



White Paper: Comparing and Contrasting New Jersey and Pennsylvania Regulatory and Institutional Frameworks for Land Use Planning and Zoning as they relate to facilitating Energy Efficiency in Commercial and Multifamily Buildings

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## 1.0 INTRODUCTION

### Background

As part of Rutgers Center for Green Building's (RCGB) work with the USDOE-funded Energy Efficient Buildings Hub Project (EEB Hub), Rutgers is serving as the leader for the Codes and Standards subtask. The primary objectives of Subtask 6.2 are to assess regional codes and standards policy barriers to Advanced Energy Retrofits (AERs), and to develop and demonstrate strategies for overcoming them. The U.S. Department of Energy (DOE) and others have provided best practices for implementing energy efficiency measures through building codes. The American Planning Association (APA) has provided extensive guidance on how to use planning and zoning codes to achieve energy efficiency in multiple sectors. However, these efforts have been made in isolation of each other rather than providing integrated approaches.

In general, the combination of the above approaches can yield energy savings of greater than 30%, although several implementation challenges exist. Other local or regional factors that affect the policy environment for AERs and which may be altered through regional policy include the availability of rebates or other incentives for energy efficiency, the structure of utilities and their relationship to building codes, and provisions in contracting/procurement law.

The Codes and Standards work for the EEB Hub during Budget Period 3 (Year 3) directly addresses the cumulative regulatory and policy environment (federal, state, local) from the perspective of the commercial building owner. It seeks to understand barriers to increasing the energy efficiency of the building stock of the greater Philadelphia region through this lens and to identify and pilot strategies to overcome these barriers. The Codes and Standards team will produce an actionable report that identifies barriers to AERs and provides strategic guidance on how to overcome them, while also testing a subset of these strategies through direct market engagement with building owners. Specific topic areas engaged by the Codes and Standards team in Year 3 include the following: code adoption, code slippage and compliance, planning codes/standards that impede or promote AERs, conflicts/synergies in historical preservation standards and AERs, historical/structural divisions in utility mandates and codes, and performance-based codes.

Several related papers and reports have been produced by the Energy Efficient Buildings Hub project that address the use of building codes and other measures to facilitate building energy efficiency:

- Rutgers Center for Green Building, David B. Hattis, David Listokin, Jennifer Senick, with the assistance of Michael Manzella. 2014. *White Paper: Energy Efficiency Provisions in Building Rehabilitation Codes for Commercial Buildings - Pennsylvania & New Jersey*. Prepared by the Center for Green Building at Rutgers University for the Energy Efficient Buildings Hub, Philadelphia, PA

- EEB Hub Region Energy Code Gap Analysis: Preliminary Findings, A U.S. DOE Energy Innovation HUB Report, prepared by the Building Codes Assistance Project at the Alliance to Save Energy and the United Technologies Research Center, January 2013.
- 90% Compliance Pilot Studies, Final Report, June 2013, U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy (addresses implementation of state plans to achieve 90% compliance with model energy codes by 2017, including active training and enforcement programs, and annual measurement of the rate of compliance).
- Policy and Process Factors Impacting Commercial Building Energy Efficiency in Pennsylvania and New Jersey, October 2011, Greater Philadelphia Innovation Cluster (GPIC) for Energy-Efficient Buildings Policy Markets and Behavior Task Team, by Shari Shapiro and Cozen O'Connor.

The present literature search and white paper is intended to complement the above reports. The DOE HUB project website is a good source for relevant reports:

<http://www.eebhub.org/>

### **Objectives**

The objective of this literature review was to research the regulatory and institutional framework in New Jersey and Pennsylvania for implementation of planning and zoning codes and standards as they relate to requiring, promoting or otherwise facilitating energy efficiency in commercial and multifamily residential buildings and to develop a white paper comparing and contrasting land use regulation/policy in New Jersey and Pennsylvania, both at the state level and how that is devolved to the local levels in each state.

### **Scope**

A relatively broad net was cast relative to land use and zoning powers and tools in New Jersey and Pennsylvania, including:

- Planning laws and regulations
- Zoning ordinances and codes
- Benchmarking and reporting
- Incentives, rebates and financing
- Information and education

Note that building codes were not a direct target of the review, except to the extent that they may be required or recommended by local planning departments in the context of benchmarking and reporting requirements for individual buildings or districts.

The present paper is intended as a companion piece to another literature review and white paper on the same subject but drawing on the experience of other states, the federal government and other countries: *Best Innovative Practices for Achieving Energy Efficiency in Commercial and*

*Multi-Family Buildings through Land Use Planning and Zoning Regulations, Policies, and Incentives.* The descriptions and analyses of planning and zoning tools that can facilitate energy efficiency in commercial and multi-family residential buildings are elaborated more fully in that other paper.

The main focus of the review is small- and medium-sized commercial (including institutional) buildings and multi-family residential buildings (defined as multi-family buildings over four stories high). Ostensibly, planning and zoning tools would typically be more frequently and effectively applied to new buildings, thus the challenge of this task is to find useful applications to existing buildings where there is embedded or embodied energy to take advantage of. To meet this challenge, the review covered both new buildings, as well as existing buildings, in an attempt to find tools that may also be useful to existing buildings. This hybrid approach naturally led to evaluation of the application of planning and zoning tools to achieving energy efficiency in redevelopment project areas as a promising direction for planners.

In addition, the focus is also on the energy efficiency challenge facing small- and medium-sized buildings, because large buildings are typically owned by larger landlords, including national and regional level real estate firms and REITs, who have more extensive keeping the building footprint constant, the taller a building is, the less will be the GHG emissions reduction benefit per square foot of floor area of any roof-mounted renewable energy system, reflective roof or green roof.)

The literature in general was reviewed for third party analyses of obstacles and opportunities discovered in state and local laws and codes; the state laws and some local codes, were reviewed for amendments explicitly accommodating energy efficiency, green buildings, renewable energy, sustainable energy, etc. (A formal legal analysis could be conducted of state and local municipal planning and land use codes relative to what obstacles and opportunities they *could* present to the facilitation of energy efficiency in buildings; such work would best be done by an experienced land use and zoning lawyer with in-depth knowledge of relevant case law.)

### **Methodology and Organization**

In preparing the white paper, the author's charge was to take advantage of existing evaluations of these issues available from relevant organizations and their respective databases and websites, including for instance the American Planning Associations' state chapters for New Jersey and Pennsylvania, Sustainable Jersey, et al. The envisioned length of this document was set at 10-15 pages plus applicable appendices. Google, Google Scholar and Google Books, as well as the websites of numerous potentially relevant organizations, were examined for key words and phrases relating to energy efficiency in commercial and multi-family residential buildings in New Jersey and Pennsylvania. The literature review focused on publications dated from 2010 to

the present, except for seminal works dated earlier. Only books already available to the author were reviewed for this white paper.

The information obtained from the literature search was then organized according to “points of intervention”, i.e. areas where local government planners traditionally intervene in public decision-making which can be extended to facilitating, promoting or requiring energy efficiency in existing, small and medium commercial and multi-family residential buildings. These points of intervention have been adapted from a series of related APA publications addressing climate change and energy efficiency, the most concise and recent of which is *PAS QuickNotes No. 13: Climate Change and Energy*,; their seven points of intervention are provided verbatim below:

*Long-range Visioning. Include exercises in your community visioning process to gauge the level of awareness and importance of energy and climate change to your community members. Consider how energy and climate change can be addressed in your community and how it is connected to other community goals and values.*

*Plan Making. Examine comprehensive plans and other planning documents to see if energy and climate change issues are addressed and integrated. Consider including an energy and climate change element in your comprehensive plan or creating a climate action plan for your community.*

*Regulations. When updating your regulations, think about how zoning codes, building codes, and other ordinances address energy issues. Consider how these ordinances could work to encourage mixed use development, transit-oriented development, and green building. Also, make sure your codes do not prohibit clean energy generation, such as through solar panels or wind turbines. These structures have sometimes been restricted or prohibited in existing codes due to height or aesthetic reasons.*

*Development Review. Create a checklist of energy and climate change goals for new projects. For projects that exceed these goals, consider an expedited site plan review and permit processing track.*

*Incentives. In addition to an expedited plan review, consider other incentives to encourage new development to demonstrate energy efficiency and reduced carbon emissions. Some communities have offered rebates and other financial incentives to developers whose projects meet predetermined standards.*

*Public Investments. Take an active role in your city’s capital improvement program. Make sure that the public investments that will be made in your community – including infrastructure, public buildings, and facilities – promote energy efficiency and reduce GHG emissions. It is*

*often important for cities to lead by example, showing that these goals can be met in public projects, in order for private development to incorporate these goals in their own projects.*

*Public Outreach and Education. Engage the public in discussing energy and climate change and provide educational forums for citizens to learn how to make changes in their own lives to improve energy efficiency and reduce carbon emissions.*

The APA points of intervention above, their sources and the issues they address are discussed in the companion paper, *Best Innovative Practices for Achieving Energy Efficiency in Commercial and Multi-Family Buildings through Land Use Planning and Zoning Regulations, Policies, and Incentives*. However, to make sure the APA framework effectively captures the literature relevant to the present literature search, some of the above points of intervention have been expanded:

- Long-range Visioning – expanded to include Goal Setting
- Regulations – expanded to include Policies
- Development Review – expanded to include Redevelopment

Sections 2-8 of this paper summarize the findings of the literature search according to the points of intervention. Section 9 compares the New Jersey and Pennsylvania findings for each of the points of intervention. Each of Sections 2-8 begin with a brief summary comparing the two state programs as they relate to the subject point of intervention; this is followed by more detailed discussions of each state's relevant program elements.



## 2.0 LONG-RANGE VISIONING AND GOAL SETTING

### 2.1 Overview

In its PAS Quick Notes No. 13: Climate Change and Energy, APA advises local planners to conduct long-range visioning on climate and energy issues: *“Include exercises in your community visioning process to gauge the level of awareness and importance of energy and climate change to your community members. Consider how energy and climate change can be addressed in your community and how it is connected to other community goals and values.”*

The present literature search also includes goal setting in this intervention category, since GHG emissions reduction goals are often set by state or local legislation which may or may not have benefitted from a deliberate and organized community visioning process.

There are 15 separate purposes, or goals, defined for the New Jersey Municipal Land Use Law (NJ MLUL), nine of which relate specifically to protecting the environment and natural resources and preventing urban sprawl and, of these nine, one goal includes conservation of energy resources and another promotes the use of renewable energy sources. However, the MLUL in general does not explicitly include or exclude long-range visioning by local government for any purpose. Compensating for this, the MLUL’s provision for localities to voluntarily develop Green Building and Sustainable Master Plan Elements (GBSMPE) provides an opportunity for sustainable energy visioning, directly in terms of developing the element and indirectly in that the element is intended in turn as a first step in ultimately mainstreaming sustainability throughout the master plan.

There is no state or federal legal requirement for local governments to develop GBSMPEs, or related Climate Action Plans (CAPs) or Sustainable Community Plans (SCPs). However, Sustainable Jersey (SJ), a voluntary certification program for New Jersey municipalities that want to go green, provides guidance on methods and criteria for New Jersey communities to use in conducting long-range visioning relating to sustainability planning and requires long-range visioning be conducted in conjunction with preparing CAPs and SCPs in order for the towns to get certification credits for those plans. Lastly, part of the visioning process in developing all three of these planning instruments necessarily involves setting goals for GHG emissions reductions which in New Jersey involves considering the quantitative targets set by the NJ Global Warming Response Act. There are many good examples of New Jersey localities having prepared GBSMPEs, CAPs and SCPs which involved long-range visioning and goal-setting.

The Pennsylvania Municipal Planning Code (PMPC) explicitly includes energy efficiency and renewable energy in its purpose and intent and in its provision of planning agency powers and duties and thus implicitly supports long-range visioning in these areas. In addition, similar to the GB&SME provision in the NJ MLUL, the PMPC contains a provision for an Energy Conservation Plan Element which presents local governments an opportunity to conduct long-

range visioning and further catalyze community and stakeholder thinking about energy efficiency in buildings. Philadelphia and Pittsburgh are excellent examples of long-range visioning for energy efficiency purposes by major cities in Pennsylvania while Union County serves as an excellent example of a small, rural jurisdiction with limited resources incorporating a sustainability vision in its comprehensive plan.

## 2.2 New Jersey

### State Level

**Global Warming Response Act.** New Jersey enacted the Global Warming Response Act (GWRA, P.L. 2007, c.112) in 2007 codifying and mandating state GHG reduction to 1990 levels by 2020, followed by further reduction to 80% below 2006 levels by 2050.

The Final GWRA Recommendations Report (*Meeting New Jersey's 2020 Greenhouse Gas Limit: New Jersey's Global Warming Response Act Recommendations Report*, New Jersey Department of Environmental Protection, December 2009) makes recommendations, and proposes an action plan, to achieve the 2020 statewide GHG limit, and discusses the key policy areas that need to be considered in order to meet the 2050 statewide GHG limit. According to the report, three core measures to reduce GHG emissions from the two largest contributors to New Jersey GHG emissions – transportation and energy – form the backbone of New Jersey's plan to meet its statewide 2020 GHG limit:

- New Jersey Energy Master Plan (EMP)
- New Jersey Low Emission Vehicle (LEV) program
- Regional Greenhouse Gas Initiative (RGGI) program

According to a May 26, 2011, article in the online *Environmental Leader*, “New Jersey governor Chris Christie has pulled the state from the Regional Greenhouse Gas Initiative (RGGI), the only mandatory cap-and-trade program in the U.S., while promising to ban new coal-fired plants in the state. Branding the RGGI a failure, Christie told a press conference yesterday that the state will withdraw from the program “in an orderly fashion” by the end of the year, coinciding with the end of RGGI’s first compliance period. He said the program’s allowances were never expensive enough to change behavior, and that New Jersey has brought its carbon emissions below its 2020 goal as a result of market forces rather than cap-and-trade. Any benefits from the RGGI tax will also now be miniscule in comparison to those from New Jersey’s incentives for wind, solar and natural gas generation, Christie said.”

Of these three core measures, the one potentially most relevant to facilitating energy efficiency in commercial and multi-family residential buildings is the New Jersey EMP. At the time of publication of the 2009 Final GWRA Recommendations Report, the EMP was available only in draft form. The Final EMP, published in 2011, makes recommendations in the following areas regarding the promotion of cost-effective conservation and energy efficiency:

- Promote Energy Efficiency and Demand Reduction in State Government Buildings
- Incorporate Aggressive Energy Efficiency in Building Codes
- Redesign the Delivery of State Energy Efficiency Programs
- Monitor PJM's Demand Response Initiatives
- Improve Natural Gas Energy Efficiency
- Expand Education and Outreach

Although the above EMP recommended program areas do not directly relate to the use of planning and zoning tools to facilitate energy efficiency in commercial and multi-family residential buildings, they do in aggregate provide a strong state-level set of sustainable energy objectives and supporting program of financial and technical assistance that local government planning departments can draw on in their roles as facilitators, integrators and knowledge providers.

[http://nj.gov/emp/docs/pdf/2011\\_Final\\_Energy\\_Master\\_Plan.pdf](http://nj.gov/emp/docs/pdf/2011_Final_Energy_Master_Plan.pdf)

### **Local Level**

***Sustainable Jersey Community Visioning Action.*** In its Community Visioning action, Sustainable Jersey (see Section 8.2 for more on SJ), a voluntary certification program for New Jersey municipalities that want to go green, provides guidance on methods and criteria for New Jersey communities to use in conducting long-range visioning relating to sustainability planning. SJ requires visioning be conducted as part of the stakeholder consultation needed to prepare climate action plans, sustainable community plans and green building and sustainability elements of master plans. In addition, SJ provides guidance and criteria for calculating municipal and community carbon footprints, which facilitate goal-setting for local GHG emissions reduction. SJ provides the example below of Cherry Hill's sustainability visioning process.

[www.sustainablejersey.com](http://www.sustainablejersey.com)

*Sustainable Cherry Hill - "Cherry Hill 2020: Shaping a Sustainable Future". On July 16-18, 2009, 90 people representing a microcosm of the Cherry Hill community joined together for 16 hours over three days. Their mission was to help build a healthy physical environment, a strong local economy, and an equitable society with the formation of a shared vision for sustainability. The non-profit, Sustainable Cherry Hill, hosted the event, which was by invitation only and of no cost to participants. Participants ranged from teens to seniors and represented businesses, faith groups, education, community groups, government, and environmentalists. Everyone came to the conference with their own unique set of talents, backgrounds, and opinions, but they were united in their desire to foster and improve community. Professional facilitators, trained in the research based "Future Search" method, spent hours working with participants in small and large groups to reach the final day of agenda setting. Task forces were created to move the vision forward with the goal of engaging others in the community to join in and expand the reach of these initiatives beyond conference attendees. Task forces mobilized at the event included: Green*

*Building; Educating for Sustainability; Community Composting; Green Business; Bike Path/Sidewalks; Transportation; Renewable Energy; Local Food/Gardening; Land, Air and Water Conservation; Zero Waste; and Urban/Regional Partnerships for Environmental Justice. Initial meeting dates, as well as preliminary goals and agendas for each task force were also developed.*

<http://www.sustainablecherryhill.org/what-do-you-want-the-future-to-look-like/>

## 2.3 Pennsylvania

### State Level

***Pennsylvania Municipalities Planning Code (PMPC).*** The PMPC includes two provisions relating to long-range visioning and goal-setting for energy conservation and renewable energy:

- *Section 105. Purpose of Act.* It is the intent, purpose and scope of this act to...promote the conservation of energy through the use of planning practices and to promote the effective utilization of renewable energy sources...
- *Section 209.1. Powers and Duties of Planning Agency.* Prepare and present to the governing body of the municipality a study regarding the feasibility and practicability of using renewable energy sources in specific areas within the municipality.

***Pennsylvania Act 129.*** Act 129, signed in 2008, requires the state's electric distribution companies (EDCs) to reduce total electricity use by 3 percent annually by 2013. In addition, the seven EDCs are required by the [Public Utilities Commission](#) (PUC) to implement energy efficiency programs that will reduce overall electricity consumption by 3 percent and peak demand by 4.5 percent by 2013. The EDCs will accomplish these goals by developing and offering customers a portfolio of energy efficiency and conservation programs to be funded by a cost-recovery tariff created by the EDCs that will use up to 2% of their 2006 revenue (or about \$250 million per year).

[www.neep.org/](http://www.neep.org/)

### Local Level

***City of Philadelphia: Energy Standards for Public Buildings.*** In 2009, the Philadelphia Office of Sustainability released a six-year plan, [Greenworks Philadelphia](#), to become the greenest city in America. The plan sets 15 sustainability-related targets. Target 1 is a goal to decrease energy consumption by city government by 30% by 2015, compared to 2008 levels. This goal includes transportation fuel consumption. As part of this goal, Philadelphia enacted Bill Number 080025 in December 2009. The bill requires all new construction or major renovations to achieve LEED Silver certification if more than 50% of the design and construction costs are funded by the city. "Major renovations" are defined as "major HVAC renovation, significant building envelope modification and major interior rehabilitation that in total directly affect more than 50% of the

*gross floor area of an enclosed and conditioned building space." This requirement became effective on January 1, 2010.*

<http://www.phila.gov/green/greenworks/index.html>

***City of Pittsburgh.*** The City has adopted a law requiring all publicly financed development over \$2 million or 10,000 square feet to attain LEED Silver certification. In addition, the Pittsburgh 2030 District, as part of the national Architecture 2030 Challenge, has set district-scale energy reduction targets, among other sustainability goals, for high performance buildings in Downtown Pittsburgh. To prove that high performing buildings are the most profitable in Pittsburgh, District Partners are developing property performance targets realistic, measurable, and innovative strategies to assist district property owners, managers, and tenants in meeting aggressive goals that keep properties and businesses competitive while operating buildings more efficiently, reducing costs, and reducing the environmental impacts of facility construction, operation and maintenance.”

[www.pennfuture.org/](http://www.pennfuture.org/)

[www.2030district.org/](http://www.2030district.org/)

***Union County Cultivating Community Comprehensive Plan.*** This plan, for a rural, small town in central Pennsylvania, involved extensive public participation including a survey of residents, meetings and other outreach that were incorporated into the section of the plan entitled, “Vision and Framework for the Future”. Based on these inputs, it was concluded that energy conservation was one of the County’s most important issues. Thus, Conserve Energy was among the several sustainability principles that were developed, to be accomplished by decreasing fossil fuel consumption and reducing automobile use and promoting transportation alternatives.

Sustaining Places: The Role of the Comprehensive Plan, by David R. Godschalk, FAICP and William R. Anderson, FAICP, American Planning Association, Planning Advisory Service, Report Number 567, 2012.

## 3.0 PLAN MAKING

### 3.1 Overview

In its PAS Quick Notes No. 13: Climate Change and Energy, [DATE], APA advises local planners to prepare or amend plans to address climate and energy issues: *“Examine comprehensive plans and other planning documents to see if energy and climate change issues are addressed and integrated. Consider including an energy and climate change element in your comprehensive plan or creating a climate action plan for your community.”*

Similar to long-range visioning (Section 2), the NJ MLUL mainly addresses sustainable energy issues through its provision allowing local governments to prepare GBSME. This additional voluntary master plan element is in turn intended to catalyze mainstreaming of sustainability throughout the master plan. In the short-term, however, a GBSMPE provides the legal basis and technical context for a locality to develop planning and zoning regulations and policies addressing energy efficiency and climate change (Section 4). However, the impetus for NJ localities to actually follow through with the legal permission provided by the MLUL to voluntarily develop GBSMPEs has come from: (1) a combination of the recognition afforded by the SJ certification program (for developing SCPs and CAPs, as well as GBSMPEs); and (2) the funding provided by the now defunct USDOE Energy Efficiency and Conservation Block Grant (EECBG) program (for developing their required Energy Efficiency and Conservation Strategies or similar).

The PA PMPC envisions the possibility of addressing sustainable energy in local comprehensive planning in its general Comprehensive Plan provision and then follows through more specifically in its provision for local governments to prepare Energy Conservation Plan Elements. Ostensibly, this sets the stage for energy efficiency related plan-making in Pennsylvania. Both Philadelphia and Pittsburgh have undertaken major climate and energy planning efforts, as reported below, and Philadelphia has implemented its plan with new regulations relating to energy efficiency. Union County serves as an excellent example of a small, rural jurisdiction with limited resources incorporating sustainability as one of the seven elements of its comprehensive plan.

### 3.2 New Jersey

#### State Level

As discussed in Section 4.1, among other things, the MLUL establishes regulations for creating and enacting a comprehensive master plan and an official map. The comprehensive master plan, to be adopted by the planning board, guides land use in the municipality to meet MLUL purposes. It *must* include a statement of objectives, principles, assumptions and standards and a land use element. It *may* include any of several other traditional, sector-specific elements

addressing housing, circulation, utilities, community facilities, recreation, conservation, economic development, historic preservation, recycling, farmland preservation and development transfer. While none of the traditional optional elements directly addresses climate change or energy sustainability, there is a new element, Green Buildings and Sustainable Environment, discussed separately below.

***State Development and Redevelopment Plan.*** Among the eight goals and strategies of the SDRP is one called, “*Protect the environment, prevent and clean-up pollution by planning for growth in compact forms, at locations and intensities of use that take advantage of existing and planned infrastructure, and by increasing infrastructure capacities and growth potential in areas where development will not damage water resources, critical habitat or important forests, and will make transportation alternatives feasible to help to achieve and maintain air quality standards.*”

The statewide policies for facilitating the implementation of the above goals and strategies include one entitled, “*Energy Resources – Energy policies focus on shifting to renewable energy resources, while optimizing the use of energy resources through community design, building design, transportation and conservation programs.*”

Defining criteria and planning guidelines for state planning areas do not explicitly address climate and energy concerns except to the extent that they encourage efficient growth in compact centers with existing infrastructure. A variety of types of centers, likewise, are defined, but their relevance to climate and energy concerns is again limited to references to compact growth.

***County Planning Act.*** If a county planning board has been created, then a county master plan must be prepared and adopted that describes physical development of the county as the basis for developing the county capital improvement plan. While the features listed that should be addressed in the plan do not explicitly include any relating to climate and energy concerns, there is a provision for “other features that may be important to the county” (NJSA 40:27-2).

***Green Building and Environmental Sustainability Element (GBESE, NJSA 40:55D-28b15).*** This recent amendment to the MLUL allows municipalities to develop a new discretionary element to their comprehensive master plans called a Green Building and Sustainability Element (GBESE) that would be adopted by the planning board. The GBESE “...shall provide for, encourage, and promote the efficient use of natural resources; consider the impact of buildings on the local, regional and global environment; allow ecosystems to function naturally; conserve and reuse water; treat storm water on site; and optimize climatic conditions through site orientation and design.” As previously mentioned, nine of the 15 purposes of the MLUL relate to protecting the environment and natural resources and two of those nine relate specifically to energy conservation and renewable energy.

Although the GBESE is conceived as a distinct plan element, it is also intended as a means of introducing citizens to sustainability concepts and thus to serve as a bridge to eventually integrating the three pillars of sustainability – planet, people and prosperity – throughout the comprehensive master planning process and thus into all of the other master plan elements. Further, once adopted by the planning board, the GBESE empowers local governments to use sustainability as a criterion or objective in guiding land-use decisions and passing ordinances.

According to the 2010 Complete Guide to Planning in New Jersey, a model GBESE was developed by APA-NJ which recommends sections addressing:

- Community development
- Land use, landscapes and ecology
- Water
- Energy
- Materials and resources

However, Sustainable Jersey (see Section 8.2 for more on SJ), a voluntary certification program for New Jersey municipalities that want to go green, published instructions in 2012 for developing a GBESE specifying the following topics as mandatory:

- Climate Change/Green House Gas Emissions
- Renewable Energy
- Green Building & Design
- Land Use & Mobility
- Water

And the following additional topics as optional:

- Food Systems
- Waste Management

Of these seven topics, the first three are clearly related to energy efficiency in commercial and multi-family residential buildings; SJ's more detailed guidance for addressing them follows:

*a. Climate Change/Green House Gas Emissions – New Jersey has identified climate change as a public health risk and a threat to the public safety and welfare, and has set targets for greenhouse gas emission reductions as codified in the Global Warming Response Act of 2007. Similarly, the adopted GBESE shall consider local approaches to addressing climate change and reducing greenhouse gas emissions through a coordinated set of policy actions and activities.*

*b. Renewable Energy – Use of renewable energy in homes, businesses, and in public facilities reduces the use of fossil fuels that contribute to global warming and impair air quality. The*



*GBESE should identify ways to promote the use of renewable energy by retrofitting existing structures, as well as by incorporating renewables in new developments, redevelopment projects and public facilities.*

*c. Green Building & Design – Green building and design strategies not only improve the environmental and energy performance of buildings, but also lessen the impact of those buildings on the surrounding environment. The GBESE should encourage property owners and developers to utilize green building and design practices in existing buildings and new construction, including energy efficiency, water conservation, use of recycled renewable materials, etc.*

### **Local Level**

Sustainable Jersey (see Section 8 for more on SJ), a voluntary certification program for New Jersey municipalities that want to go green, provides guidance on methods and criteria for New Jersey communities to use in developing GBSMPs, SCPs and CAPs. In addition to the examples provided by SJ on its website, the following examples are provided:

- Green Building and Sustainability Master Plan Element – City of Rahway [http://www.cityofrahway.com/pdf/RahwayGBSMPE\\_FinalDraft\\_17May2010.pdf](http://www.cityofrahway.com/pdf/RahwayGBSMPE_FinalDraft_17May2010.pdf)
- Sustainable Community Plan – Town of West Windsor <http://www.westwindsornj.org/EC-sustainability.html>
- Sustainable Community Plan and Climate Action Plan – Woodbridge Township <http://www.twp.woodbridge.nj.us/LinkClick.aspx?fileticket=0uLD7NGx9pk%3d&tabid=751&mid=2647>
- Energy and Utilities Master Plan – Cape May County <http://www.capemaycountyherald.com/files/media/taxrecords/cmc%20energy%20master%20plan.pdf>

## **3.3 Pennsylvania**

### **State Level**

***Pennsylvania Municipalities Planning Code.*** The Pennsylvania Municipalities Planning Code (PMPC, Act of 1968, P.L.805, No.247 as reenacted and amended, July 2011), is provided by the Pennsylvania Governor’s Center for Local Government Services in the Department of Community and Economic Development. Below sections of the PMPC have been excerpted that include reference to energy efficiency concerns.

- *Section 105. Purpose of Act.* *It is the intent, purpose and scope of this act to...promote the conservation of energy through the use of planning practices and to promote the effective utilization of renewable energy sources...*

- *Section 209.1. Powers and Duties of Planning Agency. Prepare and present to the governing body of the municipality a study regarding the feasibility and practicability of using renewable energy sources in specific areas within the municipality.*

#### *Article III - Comprehensive Plan*

- *Section 301. Preparation of Comprehensive Plan. (4.1) A statement of the interrelationships among the various plan components, which may include an estimate of the environmental, energy conservation, fiscal, economic development and social consequences on the municipality.*
- *Section 301.1. Energy Conservation Plan Element. To promote energy conservation and the effective utilization of renewable energy sources, the comprehensive plan may include an energy conservation plan element which systematically analyzes the impact of each other component and element of the comprehensive plan on the present and future use of energy in the municipality, details specific measures contained in the other plan elements designed to reduce energy consumption and proposes other measures that the municipality may take to reduce energy consumption and to promote the effective utilization of renewable energy sources.*

#### **Local Level**

##### ***City of Philadelphia: Philadelphia 2035 Comprehensive Plan and Greenworks Philadelphia.***

In 2010, the City of Philadelphia produced a new comprehensive plan which is notable in that rather than having one or more separate elements addressing sustainability specifically, it weaves sustainability throughout the plan and it does this while integrating several recent stand-alone sustainability planning initiatives, including Greenworks Philadelphia (energy), Green City Clean Water (stormwater) and Green2015 (parks). The 2035 comprehensive plan is organized around three themes: Thrive, Connect and Renew. Many of the green components are addressed in the Renew section.

The Delaware Valley Regional Planning Commission has prepared a parallel regional plan, entitled “Connections: The Regional Plan for a Sustainable Future, also covering the period until 2035 but addressing sustainability more explicitly than the Philadelphia 2035 Comprehensive Plan. Among other sustainability measures, it addresses reducing greenhouse gases and moving the region toward an energy-efficient economy.

As described in more detail in Section 2.3 above, in 2009, the Philadelphia Office of Sustainability released a six-year plan, [Greenworks Philadelphia](http://www.philadelphia2035.org/), to become the greenest city in America in part by providing energy standards for public buildings. *The city has also begun a number of other initiatives intended to help it meet the energy reduction target. The Greenworks web site contains detailed information on these initiatives and progress towards the target.*

[www.philadelphia2035.org/](http://www.philadelphia2035.org/)

[www.dvrpc.org/](http://www.dvrpc.org/)

<http://www.phila.gov/green/greenworks/index.html>

Sustaining Places: The Role of the Comprehensive Plan, by David R. Godschalk, FAICP and William R. Anderson, FAICP, American Planning Association, Planning Advisory Service, Report Number 567, 2012.

## **Pittsburgh**

***Pittsburgh Climate Action Plan.*** “*The Pittsburgh Climate Action Plan outlines the measures that government, businesses, higher education institutions, and citizens of the City of Pittsburgh have begun and can continue to undertake to help mitigate the local effects of global climate change. The plan also includes recommended actions that the municipal, community, business, and higher education sectors of Pittsburgh are encouraged to adopt in order to achieve the City’s target of reducing GHG emissions 20% lower than the 2003 level by 2023.*

“*Specific strategies for achieving this emission reduction are initially corganized in this plan by the following sectors: municipal, community, business, and higher education. The climate action recommendation for each of these sectors are then classified into the following categories:*

- *General*
- *Energy*
- *Recycling and Waste Management*
- *Transportation*
- *Green Building Practices (Higher Education Only)*
- *Student Engagement and Education (Higher Education Only)*

“*Within these categories, recommendations are divided into short-term (1 to 2 years), medium-term (2 to 5 years), and long-term (greater than 5 years) recommendations...Short-term recommendations will be the first to be implemented, and their impact will be quantified to track progress towards the goal of 20% reduction in GHG emissions by 2023.*”

<http://www.planning.org/research/energy/database/resource.htm>

The first version of the Pittsburgh Climate Action Plan, published in 2008, included two progressive measures relating to supporting planning and zoning for climate change mitigation:

- *MUNICIPAL GENERAL 4.1: Support Planning and Zoning Incentives*
- *MUNICIPAL GENERAL 4.2: Consider Planning and Zoning Mandates*

These measures – which have since been suspended from the City’s climate action planning process due to budget and staff limitations - are described in more detail in Sections 6 and 4, respectively.

<http://www.pittsburghclimate.org/index.htm>

Personal communication with Jim Sloss, Director of Sustainability, City of Pittsburgh, November 10, 2013.

***Union County Cultivating Community Comprehensive Plan.*** The plan, entitled, “Cultivating Community: A Plan for Union County’s Future”, is the result of a 2-year planning process with extensive public participation, for a rural, small town in central Pennsylvania. Energy Conservation was identified as one of the County’s most important issues. Thus, “Conserve Energy” was among the several sustainability principles that were developed and “Community Facilities, Utilities, and Energy Conservation” was one of the seven plan elements prepared (as allowed by the PMPC).

**Sustaining Places: The Role of the Comprehensive Plan**, by David R. Godschalk, FAICP and William R. Anderson, FAICP, American Planning Association, Planning Advisory Service, Report Number 567, 2012.

## 4.0 REGULATIONS AND POLICIES

### 4.1 Overview

The companion to the present paper, *Best Innovative Practices for Achieving Energy Efficiency in Commercial and Multi-Family Buildings through Land Use Planning and Zoning Regulations, Policies, and Incentives*, provides the reader with distinctions between planning and zoning codes (outside building envelope, but including more than just site plan level measures, e.g. New York City and Washington, DC also address building top and sides, height, sites and buildings next door, etc.) from building codes (inside building envelope), and those two areas in isolation in turn from their use as tools employed by planners in the contexts of building energy efficiency benchmarking, performance, incentives, development review, public investment, etc.

In its PAS Quick Notes No. 13: Climate Change and Energy, [DATE], APA advises local planners: *“When updating your regulations, think about how zoning codes, building codes, and other ordinances address energy issues. Consider how these ordinances could work to encourage mixed use development, transit-oriented development, and green building. Also, make sure your codes do not prohibit clean energy generation, such as through solar panels or wind turbines. These structures have sometimes been restricted or prohibited in existing codes due to height or aesthetic reasons.”* The present literature search also includes policies in this intervention category to provide a more comprehensive context.

There are 15 separate purposes, or goals, defined for the NJ MLUL, nine of which relate specifically to protecting the environment and natural resources and preventing urban sprawl and, of these nine, one goal includes conservation of energy resources and another promotes the use of renewable energy sources. However, the MLUL does not explicitly include or exclude energy efficiency or climate change concerns in its provisions relating to planning and zoning regulations and policies. Whatever moderating effect this may have on NJ communities contemplating how they can facilitate building energy efficiency, it may be balanced by the explicit MLUL provision allowing towns to develop GBSMPs. In addition, funding, incentives and guidance provided by USDOE, NJDEP and NJBPU have been used to support development of local building energy efficiency regulations and policies. NJDEP, for example, has published guidance on creating sustainable communities encouraging local governments to: (1) adopt an energy efficiency/conservation retrofit ordinance for industrial/commercial buildings; (2) encourage energy conservation and efficiency measures in public housing rehabilitation; and (3) promote energy efficiency through land-use regulation.

The PA PMPC systematically addresses energy conservation and renewable energy throughout its general provisions, including Contents of Subdivision and Land Development Ordinance, Statement of Community Development Objectives, Standards and Conditions for Planned

Residential Development, Standards and Conditions for Traditional Neighborhood Development, and Application for Tentative Approval of Planned Residential Development, as described in Section 4.2. In addition, the 2010 State Land Use and Growth Management Report, in its Green and Walkable recommendation, lists revised local zoning and development ordinances, among other measures. As an outgrowth of its Greenworks Philadelphia Plan, the City has recently enacted legislation relating to use of LEED, benchmarking, cool roofs and green roofs tax credit. Pittsburgh has prepared a Climate Action Plan, including one component, “*MUNICIPAL GENERAL 4.2: Consider Planning and Zoning Mandates*”, that proposes for further City consideration eight different measures involving the use of planning and zoning regulations to achieve energy efficiency objectives. These measures have since been suspended from the City’s climate action planning process due to budget and staff limitations, leaving the City’s Sustainability Office to focus on the energy efficiency of City-owned property.

## 4.2 New Jersey

### State and County Level

*Municipal Land Use Law (MLUL, NJSA 40:55D-1 et seq.)* “*The MLUL was first enacted in 1975 and has been amended numerous times throughout the years. It is the legal vehicle that grants municipalities the power to regulate land use on behalf of the State. A key tenant of the United States and New Jersey Constitution is that unless a municipality is specifically granted a regulatory power by the Legislature, that power is reserved for the State, and the municipality may not engage in that activity. In the event that a municipality engages in a regulatory action that is not specifically authorized by the MLUL, the municipality’s action will be deemed ultra vires or illegal by a court of competent jurisdiction. While the MLUL assigns planning and regulatory authority primarily to municipalities, there is a separate enabling legislation for counties (i.e. the County Planning Act, NJSA 40:27-1 et seq).*

*The MLUL regulates land use by establishing the broad content and procedural framework for how municipalities enact local zoning laws, review and authorized development projects, and integrate private development with public capital improvement programs. More specifically, the MLUL establishes regulations for creating and enacting the following:*

- *a comprehensive master plan;*
- *a capital improvement plan;*
- *an official map;*
- *subdivision and site plan ordinance(s);*
- *zoning ordinances; and*
- *development application submission and review procedures.*

There are some 15 separate purposes, or goals, defined for the MLUL, all of which relate to protecting the public health, safety, morals and general welfare of the State’s citizens, and nine

of which relate specifically to protecting the environment and natural resources and preventing urban sprawl. Of these nine, in turn, one goal includes conservation of energy resources and another promotes the use of renewable energy sources.

The *municipal zoning ordinance* regulates the nature and extent of land uses and buildings and structures on the land. The governing body adopts the zoning ordinance and referring it to the Planning Board for review of its consistency with the land use and housing elements of the comprehensive master plan.

*Subdivision regulations* create buildable lots and *site plan regulations* establish layouts once they are created. Through the years amendments have resulted in at least 20 *required* provisions to be included in subdivision and site plan ordinances; these include several relating to environmental protection and environmental infrastructure, but none directly addressing climate change or sustainable energy. However, the last listed required provision for both subdivision and site plan ordinances allows for standards for other improvements that may be deemed necessary by the municipality. In addition, for site plan ordinances only, the required provisions include conservation of energy and the use of renewable energy sources. Further, the *discretionary* provisions for subdivision and site plan ordinances include standards for planned development under which developers must submit for approval by the planning board a *general development plan* that in turn may include an environmental (including climate) resources inventory and an environmental utilities plan.

**County Planning Act.** County authority to review and approve subdivisions and sites is limited to applications that would affect county roads and drainage facilities.

**New Jersey Guidance on Creating Sustainable Communities.** The NJDEP has issued “Creating Sustainable Communities: A Guide for Developers and Communities” (by Jorge Reyes and Marty Rosen, Office of Planning and Sustainable Communities, NJDEP, September 2007). The guide provides the strategies below for local governments to promote energy-saving programs through regulations and policies.

[http://www.state.nj.us/dep/opsc/docs/Infrastructure\\_Energy.pdf](http://www.state.nj.us/dep/opsc/docs/Infrastructure_Energy.pdf)

- *Adopt an energy efficiency/conservation retrofit ordinance for industrial/commercial buildings* – *In communities where the industrial and commercial sector is a major local energy user, a retrofit ordinance can have significant positive impacts on energy use, jobs, and the local economy. An energy efficiency/conservation retrofit ordinance requires that a commercial/industrial building be retrofitted with simple energy efficiency and conservation measures at time of sale (and possibly at time of a major renovation).*

- Encourage energy conservation and efficiency measures in public housing rehabilitation projects - A policy should be adopted to encourage installation of energy conservation and efficiency improvements beyond those required by state and federal minimums.
- Promote energy efficiency through land-use regulation - Promote land-use patterns that increase energy efficiency in buildings and transportation systems by making energy efficiency a critical element when developing new zoning regulations and modifying old regulations, e.g., higher density development, solar orientation requirements, site design.

### Local Level

The Sustainable Jersey website provides numerous examples of policy resolutions and ordinances to implement energy efficiency and renewable energy measures, as well as other sustainability actions that may support energy efficiency in buildings. The most relevant of these are presented verbatim below followed by examples of, and links to, New Jersey localities where these implementing measures are being tried.

#### **Green Buildings Policy Resolution**

Woodbridge Twp., NJ Green Building Resolution

Resolution requiring a green building checklist for all development applications

Kearny, NJ Green Building Ordinance

#### **Site Plan Green Design Standards**

The City of Summit has implemented two ordinances in the last year addressing 'green standards' in building design. One is Ordinance 09-2872, also known as the Gateway II ordinance, passed in November 2009. The newly created Gateway II ordinance requires that green design standards be upheld at the site plan of the City's Central Retail Business District (CRBD) zone. Outlined in this ordinance is the requirement of certain sustainability measures that will promote a greener and healthier environment. Summit's Ordinance 10-2900, or the Franklin Place ordinance, passed in June 2010, also addresses sustainable practices.

The Gateway II ordinance can be found online at the following link -

[http://clerkshq.com/content/Attachments/summit-nj/Ord\\_09\\_2872.htm?clientSite=summit-nj](http://clerkshq.com/content/Attachments/summit-nj/Ord_09_2872.htm?clientSite=summit-nj)

The Franklin Place ordinance can be found online at the following link -

[http://clerkshq.com/content/Attachments/summit-nj/Ord\\_10\\_2900.pdf?clientSite=summit-nj](http://clerkshq.com/content/Attachments/summit-nj/Ord_10_2900.pdf?clientSite=summit-nj)

#### **Wind Ordinance**

The New Jersey Board of Public Utilities has compiled a number of small wind ordinances passed by municipalities around the state that were based on the Small Wind Model Ordinance



*developed by the NJ Small Wind Working Group. The ordinances can be accessed through the BPU's website.*

<http://www.njcleanenergy.com/renewable-energy/technologies/wind/small-wind-systems/small-wind-systems>

### ***Sustainable Land Use Pledge***

*Dozens of municipalities in NJ have adopted the land-use pledge as part of the Sustainable Jersey certification process including municipalities as varied as Woodbridge, Asbury Park, and the Borough of Woodbine in Cape May County.*

*In addition, many towns in New Jersey have taken steps to achieve the goals of smart growth, which the pledge promotes. Here are a few resources highlighting those successes:*

*NJ Department of Community Affairs (rural and urban successes)*

<http://www.nj.gov/dca/divisions/osg/smart/success.html>

*New Jersey Future Smart Growth Award winners:*

<http://www.njfuture.org/2013/03/25/sga-winners/>

### ***Clustering Ordinance***

*Several municipalities are currently involved in the Plan Endorsement process and many have adopted these ordinances. As these plans and ordinances become available and approved by the State agencies, they will be available online at the Office of Smart Growth's website,*

<http://nj.gov/state/planning/smart.html>

### ***Tree Protection Ordinance***

*Several municipalities are currently involved in the Plan Endorsement process and many have adopted these ordinances. As these plans and ordinances become available and are approved by the State agencies, they will be available online at the Office of Smart Growth's website,*

<http://nj.gov/state/planning/smart.html>.

[www.sustainablejersey.org/](http://www.sustainablejersey.org/)

## **4.3 Pennsylvania**

### **State Level**

***Pennsylvania Municipalities Planning Code.*** The Pennsylvania Municipalities Planning Code (PMPC, Act of 1968, P.L.805, No.247 as reenacted and amended, July 2011, is provided by the Pennsylvania Governor's Center for Local Government Services in the Department of Community and Economic Development. Below sections of the PMPC have been excerpted that include reference to energy efficiency concerns.

- *Section 105. Purpose of Act. It is the intent, purpose and scope of this act to...promote the conservation of energy through the use of planning practices and to promote the effective utilization of renewable energy sources...*

- *Section 503. Contents of Subdivision and Land Development Ordinance. (6) Provisions for encouraging the use of renewable energy systems and energy-conserving building design.*
- *Section 606. Statement of Community Development Objectives. Zoning ordinances enacted after the effective date of this act should reflect the policy goals of the municipality as listed in a statement of community development objectives, recognizing that circumstances can necessitate the adoption and timely pursuit of new goals and the enactment of new zoning ordinances which may neither require nor allow for the completion of a new comprehensive plan and approval of new community development objectives. This statement may be supplied by reference to the community comprehensive plan or such portions of the community comprehensive plan as may exist and be applicable or may be the statement of community development objectives provided in a statement of legislative findings of the governing body of the municipality with respect to ... any other factors that the municipality believes relevant in describing the purposes and intent of the zoning ordinance.*
- *Section 705. Standards and Conditions for Planned Residential Development. The authority granted a municipality by Article V to establish ... regulations for the height and setback as they relate to renewable energy systems and energy-conserving building design, regulations for the height and location of vegetation with respect to boundary lines, as they relate to renewable energy systems and energy-conserving building design, regulations for the type and location of renewable energy systems or their components and regulations for the design and construction of structures to encourage the use of renewable energy systems, shall be vested in the governing body or the planning agency for the purposes of this article.*
- *Section 706-A. Standards and Conditions for Traditional Neighborhood Development. (g) (1) The authority granted a municipality by Article V to establish ... regulations for the height and setback as they relate to renewable energy systems and energy-conserving building design, regulations for the height and location of vegetation with respect to boundary lines, as they relate to renewable energy systems and energy-conserving building design, regulations for the type and location of renewable energy systems or their components and regulations for the design and construction of structures to encourage the use of renewable energy systems, shall be vested in the governing body or the planning agency for the purposes of this article.*
- *Section 707. Application for Tentative Approval of Planned Residential Development. (4) The provisions shall require only such information in the application as is reasonably necessary to disclose to the governing body or the planning agency: (viii.1) the feasibility of proposals for energy conservation and the effective utilization of renewable energy sources*

### ***Pennsylvania Building Codes***

Pennsylvania has mandatory building energy codes for both residential and commercial construction. Residential and commercial buildings must comply with IECC 2009 as part of the state's [Uniform Construction Code](#).

***State Land Use and Growth Management Report 2010***

The State Land Use and Growth Management Report 2010 (Pennsylvania Governor’s Center for Local Government Services, Department of Community and Economic Development) contains several “areas of recommendation – opportunities for the future Pennsylvania” including, most notably:

*Recommendation Area 3: Green and Walkable. Pennsylvania’s growth opportunity is green and walkable. Changing demographics suggest there is an emerging market for development that is green (energy and environmentally conscious) and walkable (compact, affordable, mixed-use, and favoring pedestrians). This is a win-win scenario. Pennsylvania CAN attract growth AND sprawl less. Green and walkable development can occur in all community types—cities, boroughs, and townships of all sizes. It can take the form of redevelopment, infill, and greenfield development.*

- *Embrace a policy to facilitate green and walkable development and capture related market opportunities.*
- *Realign state funding, program, and permitting priorities to assist green and walkable development throughout the state.*
- *Promote standards and tools for green and walkable development such as LEED, LEED-ND, revised local zoning and development ordinances, expedited permitting, and tax and development bonuses.*
- *Establish a designation program to encourage communities to become greener and more walkable—a designation that can be marketed to attract residents and businesses.*

Unfortunately, the State Land Use and Growth Management Report is issued only every 5 years and there is apparently no report following up on the implementation and effectiveness of the recommendations made in the 2010 report.

***American Planning Association Pennsylvania Chapter.*** The APA-PA website ([www.planningpa.org](http://www.planningpa.org)) was reviewed for activities or articles relating to using planning and zoning tools to facilitate energy efficiency in commercial and multi-family residential buildings. One item found was a reference in the Winter 2012-2013 edition of the chapter’s regular online newsletter, “The Vantage Point” (No. 167, March 20, 2013). The item is a webinar presentation entitled, “Renewable Energy Implementation and Land Use Regulations – Is There Conflict”, by Ed Johnstonbaugh. This is an excellent presentation but focuses solely on renewable energy measures.

<https://meeting.psu.edu/p44632ij5wl/>

**Local Level**

***Philadelphia City Green Buildings Webpage.*** *During the first year of Greenworks, two laws were passed that advance green building practices in Philadelphia. The first law requires that*

*all new construction and major renovations of large City government buildings meet Silver Certification in the Leadership in Energy and Environmental Design (LEED) rating system of the U.S. Green Building Council. The second requires cool roofs that meet or exceed Energy Star cool roof standards on all new construction in the City. Both of these new laws represent the City's commitment to promoting low-cost...Energy efficiency and building retrofitting are a big part of making buildings green. Over the first year of Greenworks, hundreds of Philadelphia homes received energy audits and retrofits. Through the Greenworks Loan and Rebate Fund, \$9 million in capital has been made available to help businesses finance energy-efficient building practices, materials, and equipment for major renovations and new construction projects. The Greenworks Loan Fund began with \$9 million in capital, blending public and private funding streams.*

<http://www.phila.gov/green/greenBuilding.html>

**Greenworks Philadelphia. 2012. "Mayor Nutter signs energy benchmarking ordinance: Mayor Nutter signs two city council ordinances." City of Philadelphia.** Bill No. 120428 amends the 'Energy Conservation' portion of The Philadelphia Code to require large commercial buildings to benchmark and report energy and water usage data. The bill's purpose is not only to make organizations aware of their energy use, but also identify opportunities for improvement and assist in establishing energy consumption baselines that will help set future goals. The Mayor's Office of Sustainability will issue regulations this fall and begin doing outreach and education in the winter and spring. Building owners will need to benchmark their buildings using Energy Start Portfolio Manager and report the results to the City beginning in 2013. The following year, the City will make this information available to the public.

<http://greenworkspbila.wordpress.com/2012/10/10/mayor-nutter-signs-energy-benchmarking-ordinance/>

**City of Philadelphia: Energy Standards for Public Buildings.** As discussed in Section 2.3 above, in 2009, the Philadelphia Office of Sustainability released a six-year plan, [Greenworks Philadelphia](#), to become the greenest city in America...The bill requires all new construction or major renovations to achieve LEED Silver certification if more than 50% of the design and construction costs are funded by the city. This requirement became effective on January 1, 2010. The Greenworks web site contains detailed information on these initiatives and progress towards the target.

<http://www.phila.gov/green/greenworks/index.html>

City LEED Legislation

<http://fixitphilly.org/fixphilly/wp-content/uploads/2009/03/bill-no-080025-fact-sheet.pdf>

Cool Roof Legislation

<http://legislation.phila.gov/attachments/10096.pdf>

Green Roof Tax Credit

<http://legislation.phila.gov/attachments/9704.pdf>

**Philadelphia's New Zoning Code.** *"The Use chapter of the New Code also addresses accessory structures, such as roof decks and solar collectors, that were previously unaddressed or unclear in the Old Code...And the entire system for Floor Area Ratio ("FAR") bonuses has been re-imagined, to provide greater flexibility and accessibility, with bonuses now available on an a la carte basis, and new bonuses available for such things as mixed-income housing and green building certification...Industrial-Residential Mixed-Use (IRMX) is intended to help former industrial areas transition into mixed-use neighborhoods, with residential and commercial uses, along with some low-impact, neighborhood-friendly industrial uses...The New Code also establishes three levels of Transit-Oriented Development Overlays, which promote increased use of public transit: TOD-1 (Regional Center), TOD-2 (Neighborhood Center) and TOD-3 (Park and Ride)...The New Code regulates...more modern structures like Small Wind Energy Systems and Solar Energy Collectors, which are broadly permitted throughout the City in an effort to encourage energy efficiency."*

<http://www.saul.com/publications-alerts-889.html>

<http://www.saul.com/publications-alerts-905.html>

<http://www.saul.com/publications-alerts-908.html>

### **Pittsburgh**

As part of the Pittsburgh Climate Protection Initiative, the Green Government Task Force (GGTF) was responsible for developing the Pittsburgh Climate Action Plan. This Plan was adopted by City Council and Mayor Ravenstahl in July 2008, thus completing the commitment of the GGTF. This version one of the CAP included a component entitled, "*MUNICIPAL GENERAL 4.2: Consider Planning and Zoning Mandates*" proposing that the City should explore the option of sustainability mandates for public and/or private projects, listed below. Component 4.2 complements "*MUNICIPAL GENERAL 4.1: Support Planning and Zoning Incentives*". The Action Plan is intended to be a dynamic working document. In February of 2012, version two of the Climate Action Plan was accepted by City Council keeping Pittsburgh's plans for climate mitigation relevant as our City continues to evolve. However, version two did not list any of the version one component 4.2 recommendations as having been implemented, nor did any of the version two recommendations going forward include any of the version one 4.2 recommendations. These measures have since been suspended from the City's climate action planning process due to budget and staff limitations.

<http://pittsburghclimate.org/wp-content/uploads/2011/12/PittsburghClimateActionPlan.pdf>

<http://pittsburghclimate.org/wp-content/uploads/2011/12/Pittsburgh-Climate-Action-Plan-Version-2-FINAL-Web.pdf>

Personal communication with Jim Sloss, Director of Sustainability, City of Pittsburgh, November 10, 2013

*Potential planning or zoning mandates the City of Pittsburgh might want to consider include:*

- *Unless they are LEED certified, building projects over 5,000-square-feet must establish a building-specific sustainable education program or contribute to a general sustainability education program fund for the City.*
- *Any new building construction or renovation projects receiving public financing of any kind must achieve LEED certification.*
- *Private-sector buildings over 10,000-square-feet that receive 10% of their project costs or \$200,000 from public agencies must achieve LEED Silver certification.*
- *Private commercial/industrial projects over 10,000-square-feet and residential/mixed use projects of 50 or more housing units must pursue LEED certification.*
- *Private-sector, non-residential buildings 10,000-square-feet or larger must pursue LEED certification*
- *Public projects larger than 5,000-square-feet must be LEED certified.*
- *All public projects (new construction or major renovations) greater than 10,000-square-feet must have a green roof if there is a horizontal roof surface.*
- *All government buildings must achieve LEED certification*

## 5.0 DEVELOPMENT AND REDEVELOPMENT REVIEW

### 5.1 Overview

In its PAS Quick Notes No. 13: Climate Change and Energy, APA advises local planners to influence their development review process to address energy and climate issues: *“Create a checklist of energy and climate change goals for new projects. For projects that exceed these goals, consider an expedited site plan review and permit processing track.”* This section addresses the checklist aspect of the APA development review point of intervention while Section 6 addresses the various incentives that may be linked to the checklists. SJ has developed a model green development checklist that communities can use to encourage and review both development and redevelopment project proposals relative to green planning and design criteria. The checklist provides negative and positive criteria at the regional, site and building levels.

More significantly, however, the present literature search focuses more on redevelopment, as opposed to development review checklists, as a major opportunity for intervention by local planners in New Jersey and Pennsylvania that is not addressed in detail by the series of APA publications on climate and energy sustainability.

The criteria and powers of NJ redevelopment authorities and plans, the Urban Coordinating Council’s preparation of neighborhood empowerment plans, and County Improvement Authorities’ development of mixed use and solid waste facilities appear to be sufficiently broad to address energy and climate issues. However, the relevant laws for these powers lack specific reference to climate and energy sustainability, so explicit mention of these concerns is a viable target for future amendments. Nevertheless, the NJ Redevelopment Handbook asserts that redevelopment plans can be used to promote green building design and site layout in particular and sustainable development in general, by either: (1) mandating achievement of some level of green building certification, or at least use of some level of sustainable design, in the redevelopment plan; or (2) offering incentives to redevelopers to seek green building certification or to incorporate green building design techniques in exchange for increased density or floor area for non-residential uses. The Handbook indicates that the incentives approach is more commonly used and successful, *“particularly if it is perceived that the certification may provide a marketing edge or reduce operating costs.”* A proposed new SJ action, *Energy Efficiency Targets for Redevelopment Projects*, reinforces this concept: *“The Local Redevelopment and Housing Law empowers municipalities to act to improve areas in need of redevelopment. Redevelopment plans and associated project approvals provide an opportunity to incorporate specific energy efficiency measures into redevelopment projects. As part of a negotiated redevelopment agreement, energy efficiency measures can be suggested or required, making local redevelopment and housing law a potent tool for addressing energy efficiency retrofits.”*

## 5.2 New Jersey

### State Level

***Local Redevelopment and Housing Law.*** Local redevelopment in New Jersey is governed mainly by the 1992 Local Redevelopment and Housing Law (LRHL: *NJSA 40A:12A-1 et seq*) and the 1996 New Jersey Redevelopment Act and other legislation establishing the New Jersey Redevelopment Authority, Urban Coordinating Council and County Improvement Authorities. Under the UCC provisions for preparing neighborhood empowerment plans can address environmental protection and environmental infrastructure topics but the selection criteria lack specific reference to climate and energy concerns. County Improvement Authorities may undertake public and public-private development of mixed use facilities and solid waste management facilities but, again, there is no direct inclusion of climate change or energy sustainability. Likewise, the criteria for redeveloping a property, the contents of the resulting redevelopment plan and the powers of the redevelopment authority to implement the plan do not specifically mention climate and energy concerns. Although these criteria and powers appear to be sufficiently broad to address them, their explicit mention is a viable target for future amendments.

***NJAPA's Redevelopment Handbook: A Guide to Rebuilding New Jersey's Communities.*** (By Stan Slachetka and David G. Roberts for the New Jersey Department of Community Affairs and New Jersey Chapter of the American Planning Association, 2011). The Second Edition of the NJ APA Redevelopment Handbook contains new Section 14, Sustainable Redevelopment that defines sustainable development and addresses sustainability and redevelopment, green rating systems and incorporating sustainability in redevelopment plans. According to the Handbook, *"...redevelopment of existing sites, infill development next to existing developed areas of the community, and community connectivity, including proximity to public and other essential services, are important factors in site selection as they support energy efficiency and reduce auto dependency."* Thus, redevelopment equates to sustainable development, because redevelopment projects:

- *Use existing sites, avoiding greenfields,*
- *Promote development where there is existing infrastructure,*
- *Create infill development, with opportunities for community connectivity,*
- *Reuse existing buildings where possible, and*
- *Are transit oriented."*

The Handbook strongly supports the use of LEED-Neighborhood Design (LEED-ND) to measure the sustainability of neighborhood development, because it *"reflects the most current research and ideas about green, sustainable, and well-designed neighborhoods [including]:*

- *Smart growth and land use planning*
- *Transportation options, including pedestrian and transit linkages*



- *Sustainable design and livable cities*
- *Environmental and natural resource protection*
- *Housing affordability*
- *Climate change and action*
- *Equity and social justice*
- *Public health”*

More specifically, LEED-ND awards points for projects that support additional density and that are located near existing community resources. LEED-ND “*has been used more widely than the other rating systems in redevelopment planning... [and] is particularly suited to redevelopment, especially when applied to redevelopment plans for transit villages, town centers, or neighborhood and downtown revitalization.*” (It is notable, however, that LEED-ND criteria do not address energy efficiency in a direct and quantitative way.)

The Handbook adds that redevelopment plans can be used to promote green building design and site layout in particular and sustainable development in general, by either: (1) mandating achievement of some level of green building certification, or at least use of some level of sustainable design, in the redevelopment plan; or (2) offering incentives to redevelopers to seek green building certification or to incorporate green building design techniques in exchange for increased density or floor area for non-residential uses. The Handbook indicates that the incentives approach is more commonly used and successful, “*particularly if it is perceived that the certification may provide a marketing edge or reduce operating costs.*”

<http://njplanning.org/wp-content/uploads/RED-Policy-Guide2.2.12.pdf>

***Proposed New SJ Action: Energy Efficiency Targets for Redevelopment Projects.*** The Local Redevelopment and Housing Law<sup>1</sup> empowers municipalities to act to improve areas in need of redevelopment. Redevelopment plans and associated project approvals provide an opportunity to incorporate specific energy efficiency measures into redevelopment projects. As part of a negotiated redevelopment agreement, energy efficiency measures can be suggested or required, making local redevelopment and housing law a potent tool for addressing energy efficiency retrofits.

Ultimately the municipal governing body has the power to initiate the investigation as to whether an area is need of redevelopment and to adopt a redevelopment plan or amend an existing redevelopment plan. In some cases a municipal redevelopment agency or municipal housing authority is authorized to execute redevelopment powers. The municipal planning board has the power to make recommendations concerning the redevelopment plan. The redevelopment agency/committee and or housing agency, if they exist, should also be involved. Other

<sup>1</sup> N.J.S.A. 40A:12A-7 Title 40A. Municipalities and Counties. Ch.12A- Local Redevelopment and Housing Law. L.1992, c. 79 (State of NJ Department of State <http://www.nj.gov/state/planning/resources-statelaws.html>)

commissions or boards, such as the sustainability committee, or Environmental Commission, can initiate this action and work with the planning board to incorporate energy efficiency targets into the redevelopment plan. Municipal staff (including professional consultants), especially the Zoning Official, Construction Code Official, and Planner, should also be involved.

Language to amend the redevelopment plan can be prepared to incorporate energy efficiency targets (minimum 15% reduction) into redevelopment projects. For example, a municipality can recommend or require achieving 15% or 20% reduction in energy use in redevelopment areas. A 15% target can help projects meet the requirement of NJ's Clean Energy's Pay for Performance program (see Resources) and earn associated incentives. For new construction, this is accomplished through developing an energy reduction plan for each project by developing a simulated computer model of the planned building and designing it to perform 15% better than a minimally code-compliant building. For existing buildings, the energy reduction plan must define a comprehensive package of measures capable of reducing the existing energy consumption of the building by a minimum of 15%.

Other possible incentives that a municipality could offer directly include density bonuses, flexible zoning, and/or a higher level of acknowledgement through an energy efficiency recognition program. Achieving a 15-20% energy use reduction can also help projects earn LEED certification and qualify for an ENERGY STAR label.

For more information:

**NJ Economic Development Authority (NJ EDA)**

Financing & Incentives – Urban Redevelopment

[http://www.njeda.com/web/Aspx\\_pg/Templates/Pic\\_Text.aspx?Doc\\_Id=97&menuid=1364&t](http://www.njeda.com/web/Aspx_pg/Templates/Pic_Text.aspx?Doc_Id=97&menuid=1364&t)

**NJ Redevelopment Authority**

<http://www.njra.us/njra/cwp/view.asp?a=3&Q=453526>

**NJ Department of Community Affairs (DCA)**

Local Redevelopment and Housing Law

[http://www.state.nj.us/dca/divisions/dlgs/programs/au\\_docs/40a\\_12a\\_1.pdf](http://www.state.nj.us/dca/divisions/dlgs/programs/au_docs/40a_12a_1.pdf)

***Sustainable Jersey's Model Green Development Checklist.*** SJ has developed a model green development checklist that communities can use to encourage and review both development and redevelopment project proposals relative to green planning and design criteria. The checklist provides negative and positive criteria at the regional, site and building levels. Regional level considerations include physical location, development status, and connectivity to infrastructure such as transportation, community facilities and green space. Site planning criteria cover, among

other things, green roofs, tree planting, and measures to minimize heat island effects. Building level criteria address green building certification, building orientation, efficient heating and cooling, geothermal energy, enhanced daylighting, efficient lighting, occupant controls, efficient building envelope, Energy Star-labeled building products, and onsite energy generation.

[www.sustainablejersey.org/](http://www.sustainablejersey.org/)

### Local Level

***Development Review Checklists.*** According to proposed new SJ action, Incorporate Energy Efficiency Measures into the Site Plan Approval Process, “*Several NJ municipalities have amended their Site Plan Checklists to incorporate green building standards, including energy efficiency measures and /or added Green Development Checklists in municipal review processes.*”

West Windsor Township’s Green Development Checklist is designed to complement the Township’s standard Subdivision and Site Plan Checklist review processes (taken verbatim from the SJ website):

*On September 7, 2010, West Windsor Township adopted, via ordinance 2010-16, a [Green Development Practices Checklist](#) as a complement to the Township’s standard Subdivision and Site Plan Checklist review processes. The purpose of the Green Development Practices Checklist is to guide and inform, for all Site and Subdivision applications, a dialogue between the applicant and Township project review professionals regarding possible options and opportunities to make a project more sustainable. To that extent, it places no green design requirements on applicants but does oblige them to describe to what extent the checklist practices are being incorporated into the proposal; this discussion encourages them to think more broadly about green design possibilities.*

*Prior to adoption as a requirement, the Green Development Practices Checklist was initially implemented on a voluntary basis to gain experience, understanding and feedback from the developer community. Once it was established that the Checklist was an effective project evaluation tool, it was adopted as a part of the official Site Plan review process. It should be noted that the Checklist is referenced in the ordinance but not actually included in it – this allows the Township to modify the checklist on an as-needed basis without requiring ordinance amendments.*

*The “Green Development Practices” checklist includes the following categories: Landscape; Potable Water; Stormwater; Energy; Resources (Natural and Man-made); Air; and Social Needs. Each category includes a series of potential related actions. For each action, the applicant must explain how the project does or does not implement it, and if not, why not.*

[www.sustainablejersey.org/](http://www.sustainablejersey.org/)

Borough of North Plainfield

[http://www.sustainablejersey.com/fileadmin/documents/Action\\_Linked\\_Documents/North\\_Plainfield.pdf](http://www.sustainablejersey.com/fileadmin/documents/Action_Linked_Documents/North_Plainfield.pdf)

***Redevelopment and Energy Efficiency.*** According to the NJAPA Redevelopment Handbook, “Lincoln Park Coast Cultural District (LPCCD), a nonprofit community development corporation centered within the neighborhood immediately surrounding Lincoln Park in Newark, . . . one of the first pilot project to test the LEED-ND rating system . . . and only neighborhood to plan to achieve LEED-ND Gold Certification . . . , encompasses several LEED-certified buildings with a high percentage of deed-restricted affordable dwelling units and a form of urban agriculture that provides organically grown produce to the neighborhood.

<http://njplanning.org/wp-content/uploads/RED-Policy-Guide2.2.12.pdf>

The Redevelopment Handbook also features a case study involving redevelopment of Glassboro, in particular a 27-acre site along Rowan Boulevard in downtown, to better integrate it with Rowan University and become a true college town. LEED-ND criteria relating to development of previously developed property and use of energy efficiencies in building construction were used and helped the project get a New Jersey Future Smart Growth Award.

<http://njplanning.org/wp-content/uploads/RED-Policy-Guide2.2.12.pdf>

Woodbridge Township is redeveloping the Pennval Site as the Green Technology Park at Woodbridge. A redevelopment study and plan have been developed, as well as a supplemental “Concept Plan and Implementation Strategy” which details how the Park would provide an appropriate venue for green product manufacturers and service businesses, thus creating a green economy and jobs, through its site-wide renewable energy generation plan, environmental infrastructure plan and environmental management system, and criteria for individual tenant green site and building design.

<http://www.twp.woodbridge.nj.us/GreenBusinessandTechnologyCenter/tabid/2183/Default.aspx>

The City of Paterson is collaborating with the National Park Service in establishing the Great Falls National Historic Park and in so doing has considered using the project to demonstrate a variety of renewable energy and energy efficiency measures and technologies, at both the park-wide and individual building scale. These include redeployment of the historic canal system for its renewable hydropower potential and adaptive reuse of existing historic buildings to house green businesses.

## 5.3 Pennsylvania

### State Level

As described in more detail in Section 4.3, there are several sections of the PMPC that address development and redevelopment review that now explicitly address energy conservation:

- *Section 503. Contents of Subdivision and Land Development Ordinance. (6)*
- *Section 606. Statement of Community Development Objectives*
- *Section 705. Standards and Conditions for Planned Residential Development*
- *Section 706-A. Standards and Conditions for Traditional Neighborhood Development, (g) (1)*
- *Section 707. Application for Tentative Approval of Planned Residential Development, (4)*

According to Dianne Herrin, Director of Program Management, Practical Energy Solutions, (personal communication November 25, 2013), there is otherwise no apparent state-level effort to address commercial and multifamily residential building energy efficiency – in the development and redevelopment review context – in Pennsylvania.

### Local Level

**City of Pittsburgh.** The Urban Redevelopment Authority (URA) maintains the Business Energy Savings Loan Program under which a business can receive a \$400 grant for an energy audit and low interest financing up to \$50,000 for energy efficiency retrofits.

[www.2030district.org/pittsburgh/district-partner-resources](http://www.2030district.org/pittsburgh/district-partner-resources)

**Bucks and Montgomery Counties.** According to personal communication of November 25, 2013, with Liz Compitello, Research Analyst, Energy and Climate Change Initiatives, Delaware Valley Regional Planning Commission, Doylestown and Lower Makefield have adopted green building ordinances in Bucks County while seven townships in Montgomery County, including Abington, Hatfield, Lansdale, Limerick, Lower Moreland, Springfield, and Upper Moreland. In addition, according to an article in the online *Ohio Green Building Law*, the Zoning Board rejected a developer's application for a zoning variance for a project proposed in Doylestown's central residential district. The Board requested the developer to resubmit his application with a commitment to obtain LEED Silver certification for the buildings. This is an excellent example of a voluntary incentive applied during the development review process.

<http://ohiogreenbuildinglaw.com/tg/zoning/>

**Delaware County.** According to a November 22, 2013 personal communication with Joseph A. Russo, Planner, Delaware County Planning Department, Community Assistance, “...*the County hasn't included any Energy Star requirements as of yet. However, there are a few ordinances we've done recently that have included Green Building Guidelines in the appendices. The guidelines are required to be consulted and are usually found in Open Space districts with the following language: 'Developers of new buildings with a footprint greater than 5,000 square feet shall consult the Green Building Guidelines in Appendix D' ... The Green Buildings Guidelines appendix... essentially details a request of the developer to consult LEED certified techniques and strategies in new developments... From what I know, the Green Building Guidelines can be found in Norwood and Darby Boroughs Zoning Ordinances.*”

## 6.0 INCENTIVES

### 6.1 Overview

In its PAS Quick Notes No. 13: Climate Change and Energy, APA advises local planners to offer incentives to developers to address energy and climate issues: *In addition to an expedited plan review, consider other incentives to encourage new development to demonstrate energy efficiency and reduced carbon emissions. Some communities have offered rebates and other financial incentives to developers whose projects meet predetermined standards.* The present literature search expands on this scope by including redevelopment as well as new development.

New Jersey offers several incentive programs relating to energy efficiency in buildings. The Local Government Energy Audit Program pays at least 75% of the costs of energy audits for buildings owned by local governments, NJ colleges and universities, and non-profit agencies, after which applicants may get support from New Jersey's Clean Energy Program representatives to help them take advantage of state incentives on equipment upgrades performed after the audit. Property Assessed Clean Energy (PACE) financing is a mechanism that allows energy efficiency and renewable energy projects to be financed at reasonable rates by attaching a special assessment to the property; the funding is then repaid over the life of the installed equipment anywhere from 5-20 years and is not a liability to the owner. Smart Start is a program sponsored by NJBPU and New Jersey's gas and electric utilities offering their non-residential retail electric and/or gas service customers a combination of prescriptive equipment rebates and incentives for custom improvements that save energy in new commercial/industrial construction, commercial/industrial retrofits and schools. Direct Install provides energy audits and energy efficiency recommendations to PSE&G small business customers, after which PSE&G will buy-down the simple payback of project costs to as low as 2 years while fronting the remaining costs which may be repaid by the participant on their utility bill over 3 years. Pay for Performance involves partnering with an energy management provider to earn incentives directly linked to energy savings with the incentives provided at three stages: submittal of complete energy reduction plan, installation of recommended measures, and completion of the post-construction benchmarking report. It is noteworthy that Pay for Performance is the most relevant New Jersey incentive program for facilitating energy efficiency in commercial and multifamily residential buildings, but that program is aimed mainly at large energy users while other programs offer smaller rebates. Therefore, downscaling of utility programs is needed, and is an issue that has been proposed to be addressed in Year 4 of the DOE Philadelphia Energy Efficient Buildings Hub Project.

Pennsylvania created a \$25 million grant, loan and loan guarantee program for high performance buildings available to both small businesses and individuals for construction or major renovation of green commercial buildings or homes. In order to be eligible for incentives, new construction and major renovation projects must achieve Gold certification under the USGBC LEED or

National Green Building Standard, or at least 3 Globes under the GBI Green Globes system. Funds may be used for: property acquisition; land clearing and preparation; construction or renovation of the high performance building; project planning and design; fees for registration and certification of the project; commissioning and building performance verification; and grant administration costs. Smart Rehab is a multifamily affordable rental housing preservation program that provides financing for capital improvements that result in a measurable reduction in energy consumption and utility costs. Both Philadelphia and Pittsburgh have also established programs to incentivize energy efficiency in buildings.

## 6.2 New Jersey

### State Level

#### ***Local Government Energy Audits***

*The Local Government Energy Audit Program targets buildings owned by local governments, New Jersey State Colleges and Universities, and 501 (c) (3) non-profit agencies. Such facilities may include, but are not limited to: offices, courtrooms, town halls, police and fire stations, sanitation buildings, transportation structures, schools and community centers. All local governments, New Jersey State Colleges or Universities, and non-profit agencies exempt from federal tax under section 501 (c)(3) of the Internal Revenue Code that are located within the service territory of at least one of the state's regulated utilities are eligible. The Program requires that participating local government agencies pass a resolution enabling submittal of the program application. Sample Resolutions that may be used by your governing body are included in the complete package of guidelines and application forms provided in the link at the top of this page. The Division of Local Government Services (DLGS) within the Department of Community Affairs (DCA) has issued a Local Finance Notice to allow participants in the LGEA Program to pass a resolution later in the process, when the participant is selecting an auditing firm. Participants will select from a list of [pre-qualified auditing firms](#) who will follow the strict parameters of New Jersey's Clean Energy Program and deliver an energy audit. The Program will subsidize 100% of the cost of the audit. ...When your audit is complete, you'll have a list of recommended, cost-effective energy efficiency measures and facility upgrades that will reduce operating expenses and, in many cases, improve the health and productivity of the buildings' occupants. Of course, most of those measures will be eligible for additional incentives available through the NJ SmartStart Buildings Program, Direct Install or Pay for Performance. Applicants may receive support from New Jersey's Clean Energy Program representatives to help them take advantage of incentives on equipment upgrades performed after the audit. To ensure the opportunity for participation by many public school districts throughout the state, this program is subject to an incentive cap of \$100,000 per fiscal year, per agency.*

<http://www.njcleanenergy.com/commercial-industrial/programs/local-government-energy-audit/local-government-energy-audit>

***New Jersey Property Assessed Clean Energy.*** *Property Assessed Clean Energy (PACE) financing is a mechanism that allows energy efficiency and renewable energy projects to be financed at reasonable rates. PACE works by attaching a special assessment to the property, not a liability to the owner. The funding is then repaid over the life of the installed equipment anywhere from 5-20 years. Using a property tax assessment has many benefits:*

- 1. The senior position allows lenders to offer low interest rates because the property is collateral, not the installed equipment.*
- 2. Energy efficiency upgrades and renewable energy installations have been hindered by high up-front costs. PACE financing spreads the cost over the useful life of the equipment, which provides savings that exceed cost on an annual basis.*
- 3. The obligation is attached to the property, not the owner, making it easy to invest in energy project even if the owner plans on selling the property.*

*New Jersey was the 29<sup>th</sup> state to introduce PACE as a local option. Municipalities may adopt by ordinance provisions creating a “clean energy special assessment” to be imposed on properties that elect to participate in the program and collected on a quarterly basis. The municipality may also issue bonds to fund the program, or apply to a county improvement authority that issues bonds to do so. The proceeds from the special assessment must be used to repay the bond obligations. Alternatively, the municipality may work with private partners to utilize reserves or private financing.*

*As a NJ-based nonprofit, we can assist municipalities to implement effective PACE programs with no upfront costs required. Our role is to educate and advocate for a variety of regenerative community solutions.*

*We have created NJ PACE, LLC to administer the program.*

*[www.NJPACE.net](http://www.NJPACE.net)*

### ***New Jersey Smart Start Buildings: New Construction and Retrofits***

*New Jersey SmartStart Buildings is a program sponsored by the New Jersey Board of Public Utilities in partnership with New Jersey’s gas and electric utilities. The program has three main project categories: new commercial/industrial construction, commercial/industrial retrofits, and schools. The incentives provided through this program are available to non-residential retail electric and/or gas service customers of the participating New Jersey utilities: Atlantic City Electric, Jersey Central Power & Light, Rockland Electric Company, New Jersey Natural Gas, Elizabethtown Gas, PSE&G, and South Jersey Gas. Incentives for new construction are only available for projects within New Jersey Smart Growth\* areas while retrofit incentives are available to all commercial and industrial customers as described above. Public schools are exempt from the Smart Growth requirement for new construction, as are building expansions and replacements that meet certain criteria. The Smart Growth requirement will also be waived*



*for projects located in areas Hurricane Sandy designated storm damaged areas for projects enrolled between October 29, 2012 and June 30, 2013. New Jersey SmartStart Buildings receives its funding through New Jersey's Societal Benefits Charge (SBC). The incentive offering is comprised of a combination of prescriptive equipment rebates and incentives for custom improvements that save energy. Prior to participation the in SmartStart Buildings New Construction and Retrofits Program, public school districts pursuing an Energy Savings Improvement Program (ESIP) are eligible to participate in the separate [Local Government Energy Audit Program](#). This program will subsidize 100% of the initial cost of an energy audit for qualified applicants, up to \$100,000.*

<http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/nj-smartstart-buildings>

<http://www.njcleanenergy.com/misc/commercial-industrial/project-categories>

### ***PSE&G Direct Install Program for Small Business***

*The PSE&G Small Business Direct Install Program provides recommended efficiency upgrades to business customers with an electric demand of less than 150 kilowatts(kW) or 40,300 kilowatt-hours (kWh) per month. PSE&G provides a walk-through energy evaluation, and a report of recommended energy efficiency improvements. PSE&G will initially cover the cost of installing the recommended energy efficiency measures. See the program web site for repayment details. Typical energy efficiency improvements available through this sub-program include: Lighting upgrades, insulation, refrigeration upgrades, and HVAC upgrades.*

*The Hospital Efficiency Sub-program is targeted to health care facilities located in PSE&G's electric and/or gas service territory. The sub-program is targeted specifically to in-patient hospitals and other in-patient medical facilities that operate 24-7. The energy efficiency measures recommended by the IGA may include lighting, HVAC, humidification, ventilation, motors, energy management systems, and other energy consuming equipment. Traditionally, the program will buy-down the simple payback of project costs for approved measures to as low as 2 years. Remaining costs will be provided by PSE&G and may be repaid by the participant, interest free, on their PSE&G utility bill over a three-year period after the final inspection.*

*Technical and financial assistance is also available for Warehouse owners seeking to increase energy savings via lighting retrofits and data centers seeking to make energy efficiency upgrades. For warehouse owners, a comprehensive audit and buy-down of the cost is available.*

<http://www.njcleanenergy.com/commercial-industrial/programs/direct-install>

[http://www.pseg.com/business/small\\_large\\_business/save\\_energy/efficiency.jsp](http://www.pseg.com/business/small_large_business/save_energy/efficiency.jsp)

### ***Pay for Performance Program***

*[The following describes the Pay for Performance Program for Existing Facilities; a very similar program is available for New Construction.] Take a comprehensive, whole-building approach to saving energy in your existing facilities and earn incentives that are directly linked to your savings. Pay for Performance relies on a network of program partners who provide*

*technical services under direct contract to you. Acting as your energy expert, your partner will develop an energy reduction plan for each project with a whole-building technical component of a traditional energy audit, a financial plan for funding the energy efficient measures and a construction schedule for installation...*

*Existing commercial, industrial and institutional buildings with a peak demand over 100 kW for any of the preceding twelve months are eligible to participate including hotels and casinos, large office buildings, multi-family buildings, supermarkets, manufacturing facilities, schools, shopping malls and restaurants. Buildings that fall into the following five customer classes are not required to meet the 100 kW demand in order to participate in the program: hospitals, public colleges and universities, 501(c)(3) non-profits, affordable multifamily housing, and local governmental entities.*

*Your energy reduction plan must define a comprehensive package of measures capable of reducing the existing energy consumption of your building by 15% or more. Exceptions to the 15% threshold requirement may be made for certain industrial, manufacturing, water treatment and datacenter building types whose annual energy consumption is heavily weighted on process loads. Details are available in the [high energy intensity section of the FAQ page](#).*

*Pay for Performance takes advantage of the ENERGY STAR Program with [Portfolio Manager](#), EPA's interactive tool that allows facility managers to track and evaluate energy and water consumption across all of their buildings. The tool provides the opportunity to load in the characteristics and energy usage of your buildings and determine an energy performance benchmark score. You can then assess energy management goals over time, identify strategic opportunities for savings, and receive EPA recognition for superior energy performance.*

*This rating system assesses building performance by tracking and scoring energy use in your facilities and comparing it to similar buildings. That can be a big help in locating opportunities for cost-justified energy efficiency upgrades. And, based on our findings, you may be invited to participate in the [Building Performance with ENERGY STAR](#) initiative and receive special recognition as an industry leader in energy efficiency.*

*Pay for Performance incentives are awarded upon the satisfactory completion of three program milestones:*

- *Incentive #1 - Submittal of complete energy reduction plan prepared by an approved program partner - Contingent on moving forward, incentives will be between \$5,000 and \$50,000 based on approximately \$.10 per square foot, not to exceed 50% of the facility's annual energy expense.*

- *Incentive #2 - Installation of recommended measures - Incentives are based on the projected level of electricity and natural gas savings resulting from the installation of comprehensive energy-efficiency measures.*
- *Incentive #3 - Completion of Post-Construction Benchmarking Report - A completed report verifying energy reductions based on one year of post-implementation results. Incentives for electricity and natural gas savings will be paid based on actual savings, provided that the minimum performance threshold of 15% savings has been achieved.*

A detailed Incentive Structure document is available on the [applications and forms](http://www.njcleanenergy.com/commercial-industrial/programs/pay-performance) page.  
<http://www.njcleanenergy.com/commercial-industrial/programs/pay-performance>

### Local Level

A great number of New Jersey communities and businesses have taken advantage of the state energy efficiency incentives programs described above. The Sustainable Jersey website provides links to some key examples of each.

[www.sustainablejersey.com](http://www.sustainablejersey.com)

## 6.3 Pennsylvania

### State Level

***High Performance Building Incentives Program Overview and Guidelines.*** In July 2008, Pennsylvania enacted a broad \$650 million alternative energy bill designed to provide support for a variety of renewable energy and energy efficiency technologies. Included in this legislation was a provision authorizing the creation of a \$25 million grant and loan program for high performance buildings. The program is jointly administered by the Department of Community and Economic Development (DCED) and the Department of Environmental Protection (DEP), under the direction of Commonwealth Finance Authority (CFA). Program guidelines were issued in April 2009 and revised in November 2009. Incentives are available to both in-state small businesses (100 or fewer total employees) and individuals for the construction or major renovation of homes or commercial buildings. Homes must be primary residences in order to be eligible.

The program will offer support for green buildings in the form of loans, grants and loan guarantees (i.e., grants to be used in the event of a financing default). In order to be eligible for incentives, new construction and major renovation projects must achieve the applicable Gold certification under USGBC LEED or the National Green Building Standard, or at least 3 Globes under the GBI Green Globes system. Buildings must also meet additional requirements in certain categories. Funds may be used for the following project costs:

- *Acquisition of land and buildings, rights-of-way, and easements necessary for project construction*

- *Clearing and preparation of land to build an eligible project*
- *Construction or renovation of a high performance building*
- *Project planning, design, and modeling work*
- *Fees for registration and certification of a project*
- *Commissioning and enhanced verification of building performance*
- *Administrative costs of the applicant to administer a grant*

*The individual support mechanisms are described in more detail below. For all types of support, there is a general requirement that applicants provide matching funds equivalent to the funding offered under the program.*

*Loans. Loans are available at a fixed interest rate, which is updated quarterly, and must be repaid within 10 years. The maximum loan is \$100,000 for residential projects and \$2 million for small business projects. Loans may be amortized over a period of up to 25 years.*

*Grants. Grants are available for up to 10% of eligible project costs or \$500,000. Applicants may request both a grant and a loan, but not for the same project.*

*Loan Guarantees. Loan guarantees will take the form of a grant that may be used in the event of financing default on the part of the applicant, up to \$100,000 for residential projects and \$2 million for small business projects.*

*Visit the program web site and review the funding guidelines for additional program details and application procedures:*

*<http://www.newpa.com/find-and-apply-for-funding/funding-and-program-finder/high-performance-building-program-hpb>*

### ***Other Pennsylvania Sustainable Energy Programs***

*Pennsylvania Housing Finance Agency—Preservation Through Smart Rehab Program, Energy*

*Audits. The Preservation Through Smart Rehab Program (Smart Rehab) is a multifamily affordable rental housing preservation program that provides financing for capital improvements that result in a measurable reduction in energy consumption and utility costs.*

*<http://www.phfa.org/developers/preservation/default.aspx>*

*According to an Op-Ed piece in the Keystone Energy Efficiency Alliance newsletter, “A growing number of states have developed new financing mechanisms, called “on-bill financing” or “on-bill repayment,” to allow homeowners and businesses to finance energy improvements at little or no cost. The Pennsylvania Public Utility Commission (PUC) is currently considering such a program. Two good models the PUC is exploring include one offered by neighboring PSEG in New Jersey, and National Grid in Massachusetts, New York and Rhode Island. PSEG offers on-*

*bill financing through its Multifamily Housing Program. The loans are interest free and can be repaid over five years (10 years for properties mortgaged by the Housing and Mortgage Finance Agency). To date, PSEG has successfully provided on-bill financing to 3,300 participants and has received \$36 million in repayment.*

[http://www.pennlive.com/opinion/index.ssf/2013/06/pennsylvania\\_is\\_getting\\_smart\\_about\\_energy\\_efficiency\\_as\\_i\\_see\\_it.html](http://www.pennlive.com/opinion/index.ssf/2013/06/pennsylvania_is_getting_smart_about_energy_efficiency_as_i_see_it.html)

**State Land Use and Growth Management Report 2010** The State Land Use and Growth Management Report 2010 (Pennsylvania Governor’s Center for Local Government Services, Department of Community and Economic Development) contains several “areas of recommendation – opportunities for the future Pennsylvania” including, most notably:

***Recommendation Area 1: Local Governments Need Resources for Planning.*** *Land Use Planning and Technical Assistance Program (LUPTAP) grants have been provided to 470 local government grantees and 25 regional or statewide grantees since the start of the program in 2000. Budget cuts beginning in fiscal year 2009-2010 reduced LUPTAP funding to less than 10 percent of prior levels, limiting planning help available to local governments.*

- *Continue DCED’s Land Use Planning and Technical Assistance Program.*

Unfortunately, the State Land Use and Growth Management Report is issued only every 5 years and there is no follow-up reporting on the implementation and effectiveness of the recommendations of the 2010 report.

## Local Level

***Philadelphia.*** As described in more detail in Section 4.3, *[d]uring the first year of Greenworks, ...hundreds of Philadelphia homes received energy audits and retrofits [and,] through the Greenworks Loan and Rebate Fund, \$9 million in capital has been made available to help businesses finance energy-efficient building practices, materials, and equipment for major renovations and new construction projects.*

<http://www.phila.gov/green/greenBuilding.html>

***City of Pittsburgh.*** The City adopted green building legislation providing a density bonus for LEED certified buildings allowing them to rise 20% higher and include 20% more floor area than other buildings in their zoning districts.

[www.pittsburghpa.gov/green/buildings.htm](http://www.pittsburghpa.gov/green/buildings.htm)

In addition, *[A]s part of the Pittsburgh Climate Protection Initiative, the Green Government Task Force (GGTF) was responsible for developing the Pittsburgh Climate Action Plan. This Plan was adopted by City Council and Mayor Ravenstahl in July 2008, thus completing the*

*commitment of the GGTF. This version one of the CAP included a component entitled, “MUNICIPAL GENERAL 4.1: Support Planning and Zoning Incentives” proposing that the City should explore the option of sustainability incentives for public and/or private projects, listed below. Component 4.2 complements “MUNICIPAL GENERAL 4.1: Consider Planning and Zoning Mandates”. The Action Plan is intended to be a dynamic working document. In February of 2012, version two of the Climate Action Plan was accepted by City Council keeping Pittsburgh's plans for climate mitigation relevant as [the] City continues to evolve. However, due to limitations of budget and staffing, version two did not list any of the version one component 4.1 recommendations as having been implemented, nor did any of the version two recommendations going forward include any of the version one 4.1 recommendations.*

*The potential of each of the following incentives is being explored:*

- *A density zoning incentive for rooftop gardens on buildings in non-residential districts, a height or density bonus to commercial or residential projects that provide affordable housing and achieve at least LEED Silver, or a height and density bonus to multi-family residential and non-residential projects that comprise of a green roof.*
- *Permit incentives, to expedite the permitting process for projects aiming for LEED certification, as well as a reduction in permit fees based on carbon footprint and LEED certification level.*
- *Tax incentives for commercial developments incorporating green building strategies or a partial refund of certification fees paid by the developer to USGBC.*
- *A property tax abatement for LEED Gold buildings for the first five years, incrementally increased by 20% per year through year ten.*
- *Financial assistance for new LEED residential or rehabilitated low-income or mixed-income structures and homes from the Community Development Block Grant.*
- *Expedite water and electrical connections for buildings meeting LEED Silver.*
- *Offer publicity to builders incorporating green building practices in new single-family homes.*

<http://pittsburghclimate.org/wp-content/uploads/2011/12/PittsburghClimateActionPlan.pdf>

<http://pittsburghclimate.org/wp-content/uploads/2011/12/Pittsburgh-Climate-Action-Plan-Version-2-FINAL-Web.pdf>

**Small and Medium Pennsylvania Towns.** West Chester has a hotel bonus for Energy Star buildings. Lower Pottsgrove is proposing a small bonus program but have not adopted it yet.

## 7.0 PUBLIC INVESTMENTS

### 7.1 Overview

In its PAS Quick Notes No. 13: Climate Change and Energy, APA advises communities to make energy and climate investments in its public facilities to set an example for residents and businesses: *Take an active role in your city's capital improvement program. Make sure that the public investments that will be made in your community – including infrastructure, public buildings, and facilities – promote energy efficiency and reduce GHG emissions. It is often important for cities to lead by example, showing that these goals can be met in public projects, in order for private development to incorporate these goals in their own projects.*

The MLUL regulates land use by establishing the content and process for how municipalities integrate private development with public capital improvement programs, and establishes regulations for creating and enacting the a capital improvement plan, to fund specific actions implementing the visions and policies of the comprehensive master plan. The incentive programs offered through NJBPU's Clean Energy Program (see Section 6) are intended to encourage NJ local governments to invest in energy efficiency improvements in local government buildings, including schools and libraries; a great many NJ towns have taken advantage of these incentives to make energy efficiency investments.

Pennsylvania's Executive Order 2004-12 established several energy efficiency requirements for state-owned facilities, including developing energy conservation methods for new construction and building renovations; implementing programs to train personnel in life-cycle cost analysis for state projects; developing and implementing standard procedures for state ESCO projects; developing procedures for energy use reduction in state-leased facilities; and procuring Energy Star or other energy efficiency products when it is economical and consistent with life-cycle cost analysis. In addition, a significant commitment to public investment in energy efficiency in public buildings was made as part of the Philadelphia Greenworks Plan.

### 7.2 New Jersey

#### State Level

**MLUL.** The MLUL regulates land use in part by establishing the broad content and procedural framework for how municipalities integrate private development with public capital improvement programs. More specifically, the MLUL establishes regulations for creating and enacting the capital improvement plan. The capital improvement program funds specific actions to implement the visions and policies put forth in the comprehensive master plan. The Planning Board is responsible for preparing and submitting the capital improvement program to the municipal governing body for approval.

***NJDEP Guidance on Creating Sustainable Communities.*** NJDEP’s “Creating Sustainable Communities: A Guide for Developers and Communities” (by Jorge Reyes and Marty Rosen, Office of Planning and Sustainable Communities, New Jersey Department of Environmental Protection, September 2007; [http://www.state.nj.us/dep/opsc/docs/Infrastructure\\_Energy.pdf](http://www.state.nj.us/dep/opsc/docs/Infrastructure_Energy.pdf)) provides the following guidance on local public investment relating to energy efficiency in public buildings:

*Audit and retrofit local government facilities.* “Considerable energy and costs savings can be realized by retrofitting buildings and facilities. Retrofit projects can serve as models for the community. Project examples include weatherization and heating-ventilation-air conditioning (HVAC) improvements (boilers, chillers, and high efficiency rooftop units), building controls, landscaping changes, thermal cool storage retrofits, and outdoor lighting upgrades. Prior to undertaking a retrofitting project, there is need to assess: current facility conditions, what needs or opportunities exist, options to address needs and opportunities, how much they will cost, and what the savings will be. This process is commonly referred to as an energy audit.”

*New Jersey Smart Start Buildings: New Construction and Retrofits*

<http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/nj-smartstart-buildings>

<http://www.njcleanenergy.com/misc/commercial-industrial/project-categories>

*Local Government Energy Audits*

<http://www.njcleanenergy.com/commercial-industrial/programs/local-government-energy-audit/local-government-energy-audit>

*Pay for Performance Program*

<http://www.njcleanenergy.com/commercial-industrial/programs/pay-performance>

### **Local Level**

A great number of New Jersey communities and businesses have taken advantage of the above state energy efficiency incentives programs to support their investments in energy efficiency in public buildings. The Sustainable Jersey website provides links to some key examples of each. [www.sustainablejersey.com](http://www.sustainablejersey.com)

## **7.3 Pennsylvania**

### **State Level**

The following was excerpted verbatim from the USDOE’s Database of State Incentives for Renewables and Efficiency (DSIRE, accessed November 25, 2013):

*In December 2004, Governor Ed Rendell signed Executive Order 2004-12, which made a number of energy efficiency related requirements for state facilities. The Pennsylvania Department of General Services (DGS) is generally responsible for administering the state's*



*energy management and conservation policies as a centralized coordinator. Consistent with this role, the DGS has responsibilities including, but not limited to, the following:*

- Work with state agencies to develop energy conservation methods for new construction and building renovations, including green building practices*
- Implement programs to train personnel in life-cycle cost analysis and apply it to state projects*
- Develop and implement standard procedures for state Energy Service Company (ESCO) projects*
- Develop procedures for energy use reduction in state-leased facilities*
- Procure Energy Star or other energy efficiency products when it is economical and consistent with life-cycle cost analysis*

*The order also contains an extensive list of behavioral and equipment improvements that should be implemented by all state executive agencies. The Pennsylvania Department of Environment Protection (DEP) is directed to provide assistance and advice to the DGS and other executive agencies in implementing the energy conservation requirements of the order.*

*The 2004 initiative reportedly reduced energy consumption in state buildings by 10% annually during 2006. In June 2008 Governor Rendell directed the DGS to implement further energy efficiency measures with a goal of achieving an additional 10% reduction in energy use in state buildings by 2010. The new directive called for compact fluorescent lighting to replace all incandescent lighting; lighting in the Capitol Complex to incorporate occupancy sensors; peak shedding and smart metering strategies to be deployed in state-owned buildings; and office thermostat settings to be increased from 74 degrees to 75 degrees in state buildings during the summer. Revised Management Directive No. 720.5 issued in July 2008 provides further details on the state's energy efficiency policy for state buildings. Although it appears that a renewed energy conservation target for state buildings has not been set, the 2004 Executive Order and 2008 Management Directive remain in effect.*

[www.dsireusa.org/incentives/incentive.cfm?Incentive\\_Code=PA12R](http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=PA12R)

[www.portal.state.pa.us/portal/server.pt/community/facilities\\_management/1298](http://www.portal.state.pa.us/portal/server.pt/community/facilities_management/1298)

Despite these measures, however, state law prohibits municipalities, other than large Class A cities, from requiring standards stricter than the state code without state approval. The state code is based on the UCS code and is not being automatically updated beyond the 2009 or 2006 version of the UCS code. (Personal communication, Dianne Herrin, Director of Program Management, Practical Energy Solutions, November 25, 2013)

### **Local Level**

***City of Philadelphia: Energy Standards for Public Buildings.*** As described in Section 2.3, in 2009, the Philadelphia Office of Sustainability released a six-year plan, called [Greenworks](#)

[Philadelphia](http://www.phila.gov/green/greenworks/index.html), that included a number of measures that the City would fund to improve energy efficiency in city-owned buildings.

<http://www.phila.gov/green/greenworks/index.html>

**City of Pittsburgh.** According to the website of the Office of Sustainability, “*The City owns nearly 300 buildings, which account for 64% of energy used by City government. In an effort to reduce energy usage, save money and make our buildings more comfortable and healthy for employees and visitors, the City has recently hired an engineering firm to complete a comprehensive energy audit of the City-County building, located downtown. The City will use a Department of Energy grant (\$3.4 million) to complete the recommended retrofits. The resulting energy savings will be used to fund energy efficiency improvements to other City-owned buildings.*”

**Small and Medium Municipalities.** West Chester Borough is offering the incentive of a variance to its 45-foot building height limit if conditional use standards include Energy Star standards, while Swarthmore and Doylestown are offering to reduce permitting fees if a green checklist is used by developers. (Personal communication, Dianne Herrin, Director of Program Management, Practical Energy Solutions, November 25, 2013)

## 8.0 PUBLIC OUTREACH AND EDUCATION

### 8.1 Overview

In its PAS Quick Notes No. 13: Climate Change and Energy, APA encourages local planners to provide public outreach and education relating to energy and climate investments: *“Engage the public in discussing energy and climate change and provide educational forums for citizens to learn how to make changes in their own lives to improve energy efficiency and reduce carbon emissions.”*

NJ state agencies and the state’s energy utilities have supported significant public outreach and education programs relating to energy efficiency in commercial and multi-family buildings. These programs provide direct contact with relevant stakeholders, but also provide materials to support local governments in their outreach and education programs. However, perhaps the most effective outreach has been via Sustainable Jersey, a voluntary, non-government, community sustainability certification program that provides tools, training and financial incentives to support and reward communities as they pursue sustainability programs. Sustainable Jersey includes several actions relating to public outreach and education and, for each, provides links to relevant local examples in the state.

Pennsylvania public outreach and education programs include the Pennsylvania Elibrary which is an electronic database and clearinghouse of Pennsylvania planning and land use documents that can be accessed to investigate further how the state’s PMPC has been implemented at the county and municipal planning level vis-à-vis facilitating energy efficiency in commercial and multi-family residential buildings. In addition, the Pittsburgh Green Building Alliance provides a database for analyzing sustainable and high performance buildings, information on the Pittsburgh 2030 District, a knowledge network, and green buildings project case studies.

### 8.2 New Jersey

#### State Level

**Sustainable Jersey.** According to its website ([www.sustainablejersey.org](http://www.sustainablejersey.org)), *“Sustainable Jersey is a certification program for municipalities in New Jersey that want to go green, save money and take steps to sustain their quality of life over the long term. Launched in 2009, we are a nonprofit, nonpartisan organization that provides tools, training and financial incentives to support and reward communities as they pursue sustainability programs. The program:*

- *Identifies concrete actions that municipalities can implement to become certified*
- *Provides clear guidance and tools to enable communities to make progress on each action*
- *Provides access to grants, and identifies existing and new funding opportunities for municipalities to make progress toward the actions*

- *Encompasses the 3 equal, interrelated components of sustainability:*
  - *Prosperity – support your local economy and use community resources*
  - *Planet – practice responsible environmental management and conservation*
  - *People – embrace social equity and fairness*

*“Local government participation is strictly voluntary and never mandated. Sustainable Jersey is New Jersey based and consensus driven. Certification actions are developed through an ongoing process of discussion and research that includes the participation of over 150 New Jersey leaders, experts and organizations including state agencies, universities, non-profit organizations, and business leaders.”*

Of the categories of action that local governments can choose from to obtain Sustainable Jersey certification, the most relevant to the present topic of using planning and zoning tools to facilitate energy efficiency in commercial and multi-family residential buildings is the “Energy Efficiency” category. The Actions and Certification tab on the SJ website leads to a tabular list of actions local governments can take to get certified by SJ. The applicant can click on any action in the table to get further background information and guidance on how to get certified for that action. Each action guidance page, in turn, includes a section entitled, “Spotlight: What NJ towns are doing”, that lists examples of New Jersey towns that have completed and been certified for the subject action. This listing, in turn, refers the user to the respective town’s certified full report for a detailed description of the action.

### **Local Level**

Sustainable Jersey includes several actions relating to public outreach and education and, for each, provides links to relevant local examples in the state.

[www.sustainablejersey.com](http://www.sustainablejersey.com)

## **8.3 Pennsylvania**

### **State Level**

There is apparently no Pennsylvania equivalent to Sustainable Jersey, although such a program may be in the early stages of development led by Pennsylvania DER (personal communication with Dianne Herrin, Director of Program Management, Practical Energy Solutions, November 25, 2013).

***ELibrary of County and Municipal Land Use Documents.*** The Pennsylvania Elibrary: The Online Resource for County and Municipal Land Use Documents (Pennsylvania Governor’s Center for Local Government Services, Department of Community and Economic Development) is an electronic database and clearinghouse of planning and land use documents for Pennsylvania counties, cities, boroughs, and townships. The documents include:

- Comprehensive plans

- Zoning ordinances
- Subdivision and land development ordinances

The eLibrary can be accessed to investigate further how the state's PMPC has been implemented at the county and municipal planning level vis-à-vis facilitating energy efficiency in commercial and multi-family residential buildings.

### **Local Level**

***Pittsburgh Green Building Alliance.*** The Green Building Alliance provides the following resources relevant to the present topic:

- DASH: Database for Analyzing Sustainable and High Performance Buildings
- Pittsburgh 2030 District
- Knowledge Network
- Green Buildings Project Case Studies

More details on the Pittsburgh Green Building Alliance can be found at:

<http://www.gbapgh.org/content.aspx?ContentID=1>

## 9.0 COMPARISON OF NEW JERSEY AND PENNSYLVANIA

The following paragraphs summarize the main findings and conclusions of the preceding sections of this white paper, again organized according to APA's strategic points of intervention. Each of these sections in turn begins with the APA point of intervention reiterated in italics. This section ends with an overall comparison of the two states and recommendation for further research.

***Long-Range Visioning and Goal Setting.*** *Include exercises in your community visioning process to gauge the level of awareness and importance of energy and climate change to your community members. Consider how energy and climate change can be addressed in your community and how it is connected to other community goals and values.* Both the MLUL and PMPC embrace sustainable environment and energy concerns in their goals and purposes, but neither explicitly addresses long-range visioning. However, both now also provide for voluntary plan elements addressing energy efficiency and green buildings which presents excellent opportunities for long-range visioning. In New Jersey, NJAPA guidance developed for preparing such plan elements strongly encourages long-range visioning, while SJ guidance for developing GBSMPEs, SCPs and CAPs encourages long-range visioning, stakeholder consultation and goal setting for GHG reductions as important first steps.

***Plan Making.*** *Examine comprehensive plans and other planning documents to see if energy and climate change issues are addressed and integrated. Consider including an energy and climate change element in your comprehensive plan or creating a climate action plan for your community.* Both states envision sustainable energy to be addressed in comprehensive planning, and both follow-up by explicitly allowing voluntary development of energy conservation and green building master plan elements. Successful promotion and funding for such planning endeavors, however, has been accomplished in New Jersey mainly via SJ certification and USDOE block grants, respectively.

***Regulations and Policies.*** *When updating your regulations, think about how zoning codes, building codes, and other ordinances address energy issues. Consider how these ordinances could work to encourage mixed use development, transit-oriented development, and green building. Also, make sure your codes do not prohibit clean energy generation, such as through solar panels or wind turbines. These structures have sometimes been restricted or prohibited in existing codes due to height or aesthetic reasons.* Both states planning and zoning codes, and provisions for specialized voluntary master plan elements, provide a firm legal basis for local governments to enact planning and zoning policies and regulations facilitating energy efficiency in buildings. Local governments are further encouraged to do so by incentives and information provided by various state agencies. While there are examples of communities following through,

further research of relevant databases (e.g., SJ for New Jersey and possibly the Elibrary clearinghouse of Pennsylvania planning and land use documents) would be needed to ascertain how many and what types of regulations had been passed, experience with them and to compare those numbers and experiences with those for incentives.

***Development and Redevelopment Review.*** *Create a checklist of energy and climate change goals for new projects. For projects that exceed these goals, consider an expedited site plan review and permit processing track.* Both the MLUL and PMPC allow development and redevelopment review to address energy efficiency and other sustainability concerns. SJ has developed a model green development checklist that communities can use to encourage and review both development and redevelopment project proposals relative to green planning and design criteria. The criteria and powers of NJ redevelopment authorities and plans appear to be sufficiently broad to address energy and climate issues. However, the relevant laws for these powers lack specific reference to climate and energy sustainability, so explicit mention of these concerns is a viable target for future amendments. Redevelopment plans can be used to promote green building design and site layout in particular and sustainable development in general, by either: (1) mandating achievement of some level of green building certification, or at least use of some level of sustainable design, in the redevelopment plan; or (2) offering incentives to redevelopers to seek green building certification or to incorporate green building design techniques in exchange for increased density or floor area for non-residential uses. As part of a negotiated redevelopment agreement, energy efficiency measures can be suggested or required, making local redevelopment and housing law a potent tool for addressing energy efficiency retrofits. The incentives approach is more commonly used and successful, if certification provides a marketing edge or reduces operating costs. There are examples of the local redevelopment review process addressing energy efficiency and sustainability in both states, including Woodbridge in New Jersey and Pittsburgh in Pennsylvania.

***Incentives.*** *In addition to an expedited plan review, consider other incentives to encourage new development to demonstrate energy efficiency and reduced carbon emissions. Some communities have offered rebates and other financial incentives to developers whose projects meet predetermined standards.* New Jersey offers several state incentive programs providing funding or financing for energy efficiency audits, equipment and building upgrades for various classes of building uses and owners, while Pennsylvania has provided its incentives through a \$25 million grant, loan and loan guarantee program. Reinforced by SJ certification and USDOE grant funding, these incentive programs have seen heavy subscription among New Jersey communities; Philadelphia and Pittsburgh have initiated their own incentives programs.

***Public Investments.*** *Take an active role in your city's capital improvement program. Make sure that the public investments that will be made in your community – including infrastructure, public buildings, and facilities – promote energy efficiency and reduce GHG emissions. It is*

*often important for cities to lead by example, showing that these goals can be met in public projects, in order for private development to incorporate these goals in their own projects.* The New Jersey MLUL and Pennsylvania PMPC regulate land use by establishing the content and process for how municipalities integrate private development with public capital improvement programs, and establish regulations for creating and enacting capital improvement plans, to fund specific actions implementing the visions and policies of the comprehensive master plan. The incentive programs offered through NJBPU's Clean Energy Program are intended to encourage NJ local governments to invest in energy efficiency improvements in local government buildings, including schools and libraries; a great many NJ towns have taken advantage of these incentives to make energy efficiency investments. A significant commitment to public investment in energy efficiency in public buildings was also accomplished through an executive order in Pennsylvania, as part of the Philadelphia Greenworks Plan, and by legislation providing height and floor area bonuses in Pittsburgh.

***Public Outreach and Education.*** *Engage the public in discussing energy and climate change and provide educational forums for citizens to learn how to make changes in their own lives to improve energy efficiency and reduce carbon emissions.* NJ state agencies and the state's energy utilities have supported significant public outreach and education programs relating to energy efficiency in commercial and multi-family buildings. These programs provide direct contact with relevant stakeholders, but also provide materials to support local governments in their outreach and education programs. However, perhaps the most effective outreach has been via Sustainable Jersey, a voluntary, non-government, community sustainability certification program that provides tools, training and financial incentives to support and reward communities on all aspects of sustainability, including specific guidance on public outreach and education. Examples of Pennsylvania public outreach and education programs include the Pennsylvania Elibrary, an electronic clearinghouse of planning and land use documents and the Pittsburgh Green Building Alliance's database for analyzing sustainable and high performance buildings, knowledge network and green buildings project case studies.

The two state level programs may not differ that much in terms of facilitating energy efficiency in small and medium commercial and multi-family residential buildings. Both states and their localities suffer from a lack of funding and staffing, especially after the demise of the US DOE Energy Efficiency and Conservation Block Grant program. The main difference between the two states, however, is the existence of a very thorough and well-subscribed voluntary sustainability rating program, Sustainable Jersey, in New Jersey and the apparent lack of such a program in Pennsylvania (though apparently Pennsylvania DER may be starting such an initiative).

Further research is needed on the extent and effectiveness of implementation – at the local level – of the programs for each of the seven points of intervention described above, but particularly



for the regulations and incentives programs and their outcomes vis-à-vis existing commercial and multi-family buildings. SJ in New Jersey and possibly the Pennsylvania ELibrary, along with relevant state agencies such as NJBPU and PaDER, should serve as useful starting points in such an investigation.