

**Testimony before House Select Committee on
Energy Independence and Global Warming**

**Hearing on “Reinvigorating the Economy through Stimulus Legislation:
Opportunities for All”**

January 15, 2009

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Mayor, City of Philadelphia**

Dear Chairman Markey, Ranking Member Sensenbrenner, and Members of the Committee:

Thank you for the opportunity to testify today before the Select Committee on “how the Obama Administration’s proposed stimulus package can benefit the environment and serve as a tool for widespread job growth and economic development.” In my testimony, I will address the three questions posed to the City of Philadelphia by the committee:

- 1. How has the City of Philadelphia sought to strengthen its economy by reducing its impact on the environment?**
- 2. Specifically, how does storm water affect cities and the environment? What economic policies would help mitigate storm water damage in a surrounding watershed?**
- 3. What policies likely to be included in a stimulus package (based on media reports and speeches by President-elect Obama) would help Philadelphia and other cities rebound from a weak economy?**

Before I turn to these important questions, let me preface our responses with an over-arching comment about the evolving stimulus package.

We as policymakers have grown accustomed to thinking of cities as warehouses of great need. But in the transition to a carbon-constrained economy, cities are now repositories of great value. Economists and engineers have repeatedly demonstrated that energy efficiency is the most cost effective way to reduce our energy consumption. The Alliance to Save Energy calculates that without the gains achieved in energy efficiency over the last 25 years we would consume 50% more energy in the United States than we do today. And studies by McKinsey & Company, the Rocky Mountain Institute, the U.S. Chamber of

Commerce, the Natural Resources Defense Council, and on and on, all find that existing efficiency technology could further reduce our energy consumption by another 20 to 50 percent.

Cities are, if you will, the “Saudi Arabia” of energy efficiency. With our vast portfolios of existing buildings (which account for two-thirds of the nation’s energy consumption) and existing infrastructure, cities are the best place to find this efficiency resource. We are engaged in a great debate over an \$800 billion package to forestall an unprecedented economic catastrophe. But if we are serious about spending that money *quickly enough* to stimulate the economy and *wisely enough* to maximize the lifecycle benefits of those investments, then existing local projects and the capacity to actually implement them are the keys to success. Where this rubber hits the road is on the streets of Philadelphia and other cities.

It is therefore critical that Congress design a federal stimulus package that allows money to *flow directly to cities and those local programs that will spend that money quickly and wisely*.

1. How has the City of Philadelphia sought to strengthen its economy by reducing its impact on the environment?

The City of Philadelphia has a long history of reaping the economic benefits of environmental stewardship—of doing well by doing good, as our Quaker founders might say. Indeed, I could begin that history with William Penn’s establishment of his “green countrie towne” in 1682. But I’ll confine myself here to a sample of efforts from the past decade alone.

In 1997, Philadelphia became the first major U.S. city to widely deploy LED (light emitting diode) in our traffic lights. Our Streets Department replaced all of our red traffic signals, red being the only color available at the time. We estimate that the accumulated savings between FY1998 and FY 2008 attributable to the low-energy red LED signals is equal to \$8.4 million. In addition, we avoid over 8 million kilowatt hours (kWh) of electricity use every year and over 4 million tons of Green House Gas (GHG) emissions every year. We are attempting to finance the re-lamping of all three colors at all 27,000 of our traffic signal heads. But this is a very challenging market in which to finance large projects. *If we had that financing, we could begin this project tomorrow.*

In 2003, we initiated a program to manage municipal energy through procurement, construction, and facility management. Between FY2003 and FY2008, our energy use in municipal buildings has been reduced by 12% across all sources (electricity, natural gas, steam, fuel oil.) Through that reduction, we have avoided energy costs of approximately \$4.6 million for our buildings. But because energy prices rose so dramatically during this period, our total energy bill continued to climb despite our reduced usage. Between FY2003 and FY2008, our energy costs for our municipal buildings increased about 16% to almost \$35 million per year. Including our airport and water energy usage, our fleet fuel, and our unmetered usage for things like street lights and traffic signals, our annual energy costs approach \$100 million. As I will elaborate below, *we must do much more to control our energy costs.*

In 2004, Philadelphia designed a fleet reduction program that was widely celebrated, including recognition by the Kennedy School's Innovation in Government Awards. We reduced the size of municipal fleet by 330 vehicles by creating transportation alternatives that maximized economic returns while reducing environmental impact. The key program's element was contracting with the nonprofit Philly CarShare and the for-profit ZipCar to provide vehicles for City employees. *Philadelphia now has the largest government car sharing program in the nation and we continue to reduce and reconfigure our municipal fleet.*

In 2008, we became the largest city on the east coast with single-stream recycling and now have curbside weekly service throughout our city. This simplified approach has already had a dramatic effect on our recycling rate, which we expect to triple by the end of this year. The current collapse in the recycling market has not deterred us from pursuing the economic and environmental benefits from the program. In the last quarter of 2008, we were paid \$44 per ton for our recycled material. This quarter, we expect to pay \$32 per ton. While that is disappointing, it is important to note that paying \$32 per ton is still cheaper than the \$63 per ton we would have to pay to send the material to landfill. *Even when it doesn't make money, the green option avoids costs.*

Also in 2008, we installed a new solar hot water system at our Riverside Correctional Facility. The boilers that provide hot water to the facility needed to be replaced this year. After calculating the payback, we decided to add a solar powered heat exchange system that will provide the primary source of hot water, using gas or oil just as a backup system. 45 Solar Panels were installed on the roof

and they heat a material similar to antifreeze to 265° Fahrenheit. The heated solution is pumped through coils in well-insulated hot water tanks and the heat exchange produces hot water for bathing, laundry, and cleaning. The additional cost of the solar heating system is expected to pay for itself through lower energy costs in less than 9 years. The system's designed lifespan is 25 years, which means for two-thirds of its expected life the system will provide hot water at zero energy cost. Over its useful life the solar system will save over \$1 million dollars and reduce emissions by over one million pounds of CO₂. *We have acres and acres of public rooftops in Philadelphia, from schools to water treatment facilities, which could support similar installations. But we need the financial resources to help pay for these strategic investments.*

And just this month, the City of Philadelphia went to market for the first time to request proposals from Energy Service Companies (ESCOs) to design and implement energy performance contracts for our City Hall and three largest municipal offices buildings. By making use of Pennsylvania's model legislation, the Guaranteed Energy Savings Act, we can take advantage of the kind of design/build procurement contracting normally available only to private sector property managers. The City of Philadelphia spends over \$5 million per year on energy to operate these four buildings. Using industry standards, we expect to reduce that amount by at least \$1 million per year and use those saving to finance the approximately \$5 million cost of the capital improvements needed to reduce energy usage. It remains to be seen how successfully we will be able to finance this work under current market conditions. *Capitalizing the large-scale and self-financing retrofit of public and private buildings is a key opportunity of the stimulus bill.*

Making Philadelphia the "greenest city in America" is a hallmark challenge of my administration. During our just-completed first year in office, we have created a new cabinet-level Office of Sustainability and established a 21-member Sustainability Advisory Board representing public, private, and nonprofit interests from across our metropolitan area. In April, we will be launching our ambitious action plan to reduce our exposure to rising energy prices, limit our environmental footprint, and reposition our workforce and economic development strategies to leverage our enormous competitive advantages in the emerging green economy. *Indeed, the whole effort could be described as "strengthening our economy by reducing our environmental impact."*

2. Specifically, how does storm water affect cities and the environment? What economic policies would help mitigate storm water damage in a surrounding watershed?

Two hundred years ago, Philadelphia was famous for many things, one of which was our Water System. It is with enormous pride that I can say the Philadelphia Water Department, which has responsibility for our storm water management, has grown even more widely admired over the centuries.

Managing stormwater is a basic service of government. If not controlled and managed, rainfall in urban centers results in overland flooding, basement sewer backups, areas of stagnant waters, and/or significant erosion. Left uncontrolled, urban stormwater can cause destruction of property, human disease, and the loss of aquatic and terrestrial habitat.

Our 19th and 20th century solution to stormwater management was to construct a network of drainage pipes which effectively move the rainwater, along with other industrial, household and human wastes away from homes, streets and businesses and into our rivers and streams for disposal.

The Clean Water Act of 1977 started a program of significant national and local investment to capture and treat this piped waste before it enters our water resources. This has been an extremely successful national program in all respects. Except that many times, when it rains, the volume of water that needs to be removed from our cities greatly exceeds the carrying capacity of our pipes. So, overflows of rainwater, sewage and industrial wastes still occur under most rain events in most cities in the United States—put simply, during rain events, solid waste mixes with storm run-off and enters our water supply. This problem has been exacerbated by the build out of our cities, suburbs and rural areas. As more green space is paved over, the ability of the land to soak in the rainwater is diminished (causing more water to be carried by our sewer network). Changing climatic conditions – especially changes in the intensity and frequency of rain events—also contribute to increased storm overflow events.

The USEPA has a number of regulatory policies—especially two programs commonly called CSO National Policy and Stormwater Phase I & II Regulations—which are addressing these pollution concerns. *However, the cost associated with*

these programs will require Philadelphia and every major city and suburban county to spend many billions of dollars in new, expanded infrastructure to address these important environmental issues.

Thus, cities such as New York, Chicago, Boston, Washington, Detroit, Milwaukee, Portland, and Philadelphia are spending billions of dollars to not only maintain their existing system of water and sewer pipes, but many tens of billions more to expand the stormwater system capacity to take in more stormwater. Often, these new systems make use of large underground storage tanks or tunnels to hold, treat and release these waters. In addition to the immediate concern over capital financing for these systems, the long term operation and maintenance and energy required for these systems make this approach unsustainable.

This traditional “big tunnel” or “grey infrastructure” approach to stormwater management also creates artificial boundaries to nature’s water cycle—reducing groundwater infiltration (and thus groundwater tables and stream flows), habitat and vegetation (and thus the natural conditions of transpiration and evaporation), and creating an increased demand for imported water.

Today, there are new approaches being pioneered by cities like Philadelphia to use nontraditional, “green infrastructure” approaches to limit, and eventually reverse, the negative impacts of past stormwater management practices. These methods, which have capital costs similar to grey infrastructure, all attempt to use the landscape itself to manage stormwater. Here are some of our green infrastructure approaches to date:

- We have instituted some of the nation's strongest stormwater regulations that require developers to return land parcels to a condition much closer to how nature intended. This reduces the collective costs for managing stormwater in Philadelphia.
- We are instituting a "cost of service" stormwater charge which encourages land owners to use their properties in a sustainable manner—using pervious pavement in parking lots, carving out green space on the site, or planting trees, for example—or pay for the privilege of the City collecting their rain water waste for them.
- We have encouraged developers and property owners to use green infrastructure approaches like green roofs to meet their stormwater

requirements. This guidance has already made Philadelphia # 2 in the nation's race to construct green roofs, behind our friendly rival Chicago, and nearly all of them have been created by the private sector.

- We have instituted a first-in-the-nation urban wetland's registry to help developers identify sites for remediation as a trade-off for water takings or wetland losses due to construction activities. This encourages the re-development of our industrialized riverfront properties by expediting an often arduous process with Federal agencies for wetlands protection. In addition, we have developed an evaluative tool to allow mitigation funds to be used to improve urban streams and wetlands in areas of the city often overlooked and underfunded for such activities.
- We have created best-in-nation regional and statewide partnerships to manage our water resources. We are working together with our up-state and out-of-state partners to limit the impact our individual plans and actions can have on the greater environment.

Yet, the Philadelphia Water Department, even with its excellent bond rating and comfortable margin of debt capacity, is currently finding it difficult to secure capital funding for its existing and on-going programs, much less the new initiatives described below. When money does become available, it is more critical than ever to make sure that every dollar is leveraged to satisfy the myriad of issues facing an urban water utility. *Support for storm water management along the lines discussed here is a powerful way to green our infrastructure investments.*

3. What policies likely to be included in a stimulus package (based on media reports and speeches by President-elect Obama) would help Philadelphia and other cities rebound from a weak economy?

In answering this question, I focus my testimony on local investments that we believe would quickly increase employment by simply scaling up existing local programs and capacities. We organize these investments into two broad categories: a Building Retrofit Program and a Green Infrastructure Program.

Philadelphia's Building Retrofit Program to Increase Energy Efficiency

There are enormous potential returns to energy-saving investments in building retrofits: the debt incurred to fund the improvements is quickly liquidated in the stream of savings from reduced energy operating costs. But the challenge is in designing the program instruments capable of achieving these savings in the real world of homeowners and other property managers. Building retrofits may be self-financing but they are not self-implementing.

In his September testimony before this Select Committee, Professor Robert Pollin outlined the importance of building retrofits in any stimulus program:

“This green economic recovery program would pay for itself relatively rapidly at the macroeconomic level through returns on energy efficiency in both the public and private sectors... The most obvious option for rapid green investment in communities is a large scale building retrofit program, which would rely entirely on known technologies...Retrofitting can begin almost immediately on buildings of all sizes, in all regions of the country, and can provide short-term returns on the money being invested... For the average U.S. homeowner, the Department of Energy has found that a \$2,500 investment in home retrofitting can reduce average annual energy consumption by 30 percent. As of 2006, the average household income was around \$60,000, and the average household spends about five percent of its income on household energy consumption. The five percent of total income going to energy amounts to \$3,000 per year. A saving of 30 percent of that \$3,000 total household energy bill would therefore amount to \$900 per year.”

The City of Philadelphia currently spends \$19 million annually on Housing Preservation and Weatherization, \$11 million of which is supported by CDBG funds. Administered by the Philadelphia Housing Development Corporation, these funds may be used to provide traditional weatherization improvements, such as attic and wall insulation, window sealing and replacement, and upgraded heating equipment. In addition to basic systems repair, these funds also support emergency repairs and utility payments. The weatherization component of these programs support about 3600 projects per year and could be quickly scaled up with additional funding because the skills requirements for weatherization specialists are relatively easy to attain.

An expanded weatherization program could become part of a pipeline to retool Philadelphia's workforce to meet growing demand in the private market for

home weatherization. As increasing numbers of banks and energy service companies offer specialized loans to help homeowners make energy upgrades to their houses, new demand for these services is expected to create new positions for certified weatherization specialists within the next two years. A new job training program developed by the Energy Coordinating Agency will certify new weatherization specialists. Some of this training can be completed in as little as two weeks, allowing unemployed or underemployed Philadelphians to transition rapidly into a sector with tremendous opportunity. The total number of trainees, including auditors and installers and other related positions, is expected to be over 800 in the first two years of operation.

It is very important to look at the ECA job training project and others in the national context of the growing, green collar jobs movement. A major new report from the American Council for an Energy-Efficient Economy (ACEEE) states that energy efficiency remains the most invisible and the least understood strategy for energy independence: “We have only begun to scratch the surface of the potential savings that additional investments in energy efficiency technologies could provide. While current investments in energy efficiency are having an important impact on our economy, efficiency remains under-funded, and the potential benefits of efficiency remain unrealized.”

Energy efficiency not only offsets more greenhouse gas emissions than renewables and alternative fuels, it generates significant numbers of domestic jobs. According to ACEEE, “In 2004, an estimated \$300 billion, 60% of which was in the buildings sector, was invested in energy efficiency technologies and infrastructure in the United States and those investments made us more productive, saved us money, and supported 1.6 million jobs.”

The work of creating a clean energy economy is very labor intensive. These new, green collar jobs require building science, carpentry, electrical, plumbing, sales, and communications skills. These jobs include: insulators, carpenters, heating technicians, energy auditors, and educators, as well as support services, sales, and manufacturing. The good news is that these jobs are a perfect fit for Philadelphia’s workforce, and are not transferable overseas. Rather than being dead-end, minimum wage jobs, these are jobs with a bright future that provide access to a continuum of advancement and opportunity.

For example, one of Philadelphia’s major building retrofit providers, the Energy Coordinating Agency, hires high school graduates at a starting rate of

\$12/hour plus full benefits. The average salary of their weatherization field staff is \$35-40,000/year. Supervisors make more than that average. Salary increases and promotions are increasingly tied to training. For example, the Building Performance Institute certification (an industry standard) translates into a salary increase. ECA is now in the process of having all our inspectors, auditors and supervisors trained and supervised through BPI.

How large could such an effort be in Philadelphia? There are approximately 400,000 rowhouses in our city. Using the estimates cited above, we could raise the energy efficiency of, say, a quarter of these rowhouses by 20-30% (with insulation, air-sealing, cool roofs, and so on) by investing \$2500 x 100,000, or \$250 million, over two years. That \$250 million is Philadelphia's population-based share of a \$50 billion building retrofit program, which seems appropriate for an \$800 billion stimulus package. Under our current publicly funded weatherization program, a two-person team of auditors can first survey and later verify a typical project in two half-day sessions and a three-person crew can complete a typical project in one day. Thus, 250 projects would fully occupy five persons over the course of a year, and 50,000 projects would employ at least 1000 people full-time over the course of a year.

At this point, let me emphasize the self-financing aspect of energy efficiency. The stream of savings means that an initial capitalization can be replenished and used to continue the work. The kind of weatherization proposed in the above example (insulation, air sealing, cool roofs) typically has a simple payback of two to three years. In other words, the savings in reduced energy bills will exceed the upfront cost of the improvements in as little as two years, especially when combined with other incentives such as rebates from utilities and tax benefits. In Philadelphia, we propose to use those savings to replenish the original \$250 million. Homeowners would have no out-of-pocket costs for the improvements and use the energy savings to pay for improvements. After the payback period, homeowners would get to keep all of the savings from their lower energy bills. With a replenished fund, we could move on the next 100,000 homes. Under the scenario outlined here, we could weatherize every rowhouse in Philadelphia in less than a decade, harvesting a huge return in reduced energy consumption and greenhouse gas emissions.

In order to maximize the benefits of this large-scale residential retrofit program, Philadelphia would like to create a Municipal Energy Authority with the

power to organize investments using a whole house approach (that is, making investments that save electricity as well as natural gas); to bundle investments across large groups of beneficiaries; to lower financing costs by using existing payment instruments (such as property tax bills), and eventually to finance these efforts in the municipal bond market. Such a Municipal Energy Authority could pursue the public interest in conservation through energy efficiency much more aggressively than public utilities whose revenues are not fully decoupled from volume. This approach could work well at a metropolitan scale and we are in active discussions with our county partners to work across city-suburban jurisdictions. *Capitalizing the new Municipal Energy Authority with stimulus dollars that could be leveraged by other sources and used to create a revolving fund is critical to conducting building retrofits at scale under current financial conditions.*

Philadelphia's Green Infrastructure Program

The basic principles underlying Philadelphia's green infrastructure strategy are to (1) value rainwater where it lands—through recycle, re-use, recharge—rather than pipe it away from man and nature; (2) maintain and upgrade existing grey infrastructure as a back-up to nature's role of water management; (3) rebuild our rivers and streams to transform them into destinations and green open space for our citizens; and (4) collaborate with our communities and partners to build neighborhoods with improved air quality and lower incidents of heat stress, walkable streets with bicycle and cleaner public transit options, and access to outdoor amenities and fresh locally grown food.

We plan to deploy green space as a public utility by placing thousands of new trees on city streets; increasing the amount of green open space; using pervious pavement on parking lots and playgrounds; building green roofs; and distributing rainwater collection barrels to homeowners. In addition, green infrastructure investments are much more sustainable when we consider their potential as an adaptive approach to climate change and sea level rise. Indeed, investing in new green infrastructure technologies make us more competitive. Green infrastructure demands investments in new green technologies and job skills. *Estimates made for Philadelphia of the value of the environmental, social and direct economic benefits of green storm water infrastructure indicate that there is a dollar-for-dollar return on investment.*

Here are six of Philadelphia's green infrastructure projects that could be started immediately, with adequate funding:

Waterway Restoration: We have a scalable program (up to \$9 million ready to go) to transform waterways such as Cobbs Creek in West Philadelphia and the Tacony Creek in the lower Northeast section of Philadelphia into new "green destinations" in urban areas that link parks and recreation, transportation, biking, jogging, fishing, environmental education, green jobs and a sense of long lost environmental justice for poor, often neglected urban areas.

Green Streets: A second scalable program (up to \$2 million ready to go) is our Green Streets program that involves a variety of approaches for all types of streets, from fairly simple strategies like increasing tree cover to more ambitious redesigns that include the use of vegetated sidewalk planters and bump-outs and underground infiltration areas developed in adjacent lands. Over time, this new "green standard" for city streets will touch every neighborhood in a city and result in a completely new urban form requiring \$100s of millions in new investment.

Green Corridors: A South Philadelphia main street, the West Passyunk Avenue Business Corridor is home to dozens of small businesses and tens of thousands of residents. We have a \$6 million project ready to implement that would create 100 jobs by this time next year installing green sidewalks that are landscaped to manage storm water, improved new traffic signals to reduce air pollution caused by congestion, and new energy efficient street lights. This project is a triple win: creating construction jobs, rehabilitating infrastructure that serves small business, and improving air and water quality.

Green Farms: Philadelphia has a program ready to go that will use vacant city parcels to test models of urban farming as an interim use for vacant land. The program will cultivate profitable urban commercial agriculture operation (produce, green-roof sedum, trees, etc) through the efforts of entrepreneurial farmers using diverse agricultural techniques. The City of Philadelphia and the Redevelopment Authority will engage successful urban farmers for potential business expansion and as a source of technical assistance for new farmers. The objective is to have several commercial farms clustered on vacant parcels as an interim use by 2010. A major part of the project will use temporary greenhouse structures to grow three categories of products: (1) foodstuff needed by inner-city residents who have no easy access to fresh produce; (2) materials for green roofs, which currently have to

be imported from other states, and (3) flowers that can be sold. It can be expanded to incorporate a workforce training component for ex-offenders.

Green Parcels: The City of Philadelphia, working with the Pennsylvania Horticultural Society and neighborhood based organizations, has developed a ‘Clean and Green’ vacant land management program that has created jobs and demonstrably improved the quality of life and the value of property in every neighborhood in which it operates. It is estimated that Philadelphia has 30-40,000 vacant lots, most of which have been abandoned by their owners and left to grow weeds and accumulate trash. This effort is already underway; in 2008 it treated more than 7100 parcels of ground at a cost of roughly \$4.2 million. This program can quickly be scaled up using relatively low skilled labor and small contractors, generating both jobs and tangible benefits through cleaner neighborhoods and higher property values. An investment of \$10 million would clean and green an additional 17,000 parcels, generating more than 500 jobs and stabilizing property values throughout the City.

Greener Transit: One of the great advantages of dense city neighborhoods is the support they provide to sustainable transit systems, with high levels of ridership and destinations. The Philadelphia metropolitan region is served by one of the nation’s most extensive transit systems and SEPTA, our regional public transit authority is aggressively positioning itself as a key element of the region’s competitive advantage as an energy-efficient place to live and work. SEPTA has an existing contract option to purchase 20 hybrid (diesel/electric) buses in each of the next two years. This option would cost about \$18 million and generate an estimated 678 jobs (nationwide).

The City of Philadelphia has over \$100 million dollars worth of projects, these and many others we have provided in other forums, that would produce green infrastructure capable of producing benefits in terms of water and air quality, family-sustaining employment, and more equitable access to healthy environments and food. But the current downward financial spiral is preventing us from making these investments. *Providing stimulus funds for this innovative green infrastructure approach is critical to allow the City of Philadelphia to realize these benefits over the foreseeable future.*

Conclusion

Thank you again for the opportunity to testify on this important issue. As I hope the Philadelphia story has convincingly demonstrated, cities are the place and local programs are the means for spending dollars quickly enough to stimulate the economy now and wisely enough to transform the economy into a more prosperous future.