</td>
<td>9%</td>
</tr>
<tr>
<td>Phantom Loads</td>
<td>10%</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gas or Heating Oil</th>
<th>$150 per month</th>
</tr>
</thead>
<tbody>
<tr>
<td>USE</td>
<td>% OF BILL</td>
</tr>
<tr>
<td>Heat/Cooking</td>
<td>100%</td>
</tr>
</tbody>
</table>
Ranking Your Home: Energy Star Home Yardstick

Is your home energy efficient? Or are you spending more than you need to on natural gas, heating oil and electricity?

The Energy Star Home Yardstick gives you a quick and easy way to find out. All you have to do is collect a year’s worth of fuel and electric bills, go to EnergyStar.gov and click on “Home Improvement.”

The Energy Star Home Yardstick tool will ask you to input your fuel source (natural gas, fuel oil, propane or kerosene), your zip code, the number of people in your home, its square footage, and the decade it was built.

You will then be asked to input your energy bill information and, once that’s done, click on “submit.”

The Energy Star Home Yardstick will use that information to rank your home on a scale of 1 to 100, with 50 being average in terms of energy efficiency for homes similar to yours.
Sealing Air Leaks, Insulating Your Home

If your attic is not part of your home’s living space, you want to make sure it is air-sealed from the rest of your house and then insulate it properly.

Air leaks from your top floor into your attic (and vise versa) where walls meet ceilings, around light fixtures, through the attic hatch and any ceiling penetrations for wires, plumbing and chimneys.

Spray insulation or caulk does a good job sealing all but the biggest holes. Go to www.energysavers.gov and click #4 “air leaks” under Things To Do In The Fall for more specific instructions on detecting and sealing air leaks.

Once you’re sure the attic is properly air-sealed, it’s time to make sure your attic is properly insulated from the top floor of your house. The Department of Energy recommends that homeowners in our part of the country insulate their attics to a level of R-38. That is between 6 inches and 15 inches of insulation depending on what kind of insulation you use.

Go to www.energystar.gov and click “Air Seal & Insulate” under Home Improvement. Scroll down and click on “DIY Guide For Sealing & Insulating with ENERGY STAR” for more specific information about the different types of insulation, their costs, and benefits.

The thoroughness and placement of the insulation is very important in ensuring a good job. Otherwise, you may spend money without getting the energy savings that you should. A qualified energy auditor and reputable contractor can help you, if you are able to make this type of investment.

If you are not, BLUER will soon be providing West Chester residents with a complete list of funding and financing resources that you can take advantage of. The energy savings will help you pay for insulation and installation and can end up saving you a lot of money. Please check www.wcbluer.org in the near future.
R38 INSULATION =

- 5" Foam Board
- 10.7" Cellulose
- 12" Fiberglass
Weather-Stripping
Doors & Windows

While sealing air leaks in the attic and basement should be your two top priorities, sealing leaky windows and doors is also important to make your home more energy efficient and comfortable.

It helps to know the basic components of windows and doors in order to make them air-tight.

Basically, windows are comprised of the house opening in which they are set — which includes the frame — and the window itself, which is comprised of the sashes and the glazing. A properly sealed window does not let air flow between the frame and the window nor between the sashes and the glazing of the window itself.

There are a number of products available to weather-strip windows and doors, but the Department of Energy breaks them down into four categories: tension seals, felt, reinforced foam and tape. Go to www.energysavers.gov and click on “Simple No-Cost and Low-Cost Tips for Save Energy This Winter.” Scroll down to “select and apply weatherstripping” under Find and Seal Leaks to find out which would be best for your situation and installation procedures.

In some cases, the only option for a disintegrating window is to replace it or add storm windows. Where you live in the Borough of West Chester will affect which might be the best option.

Homeowners within The West Chester Historic District (see map) are regulated by Historic and Architectural Review Board guidelines. In regard to windows, the review board’s design guidelines state, “Replacement windows are not justified in the historic district as a method of improving the thermal performance of windows. Storm windows are the appropriate method of achieving that goal.” For more about what HARB guidelines say about windows, go to www.west-chester.com/harb/chapter04ptBB20.htm.

West Chester homeowners outside the historic district are not under such restrictions. The Department of Energy has an excellent primer on replacement-window options at www.energysavers.gov. Click on the “Energy Savers Booklet” on the right hand side. Then go to “Windows” on the left hand side of this page.
West Chester Historic District

Parts of a Window

Pane
Glazing
Sash
We all know that our televisions, computers, cell-phone chargers and other appliances consume power when we use them. What’s not so obvious is that they continue to draw power when not in use. That consumption is what is known as the “phantom load.”

Our homes are full of appliances with phantom loads. Along with the televisions and phone chargers, they include the microwave, coffee machine, stereo, and DVD player. (Computers and associated machines also have phantom loads, but we address those specifically on the next page.)

When looked at individually, the phantom load per appliance is minute. For example, an appliance with a phantom load of 10 watts — which is typical — costs you about a tenth of cent per hour. But if you assume that it draws that phantom load 20 hours a day, 365 days a year, that nominal one-hour cost translates into $7.30 a year. Multiply that cost times the number of appliances you have in the house and it becomes clear how the Department of Energy estimates the average U.S. home pays more than $100 a year on phantom loads.

One specific solution for our cell phones, personal digital assistants and similar devices is to charge them using external power adapters approved by Energy Star. These models use 30 percent less power than conventional models.
The right power strip can also be part of the solution. Power strips allow us to plug numerous appliances into one outlet. In theory they also let us shut off power to all these appliances and eliminate phantom loads, but few of us actually remember to shut off our power strips.

Fortunately, there are now power strips designed to eliminate phantom loads. For example, one on the market has a color-coded assortment of outlets that will stop power to appliances not in use but also allow for continuous power to appliances that need it, such as answering machines.

Eliminating or decreasing phantom loads is one of the easier steps we can take to decrease our energy use and electric bill.
Computers and the Internet have become an essential part of our lives, and for good reason: They provide us news, entertainment, directions, instructions, and a world of goods at the click of a button.

Because computers take up more and more of our day, it should come as no surprise that they make up more and more of our energy bill. Still, there are steps we can take to minimize computers’ affects on our utility bills.

First, the type of computer we own makes a big difference. When it comes time to replace your computer, keep in mind that laptop computers use about half as much energy as desktop computers. Second, screen-savers don’t save energy, they waste it. Tell your computer to go to sleep instead.

Finally, and most importantly, regardless of what type of computer you use, you probably only use it a maximum of 12 hours a day, meaning it sits idle at least 12 hours a day, if not more. How we have that computer set for those 12 idle hours or more impacts how much energy it uses.

Fortunately, today’s computer operating systems include easy-to-use tools that allow us to manager power more effectively.

Assuming your computer uses the Microsoft Vista operating system, click on the Microsoft icon in the lower left-hand corner of your screen and scroll to Control Panel. There you will see an icon called “System Maintenance.” Click on it, and then “Power Options.” At this point, you should see three power-management plans: power saver, high performance, and a third that represents a mix of the two. Click Power Saver and save. Your computer’s display monitor will now automatically turn off its display after 20 minutes of inactivity and go to sleep if you don’t use it for an hour, and save a significant amount of energy.

Apple users can click on the Apple icon in the upper left corner of the screen and scroll to System Preferences. There you should see an “Energy Saver” option. Tell your computer and the displays to go to sleep after the computer is inactive for 15 minutes.
How to set your computer to save energy

Step #1: Click on Microsoft Icon
Step #2: Scroll to Control Panel
Step #3: Click on System Maintenance
Step #4: Click on Power Options
Step #5: Click on Power Saver
BLUER’s Working List of Reduction Strategies

Through a multi-stakeholder process, the BLUER Committee has identified 31 measures that the Borough and our community may undertake to reduce greenhouse gas emissions, conserve energy and achieve our “10 x 2015” emissions reduction target. These measures are listed here, along with explanatory information and additional research performed by the Committee.

The Committee formed its Phase One Actions (Chapter 4) from this working list. Once the Phase One Actions are underway, the Committee will revisit this list and create a second phase of greenhouse gas reduction initiatives (Phase Two Actions).

Please note: This is a dynamic, working list subject to ongoing revision and updating. It is included here so members of our community can gain an understanding of the BLUER Committee’s process, consider some of these possible future initiatives, and provide ideas/assistance/criticism/support.

I. BUILDINGS/ELECTRICITY CONSERVATION & EFFICIENCY

The building and construction industry has an enormous impact on our natural environment. This includes not only the construction of our built environment but also building operations and maintenance. Similarly, and related, the world is witnessing enormous technological achievements, population growth and a corresponding increase in resource use. As this trend continues, we are seeing the result of human kind’s activities: pollution, landfills at capacity, toxic waste, increased greenhouse gas emissions, resource depletion as well as the effects on everything that inhabits our planet.

Breakthroughs in building science, technology and operations are available to designers, builders and owners who want to build sustainably and maximize both economic and environmental performance. Such environmental benefits include reduction of energy use (and reduced operating costs), decreased greenhouse gas emissions, protection of our ecosystems and biodiversity, improved air and water quality, reduction of solid waste, natural resource conservation.

The following statistics outline the size and impact of the U.S. built environment:

Economic Driver

• All commercial, residential, industrial and infrastructure construction comprises 13.4% of the $13.2 trillion U.S. GDP. Commercial and residential building construction constitutes 6.1% of the GDP. 

Energy consumption
• Buildings represent 38.9% of U.S. primary energy use (includes fuel input for production).

• Buildings are one of the heaviest consumers of natural resources and account for a significant portion of the greenhouse gas emissions that affect climate change. In the U.S., buildings account for 38% of all CO2 emissions.

Electricity consumption

Water use:

Materials use:

Waste:
• The EPA estimates that 136 million tons of building-related construction and demolition (C&D) debris was generated in the U.S. in a single year.  Source: U.S. Environmental Protection Agency (1997). U.S. EPA Characterization of Building-Related Construction and Demolition Debris in the United States.


Research and Development
• Federal funding for research related to high-performance buildings: $193 Million - 0.0002% of GDP (2002-05).

• Federal funding for fossil fuel R&D/exploration: $14.5 Billion - 0.02% of GDP (2005) or a 100 fold greater investment in oil exploration compared to building efficiency measures.  Source: “The Long Emergency” by James Howard Kunstler.
A. Put the Building Code on a Path Toward Carbon Neutrality.

Background of Building Codes

Building codes are a set of rules that specify the minimum acceptable level of safety for buildings and structures. The main purpose of the building codes is to protect public health, safety and general welfare as they relate to the construction and occupancy of buildings and structures. The building code becomes law of a particular jurisdiction when formally enacted by the appropriate authority. Pennsylvania’s history with building codes has been, until recently, complicated by the fact that all of its 2563 municipalities had the ability to enact and enforce their own building codes, some choosing to not enforce any codes at all.

In response to calls to provide a single construction code across the state that everyone could work with equally, The Pennsylvania Construction Code Act (Act 45 of 1999) established the basic requirements for a statewide Uniform Construction Code (UCC). Enforcement of the UCC began in April 2004 and West Chester adopted the UCC on 21 April 2004 by Ordinance 9-2004.

The codes currently administered under the UCC are the 2006 International Codes family issued by the International Code Council (ICC). The ICC is a United States-based, non-governmental organization which allows U.S. jurisdictions (cities, counties, states, etc.) around the world and other stakeholders to collaborate to create model building codes and other building safety standards. The International Codes (I-Codes) published by the ICC provide minimum safeguards for people in the private and public built domain. The I-Codes are a complete set of comprehensive, coordinated building safety and fire prevention codes designed to benefit public safety and support the industry’s need for one set of codes without regional limitations.

The ICC updates its family of codes every three years and the 2009 version is currently available. Pennsylvania Labor and Industry updates the UCC in conjunction with the release of the latest code by the ICC. Thus, the next code changes to the UCC occurred on 31 December 2009 when the next triennial versions of the I-Codes are adopted by regulation.

“Greening” the Code

Let’s re-examine the definition of building code, and in particular the phrase “to protect public health, safety and general welfare.” The potential effects of the built environment’s greenhouse gas emissions, if left unchecked, will have an enormous impact on these core requirements. Keeping in mind that the ICC’s goals are to create one set of codes without regional limitations, BLUER recommends a more proactive approach to building more energy efficient and sustainable buildings in our community. In other words, waiting for the ICC to possibly update its family of codes to include overreaching requirements is not a responsible approach to solving climate change locally.

The ICC acknowledges green building through its Policy Position on Green/Sustainable Communities, involvement in the development of a National Green Building Standard (residential) and a working
agreement with the U.S. Green Building Council to further green building practices. However, revisions to its current code family do not include sustainable provisions at this time. Similarly, Pennsylvania has the ability to amend the UCC with sustainable or energy efficient design standards. There are currently no mandatory statewide requirements for green building (Commonwealth funded projects notwithstanding).

Local government leadership and action is critical to addressing the climate change challenge. Localities are in the best position to foster the innovation and new practices that will achieve building efficiency, cleaner transportation choices, new green jobs and businesses, green infrastructure and more sustainable communities. America’s local governments have been at the forefront of the movement to address climate change. Our citizens are demanding action, and continued leadership from localities is essential to solving the issue. Local governments are best suited to improve building codes, foster community-scale renewable energy, and create other programs and incentives to increase efficiency and reduce energy use in buildings and houses.

Under the provisions of Pennsylvania’s Act 45, individual municipalities cannot make changes to the Commonwealth’s Unified Construction Code to include mandatory building code requirements of any kind (sustainable or otherwise). Municipalities must petition Pennsylvania Department of Labor and Industry to review and analyze changes for possible inclusion in future editions of the UCC. Individual municipalities can, however, create incentives for voluntary building requirements. There are a few voluntary provisions including the Township of Lower Merion and Doylestown Borough’s Voluntary Commercial & Residential Green Building Program as well as West Chester’s own conditional use allowance for ENERGY STAR rating.

With this in mind, the following two action items should be undertaken:

- **Voluntary Green Building Program**: Building on the incentive for Conditional Use in the HO-75 Overlay District to include an ENERGY STAR rating, BLUER proposes the Borough adopt a voluntary sustainable building program applicable to all new construction and renovations defined as “substantial improvements” in the West Chester Ordinance across all Zoning Districts.

  **ACTION 1**: Develop a “Green Team” to help develop a local government sponsored voluntary green building program and identify a team “champion” on Borough staff for program oversight. Distribute information on green buildings.

- **Petition the Commonwealth for a mandatory Green Building Program**: Engage with regional municipalities to create a unified voice to Pennsylvania Department of Labor and Industry for developing a mandatory green building program in upcoming revisions to the Unified Construction Code.

  **ACTION 2**: Authorize BLUER to sign the Borough on to the DVRPC Climate Change Initiatives Program and advocate for UCC upgrades as a top priority. Authorize BLUER to seek the involvement of additional Chester County municipalities.
B. Enable Energy-Efficient Rehabilitations/Upgrades.

Our current building stock is in need of energy efficiency improvements if our greenhouse gas reduction goal is to be achieved.

• For existing construction (small businesses, residences) undergoing rehabilitation or in need of efficiency upgrades:

**ACTION 3:** Evaluate the potential for a community-wide collaboration modeled after the Cambridge Energy Alliance. Provide businesses, landlords and residents with the supporting information, action plan, and financing tools needed to make cost-effective energy efficiency upgrades to their properties.

• For low-income homeowners: Maximize the potential for West Chester to participate in a subsidized low-income weatherization program.

EERIE at [http://www.eere.energy.gov/weatherization](http://www.eere.energy.gov/weatherization)

• For other buildings (industrial, hospital, high school): Evaluate a plan for supporting these entities (University of Delaware Industrial Assessment Center, other programs).

- For the entire community: Purchase renewable, cleaner energy for all segments of the Borough and for creating opportunities to integrate these energy sources into our community. This includes a vision for community-based energy generation.

ACTION 4: Install a solar canopy on the top level of each of the parking garages in West Chester. The PV panels will help to offset the energy used by the garage for lighting and elevators. This could be done incrementally.

Links:
- Timetable: Mid Term
- Responsibility:

ACTION 5: Install solar hot water systems at a restaurants and hotels in West Chester. Restaurants and hotels use lots of hot water and usually use electric or LNG energy sources to heat the water in storage tanks whose source water can be pre-heated by running the water through a roof mounted solar hot water system. 60% reduction possible in fuel used for domestic hot water.

Links:
- Timetable: Mid Term
- Responsibility:

ACTION 6: Establish a Solar Energy Co-Op. Allow people that can’t install PV panels on their own roofs to invest in a local renewable energy provider. Investments could be small and dividends (and carbon credits) are paid based on monthly sunshine and current electric rate. Candidates for panels: on top of self-storage buildings, lease space from commercial or government sites with flat roofs.

Links:
- Government leases space for PVs: http://gov.ca.gov/press-release/1380/
- Timetable: Long Term
- Responsibility:

- Begin a 5-year plan to purchase 100% wind power for the Borough’s municipal operations’ electricity needs.

BLUER recommends that the Borough begin purchasing renewable wind power in increments of 20% per year. Within five years, by June 2014, the Borough’s entire electrical demand will be powered by renewable resources.

ACTION 7: Approve the 20% Per Year Progressive Wind Power Purchasing Plan.
II. TRANSPORTATION

A. Conserve Fuel.

• For the Borough fleet: Establish an energy efficiency requirement in the bidding process for replacement vehicles. Replace the Borough fleet with fuel-efficient vehicles.

ACTION 8: Replace municipal fleet automobiles with vehicles that enjoy averaged higher fuel economy than the current average fleet efficiency of 14 MPG.

• For Borough-wide traffic: Outline an idling reduction initiative to include traffic synchronization, a creative and visible community-wide educational campaign, Borough Council endorsement, and other incentives/programs.

An anti-idling policy for the Borough vehicles has an important positive benefit from a maintenance point of view. Maintenance is based on hours-driven, rather than miles-driven; so a car that sits idling is likely to need more maintenance than a car that has more mileage.

On October 9, 2008, Gov. Rendell signed the Diesel-Powered Motor Vehicle Idling Act into law (Act 124). The law restricts most diesel-powered motor vehicles over 10,000 pounds from idling more than five minutes in any continuous 60-minute period, with a number of exemptions. Buses and school buses are allowed to idle for 15 minutes in a 60-minute period. Senate Bill 295 prevents localities from enacting any new ordinances.

ACTION 9: Adjust parking fees within the Borough to cover the cost of garage construction, maintenance, carbon sequestration, and solar energy facilities within public parking garages.

Timetable: Short Term
Responsibility: Borough Council

ACTION 10: Establish and maintain a downtown shuttle service through a public-private partnership arrangement with the business community.

Links:  http://www.krapfbus.com/shuttle
        http://www.tcrpc-pa.org/SRTP/SRTP_Chapter_06/tmacc.htm
        http://tmacc.org/transitschedules.asp

Timetable: Mid Term
Responsibility: Borough Council

ACTION 11: Partner with SEPTA to promote transit service through advertising, and making schedules and tokens readily available

Links:  www.septa.org
Timetable: Short Term
Responsibility: Borough Administration
ACTION 12: Adopt a traffic calming policy and implement traffic reduction measures

Timetable: Mid Term
Responsibility: Borough Council

ACTION 13: Work with the WCASD to establish a student parking pass fee schedule that off-sets district busing costs and carbon emissions

Timetable: Mid term
Responsibility: Borough Administration

B. Reduce Automobile Dependence.

• For students and/or residents:

Car-sharing is a neighborhood-based transportation service that allows people to use a car when needed, without the costs and responsibilities of ownership. It converts automobile use from a product to a service, providing people with use of a car instead of ownership. Cars of various sizes are kept in small parking lots all over a city. Members make reservations on-line or via a toll-free phone number, walk to the closest lot, access the car using an electronic key fob, and drive off. They are billed at the end of each month based on usage. A car-sharing program can help make communities more vibrant, attractive, and less dependent on the private automobile, and contribute to a range of transportation, housing, economic development and social justice goals. Some of the most notable benefits include:

• Less land needed for parking
• Reduced vehicle travel and congestion
• Emissions reductions
• Promoting transit
• Reduced transportation costs
• Local economic development and capacity building
• Fleet management savings

PhillyCarShare (PCS) is a non-profit carsharing organization that was launched in 2002. PhillyCarShare has cars available for use 24 hours per day throughout the city of Philadelphia and surrounding suburbs. Unlike traditional car ownership where the driver must pay for gas, insurance, as well as service and upkeep, membership in PhillyCarShare includes gas, insurance, reserved parking, child seats, 24-hour roadside assistance, and pay-as-you-go pricing.

PhillyCarShare (PCS) creates partnerships in order to establish “pods” or permanent parking spaces for their fleet. Partners include universities, developers, government entities, and property managers. PCS serves over a dozen college campuses in the Philadelphia region -- including Penn, Drexel, Bryn Mawr, Chestnut Hill, Eastern, Thomas Jefferson, U. Arts, Widener, and more. In 2004, the City of Philadelphia partnered with PCS, becoming the first government worldwide to share cars with local residents in a major fleet reduction effort. The project has helped eliminate over 330 municipal vehicles, saving Philadelphia taxpayers $6 million. The City of Wilmington, Delaware joined in 2007. PCS has a unique amenity that property managers and developers can offer their clients – it is a win-win situation where the developer provides the parking spaces and PCS provides convenient access to a car, along with marketing assistance to target prospective tenants.
ACTION 14: Partner with PhillyCarShare (PCS) to bring car rental pods to multiple locations in the Borough including municipally- and privately-owned parking spaces. PCS requires membership in order to support a pod in any location. The Borough should work to increase members using a “membership drive” at various public events. Becoming a member is completely free and will help PCS gauge demand for its services.

ACTION 15: Establish supply through donation of parking spots. Potential spots include 1) Borough owned metered spaces and Borough owned parking garages; 2) University owned parking spaces at strategic parking lots accessible by WCU students and staff (Sykes Student Union Center, etc.); 3) Private parking lots owned by Borough businesses that are planned to develop/redevelop (First National, Hotel, etc.); 4) County owned facility at the Justice Center, others.

ACTION 16: Support local marketing and communication of car-sharing benefits to area residents and business owners. Work with the Chamber of Commerce and the Borough Newsletter to include an article explaining the program, its costs, and its benefits.

Timetable: Mid Term
Responsibility: Borough Administration

B-2 -- Assess the potential and location(s) for a bike share program in the Borough and the University for residents and students.

In a bike-share program bicycles are made available at special kiosks or racks that are strategically placed around a city. Users can access the bikes 24 hours a day, either by inserting a credit card or by paying an annual fee for a membership card. The bikes can then be returned at any of the stations in the city. While the details of the program vary by city, the basic concept has caught on and spread like wildfire.

Cities around the world have begun to embrace bike-sharing as a way to improve quality of life, meet greenhouse gas reduction targets, and increase tourism.

ACTION 17: Engage local bike share advocates from Philadelphia’s Bike Share program and the Bicycle Coalition of Greater Philadelphia to set Best Management Practices that can be translated to West Chester Borough.

Timetable: Long-term

ACTION 18: Undertake a feasibility study to develop a business plan and policy recommendations that will ensure the bike share program is successful and sustainable. Consider partnering with Clear Channel Outdoors’ Smart Bike program in which corporate advertising subsidizes the costs of implementing the program.

Timetable: Long-term
For the entire community:

- Improve mobility and walkability, and aim to make West Chester Borough a full-service, interconnected community that is reachable without the aid of an automobile. The plan will provide a master structure for the Borough and its committees/Council/developers to use whenever new developments or improvement projects arise. The assessment will be undertaken with the BID, the Elm Street manager, and the Borough so existing programs and future plans are considered.

**ACTION 19:** Prepare a Complete Streets Plan as part of the Borough comprehensive plan:

- Complete the Borough sidewalk system to promote pedestrian-friendly access between neighborhoods, parks, business district and other destinations
- Program the installation of bike lanes into the Borough road maintenance program to establish and maintain a network of bikeways

Links:
- [http://www.completestreets.org/benefits.html#benefits](http://www.completestreets.org/benefits.html#benefits)
- [http://www.transalt.org/campaigns/pedestrian](http://www.transalt.org/campaigns/pedestrian)
- [http://www.planning.org/completestreets/](http://www.planning.org/completestreets/)

Timetable: Mid Term
Responsibility: Borough Planning Commission

**ACTION 20:** Prepare a Street/Shade Tree Planting Plan that regenerates and maintains a contiguous tree canopy within the Borough to reduce street level heat and sequester carbon

Timetable: Mid Term
Responsibility: Borough Planning Commission & Shade Tree Commission

**ACTION 21:** Incorporate urban forestry principles to restore our tree canopy into the subdivision and land development ordinance

Links:
- [http://www.treescleanair.org/generalpublic/Articles/nowak_trees.pdf](http://www.treescleanair.org/generalpublic/Articles/nowak_trees.pdf)
- [http://www.treescleanair.org/generalpublic/Articles/Hewitt_TreesAirQuality.pdf](http://www.treescleanair.org/generalpublic/Articles/Hewitt_TreesAirQuality.pdf)

Timetable: Mid Term
Responsibility: Shade Tree Commission

**ACTION 22:** Improve public transport, including what BLUER can do to help restore rail service to West Chester.
Expand mass transit services to the borough by supporting the reinstallation of SEPTA rail service on the R3 line

**Links:**
- http://septawatch.blogspot.com/2008/06/r3-to-west-chester.html
- http://www.r3westchester.org/
- http://www.septa.org/service/sched/pdfs/R3ME.pdf

**Timetable:** Long Term  
**Responsibility:** Borough Council

- **For developers:** Evaluate existing parking requirements and recommend alternative parking regulations that reduce, rather than increase, the incentive to drive.

  **ACTION 23:** Revisit parking standards within the zoning ordinance to reflect an urban setting and include maximum parking limits.

  **Timetable:** Mid term  
  **Responsibility:** Planning Commission

- **For businesses:** Evaluate the viability of increasing car-sharing/carpooling/telecommuting programs for the County and appropriate businesses in town.

**C. Reduce Automobile Dependence for the entire community:**

C-1--Envision a West Chester-specific “Complete Streets” program that will improve mobility/walkability and aim to make West Chester Borough a full-service, interconnected community that is reachable without the aid of an automobile. The plan will provide a master structure for the Borough and its committees/Council/developers to use whenever new developments or improvement projects arise. Factors to assess include: Tree canopy, bike paths and racks, pedestrian-friendly walkways/sidewalks that connect neighborhoods with services, best use of alleyways, and a shuttle service. The assessment will be undertaken with the BID, the Elm Street manager, and the Borough so existing programs and future plans are considered. This will be reflected in the community’s newest Comprehensive Plan.

C-2--Consider the need for improved public transport, including what BLUER can do to help restore rail service to West Chester, including development of a private funding plan and lobbying of County Commissioners to prioritize appropriate rail lines.

**D. Reduce Automobile Dependence for businesses:**

Evaluate the viability of increasing car-sharing/carpooling/telecommuting programs for the County and appropriate businesses in town.

**ACTION 24:** Work with existing and future businesses to include carpooling as an incentive for employees. Use the web-based services below to place a listing or set up an employee-sponsored carpooling group.

**Timeframe:** Short term
**ACTION 25:** Work with Chester County facilities departments and Human Resources departments to promote a bus shuttle service linking local park-n-ride lots (and other appropriate locations) to County facilities. Work with employers to develop employee incentives for workers who engage in carpooling, carsharing, or vanpooling.

Timeframe: Short-term

**ACTION 26:** Promote existing programs including West Chester University’s carpooling program. The program provides a list of WCU faculty & staff commuters who want to carpool. Commuters set up their own carpools to fit their particular commuting needs.

Links:  
http://www.wcupa.edu/hr/share/  
http://www.erideshare.com/carpool.php?&group=wcu

Timeframe: Short-term

**ACTION 27:** Create a Borough-based program to coordinate all aspects of alternative transit. Model after the City of Wilmington’s Rideshare Delaware program.

Links:  
http://www.carpoolworld.com/  
http://www.erideshare.com/  
www.tmacc.org  
www.dvrpc.org

Timeframe: Long-term

### IV. OUTREACH/EDUCATION

A. Engage All Sectors of the Community in this Climate Action Plan

- *For community leaders:* Outline a strategy/timeline for engaging our community leaders in this cause.

- *For residents:* Outline a plan for educating residents and providing tools for conserving energy and switching to alternative energy sources. The plan will include a strong educational component. Ideas can include a series of potlucks with neighborhood associations, screening of relevant films, handing out “top 5 actions” cards, and offering signup sheets for specific strategies/programs outlined elsewhere in this plan (i.e., weatherization program)

**ACTION 28:** Develop and lead a public outreach education program on energy reduction through information materials, the Borough website and education programs.

Timetable: Short Term  
Responsibility: Borough Administration
• **For businesses:**
  -- Finalize plans/funding and implement the Business Awards program.
  -- Research and recommend ways local businesses can participate in a carbon credit exchange program.
  -- Evaluate the potential to partner with a restaurant to act as a model of energy efficiency and sustainability for the restaurant community.

• **For landlords:** Consider ways to partner with a landlord/student group to showcase how energy improvements in rental units can improve the economics for all parties.

• **Other:**
  -- Website maintenance/updating. Continue updating/maintaining the BLUER website.

  -- Write a brief plan for maximizing ENERGYSTAR partnership opportunities, including use of existing materials/programs/software sharing/etc.

  -- Engage in an active community-wide fundraising program to ensure the success of this plan.

| ACTION 29: Create an Energy Efficiency Campaign for West Chester Residents, Businesses and industries. |

**B. Create a West Chester Energy Office.**

In order for this Climate Action Plan to be properly implemented and the benefits realized, there is a need to assign the management of the plan to an individual within the borough organization. The creation of an Energy Office would enable the Borough to institutionalize its energy and climate work and sustain it over the longer-term. According to ICLEI, implementing a successful and self-financing energy program is the single best way for a local government to reduce greenhouse gas emissions and has proven to reduce energy costs.

The role of the West Chester Energy Office is to:

• Disseminate information to all sectors of the community that will help everyone understand the importance of reducing energy use,
• Provide the financing, secure grants, and other tools needed to achieve energy reductions; and
• Track the benefits received by the Borough through energy conservation and greenhouse gas reduction measures towards achieving the borough’s reduction goal.

With passage of the recent federal Stimulus Package, there is unprecedented opportunity for municipalities to create these programs. The West Chester Energy Office would be created with grant funds, if they can be obtained.

| ACTION 31: Create a Borough Energy Office and hire an energy coordinator to oversee the implementation of this Plan. Pursue grants and funds from the federal Stimulus Package to fund this position. |