UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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OFFICE OF AIR AND RADIATION

Climate Protection Partnership Division
U.S. EPA 6202J
Washington, DC 20460

Jeanne Fox, President
New Jersey Board of Public Utilities
Office of Policy and Planning
Attention: Draft EMP Comments
Two Gateway Center
Newark, New Jersey 07102

Subject: Draft EMP Comments

Dear President Fox,

The United States Environmental Protection Agency (U.S. EPA) appreciates the opportunity to provide comments on the *Draft New Jersey Energy Master Plan* and companion document, *Draft New Jersey Energy Master Plan Implementation Strategies.* We provide our comments based on many years of experience promoting clean energy, including energy efficiency. This experience includes:

- Working in partnership with more than 12,000 organizations across the country to advance energy efficient buildings, homes, products, and services through the ENERGY STAR program.
- Working in partnership with 16 states, including New Jersey, to help them assess and move forward with a variety of energy efficiency and renewable energy strategies under the Clean Energy-Environment State Partnership.
- Helping facilitate the National Action Plan for Energy Efficiency (National Action Plan), which focuses in large part on the opportunity to increase investment in energy efficiency programs at the state level that deliver energy savings to today's energy customers.

We first want to commend you for bringing so many agencies and stakeholders together and for coordinating with regional and national efforts to develop this comprehensive energy plan. You have outlined a holistic approach and comprehensive long-term goals to advance cost-effective energy efficiency and energy conservation, reduce peak electricity demand, develop renewable resources, develop low carbon-emitting power plants, and invest in innovative clean energy technologies. You have emphasized the opportunities for improved building efficiency as well as expanding combined heat and power, renewables, and other clean energy technologies. We are pleased to see that New Jersey's plan is consistent with a number of U.S. EPA program goals and initiatives, as well as the policy recommendations and implementation steps of the National Action Plan, which has been developed through the expertise of more than 60 public and private sector leaders from across the country.

Our comments are organized according to the goals and action items put forth in the *Energy Master Plan* and the accompanying *Energy Master Plan Implementation Strategies,* and are focused on the portions of the plan that address energy efficiency.

Master Plan Goal 1: Maximize the state's energy conservation and energy efficiency to achieve reductions in energy consumption of at least 20 percent by 2020 / Implementation Strategies: Conservation and Energy Efficiency

In Goal 1, the *New Jersey Energy Master Plan* establishes a vision statement for assuring that all cost-effective, reliable, and feasible energy efficiency measures will be implemented in an integrated way. We would like to highlight a number of strengths in the plan, based on how we have seen other states successfully address these issues. These include:

- The goal is consistent with the overarching goal of the National Action Plan, as are the key components of Goal 1 which include (1)—to redesign and enhance energy efficiency programs, (2) to increase state building code requirements, (3) to promote energy efficiency in existing structures by establishing high efficiency appliance standards, and (4) to increase general awareness through consumer education
- The plan recognizes that reducing energy consumption through conservation and energy efficiency is the most cost-effective way of addressing energy demands.
- The plan and accompanying implementation strategy support whole building approaches to maximize energy conservation and energy efficiency.

We would like to provide the following for consideration as ways to enhance the plan and implementation strategy.

- We encourage New Jersey to specify that program implementation plans will incorporate the ENERGY STAR program platform and leverage the many associated resources available, including an array of tools and resources to promote whole building energy performance for commercial and industrial buildings. We believe this will help New Jersey meet its goals by:
  - Connecting the state to a robust network of more than 12,000 partner organizations working to advance the energy efficiency of American residential, commercial, and industrial buildings.
  - Connecting energy end-users with many ways to identify and invest in energy efficient solutions as they look for new products, or design or improve new and existing buildings and facilities.
  - Building upon experience in New Jersey and with other energy efficiency program administrators which shows that ENERGY STAR-based initiatives are cost effective—with costs ranging from $0.01 to $0.06 per kWh for many programs, or on the order of half the cost of new supply.
- We encourage the further development of implementation plans and suggest the inclusion of evaluation, monitoring, and verification (EM&V) methods into the *Final Energy Master Plan* because these methods impact program design. The National Action Plan's *Model Energy Efficiency Program Impact Evaluation Guide* offers detailed information about EM&V.
- A related topic that New Jersey may wish to consider under Goal 1 is establishing and encouraging "beyond-code" programs. For example, the state of California now provides their investor-owned utilities with credit for energy and demand savings stemming from their contribution to increased code stringency in a given program cycle. Specific policy and technical issues that New Jersey may wish to address in advancing beyond-code programs include:
  - Options for incorporating incentives for builders and customers
  - Identifying the baseline from which measured energy savings and resulting incentive payments are calculated
  - Leveraging the value of public benefit funds and other state clean energy policies
  - Options for incorporating resulting savings into the resource planning process
  - Opportunities for leveraging ENERGY STAR resources

- New Jersey could look to the National Action Plan's *Aligning Utility Incentives with Investment in Energy Efficiency* paper for additional information on policy options for electric and gas utilities to promote energy efficiency, including recovery for direct efficiency program costs, performance incentives, and removing the utility disincentive to support energy efficiency due to the corresponding reduction in sales and need for utility to recover its fixed costs.

We are also providing specific comments for consideration in the development of implementation strategies under Goal 1 below.

- **Action Item 1: Redesign and enhance the state's current energy efficiency programs to achieve the desired results while remaining cost-effective.**

  We are providing suggestions and comments by key program area:

  Commercial and Industrial Buildings

  - **Benchmarking building energy use**. We suggest that the *Energy Master Plan* encourage widespread energy use benchmarking to benefit commercial and industrial businesses in the state. Awareness of the value of measuring and tracking energy use, implementing projects, and evaluating energy savings using a whole building approach is increasing nationwide. The *Master Plan's* focus on whole building program design reflects this important trend. In particular, there is growing interest in benchmarking energy use as a way to spur and measure improvement in buildings. National associations such as the Building Owners and Managers Association, the American Society of Healthcare Engineers, and others are encouraging their members to assess the energy use in their buildings by benchmarking as an important first step toward improvement. At the national level, U.S. EPA has enabled the measurement of building performance by developing benchmarking approaches, including the national energy performance rating system for commercial buildings. Additional details include:
    - Buildings can be benchmarked using EPA's on-line Portfolio Manager tool. Organizations of all types have used Portfolio Manager to benchmark the energy performance of more than 60,000 buildings and 8 billion square feet of commercial space across the country, which is over 10 percent of all commercial building space in the United States. In New Jersey, over 1,500 buildings have already been benchmarked using Portfolio Manager.
    - Use of EPA's energy performance rating system allows owners and operators of commercial buildings to compare their building's energy performance with that of similar buildings throughout the United States, and track energy performance over time. Nationwide, many utilities and program administrators have integrated Portfolio Manager into their energy efficiency programs as a basis for objective measurement of whole building energy performance. This performance measurement is used to identify areas of opportunity and to encourage ongoing energy performance improvement. The best performing buildings can be eligible to earn the ENERGY STAR in recognition of their energy efficiency achievements.
  - **Efficient commercial food service equipment**. Appliance replacement is another area in which the *New Jersey Energy Master Plan* could leverage ENERGY STAR in its commercial buildings. In commercial markets, U.S. EPA encourages promotion of ENERGY STAR-qualified commercial food service products, along with office equipment and other ENERGY STAR-labeled products. U.S. EPA specifically encourages the state of New Jersey to consider promotion of the six product categories of ENERGY STAR-qualified commercial food service products that capitalize on the opportunity for energy savings in commercial kitchens/restaurants. Food service is a very energy intensive commercial sector; commercial kitchens/restaurants use 2.5 times more

energy per square foot than other facilities. Energy consumption in this sector is dominated by the food preparation and food storage equipment.

- **Sector-based building programs.** U.S. EPA provides training and informational resources that support a sector-based approach to energy efficiency improvement, targeting office buildings, hospitality, healthcare, retailers, higher education, K-12 schools, government, as well as several manufacturing sectors. New Jersey's industrial sector may be interested in the energy guides that U.S. EPA has developed for the pharmaceutical and petrochemical industries. These guides provide an in-depth resource for identifying best practices for energy management and efficiency improvements.

New and Existing Homes[1]

- **Beyond code for residential new construction**. In the residential construction market, U.S. EPA has observed that energy code compliance metrics do not currently recognize key energy efficiency technologies and construction practices targeted in next generation ENERGY STAR Qualified Home specifications. As a result, U.S. EPA suggests further cooperation with New Jersey stakeholders to help promote these targeted energy efficiency technologies and construction practices as part of ENERGY STAR Qualified Homes. This outreach is most appropriate in locations where ramped up New Jersey state and local energy codes call for a concomitant increase in ENERGY STAR Qualified Homes specifications. This type of coordination is critical to delivering above code performance.
- **Whole home improvement.** In the residential remodeling market, U.S. EPA offers Home Performance with ENERGY STAR (HPwES) as a whole building strategy that can achieve 20 percent energy saving in older homes. The New Jersey Board of Public Utilities' has had success with this strategy and we look forward to seeing further growth in HPwES homes in the state. By participating in the program, homeowners can receive a whole house energy assessment from a qualified professional who relies on building science testing to diagnose problems and ensure proper installation and combustion safety. Some typical energy efficiency improvements include: insulation with air sealing, proper installation and sizing of ENERGY STAR qualified heating and cooling equipment, duct sealing and repair, and ENERGY STAR lighting and appliance upgrades. Additional comments include:
  - We see that a strong consumer campaign is needed to educate consumers about the benefits of the whole building approaches to improving energy efficiency, as stated in Action Item 4. By building on the strong consumer awareness of the ENERGY STAR brand, New Jersey can be more effective in achieving its goals.
  - The right financial incentives can help motivate consumer action. Financial incentives can include customer financing with attractive rates (i.e., buy down rate) or a cash rebate of equivalent value. Offering larger incentives to homeowners that complete several energy efficiency improvements encourages whole house improvement that might not have happened otherwise. These incentives are most effective if they do not compete with rebates for single-measure improvements and are only available through contractors participating in the Home Performance with ENERGY STAR program.
  - We look forward to enhancing our work with New Jersey in this program area.

[1] Improving the energy efficiency of both new and existing homes has been an important part of ENERGY STAR for many years. The ENERGY STAR for Homes program started in 1996 and now nearly 12 percent of all new housing starts are ENERGY STAR qualified and, in many areas, ENERGY STAR qualified homes represented 20 percent or more of local home starts. Home Performance with ENERGY STAR was launched in 2001 to capture the significant savings potential of improving whole-house performance. Since then contractors participating in over 24 locally-sponsored home performance programs have improved the energy efficiency of over 40,000 homes.

- **Quality installation of HVAC equipment**. U.S. EPA supports program strategies that promote quality installation and maintenance of heating, ventilation and air conditioning. EPA launched a Heating, Ventilating and Air Conditioning (HVAC) Quality Installation program this year that is based on an American National Standards Institute (ANSI)-approved quality installation specification developed by the Air Conditioning Contractors of America. This program can be the platform for promotion of quality installation in New Jersey.

Consumer Products

- **Market transformation efforts that go beyond rebates.** Nationally, more than 550 electric and gas utilities have adopted ENERGY STAR as an energy efficiency branding platform, and rely on the program for specifications, marketing materials, and as a network for collaboration with other market actors. As the breadth of products expands,[2] some utilities and other program administrators are finding the need to adapt their energy efficiency program designs away from consumer rebates, towards other market intervention techniques. Program administrators are having success providing increased funding for activities such as retail staff training, advertising, and general awareness. An integrated approach to building market share is needed, particularly for products that will not respond to small rebates such as TVs and desktop computers.
- **Long-term residential lighting strategy.** U.S. EPA suggests that the *New Jersey Implementation Strategies* consider taking steps to plan for a long-term lighting strategy, placing a larger emphasis on permanent hard-wired fixtures. Market share for compact fluorescent light bulbs has grown significantly (now at 20 percent nationally—up from 11 percent in 2006), while ENERGY STAR light fixtures have a market share of 5 percent, leaving large untapped potential at both the retail level and in new construction markets.
- **Home electronics and new M&V methods.** U.S. EPA suggests that New Jersey consider adapting EM&V methods to the needs of a new set of products such as consumer electronics. Specifically, consumer electronics, which are a growing source of energy use, are not well suited for consumer rebate strategies, because typically justifiable rebates of $10 to $15 have little or no impact on the purchase decision when a consumer is purchasing a television worth $800 or more. New EM&V methods that track bulk purchases, market share, or market trends may provide more flexibility and allow program sponsors to implement more market-oriented dynamic programs. Allowing for flexibility and a fast moving program is particularly important in this product area, where products change every year.

Action Item 2: Work with the Legislature to authorize the development of statewide building codes to result in new construction being at least 30 percent more energy efficient than current state code by July 2009.

New Jersey's Action Item to work with the legislature to authorize a more stringent building code is consistent with the direction that other states and regions are headed. We offers several thoughts about issues that New Jersey might wish to consider in thinking further about advancing building codes:

- Calculating energy and demand savings resulting from the upgrade of New Jersey building energy codes and evaluating additional savings from any beyond-code program activities. Issues that should be addressed include identifying baselines, characterizing measures, and calculating savings using best-practice program evaluation protocols. Other state examples New Jersey may want to consider reviewing for best practices include Washington, California, and Massachusetts.

[2] Today, there are more than 50 categories of ENERGY STAR products in the marketplace, ranging from battery chargers to commercial kitchen equipment; these products offer significant energy savings over typically purchased products.

- Improving the effectiveness of codes with compliance training and enforcement, and assisting in the model code development process. Iowa and Utah are two states whose experiences in this area New Jersey may want to review. Also, ensuring that builders have information on best practices for "building to code" is important. New Jersey may want to review California Title 24 for more information on this topic. New Jersey may also want to consider the example of the Long Island Power Authority in using third-party raters to increase compliance in the residential sector.
- Additional resources on this topic that New Jersey may find useful include a pending National Action Plan paper that will discuss the role utilities can play in the implementation of codes and beyond-code programs (discussed under Goal 1).

Action Item 4: Increase education and outreach in the public and private sectors.

- Once the Energy Education Joint Venture Partnership (EEJVP) has been established, U.S. EPA encourages the group to look at opportunities to actively leverage the ENERGY STAR national campaigns. These campaigns, such as the ENERGY STAR "Change a Light, Change the World" campaign, provide a national messaging platform that partners have used to advance their local and regional energy efficiency program goals. The ENERGY STAR campaigns also deliver a call to action to Americans to join the fight against global climate change through energy efficiency. Led by local energy efficiency program sponsors, communities in New Jersey are already invested in these educational and outreach efforts, and will be highlighted by U.S. EPA again in 2008 when the national, "Change the World, Start with ENERGY STAR" campaign joins with the Morristown Partnership and CommunityEarth to host a series of media and consumer events.

Master Plan Goal 4: Develop new low carbon emitting, efficient power plants and close the gap between the supply and demand of electricity / Implementation Strategies: Develop New Low Carbon Power Plants

Under Goal 4, the *New Jersey Energy Master Plan*, we would like to provide general comments as well as some specific comments for Action Item #2

General Comments

- New Jersey's interest in integrating energy efficiency and clean energy options into its resource planning efforts is consistent with the key recommendations of the National Action Plan for Energy Efficiency and we point New Jersey to the National Action Plan's *Guide to Resource Planning with Energy Efficiency* as a potentially useful resource as the state continues these efforts.
- Consistent with objectives of resource planning, we suggest that the proposed implementation strategy for assessing future pipeline capacity requirements integrate natural gas efficiency efforts and estimates for greater use of energy efficiency in the natural gas sector when planning this resource.

Action Item 2: Foster the Development of 1,500 MW of new cogeneration capacity in New Jersey by 2020.

We find Action Item 2 to be an important strength of the *Energy Master Plan* as it recognizes the energy and environmental benefits[3] of combined heat and power (CHP), also known as cogeneration. EPA

supports CHP because significant cost-effective emissions reductions can be achieved by increasing efficient energy supply. In total, the strategies identified in the *Energy Master Plan* to promote CHP will be a beneficial addition to the New Jersey Clean Energy Program's CHP initiative and the cost-based natural gas tariffs existing at utilities such as New Jersey Natural Gas. We offer the following more specific comments.

- The Action Item to foster the development of 1,500 MW of new cogeneration capacity in New Jersey by 2020 builds on an existing New Jersey Clean Energy Program CHP incentive program that has already had important accomplishments in increasing CHP capacity in New Jersey.
- In the *Energy Master Plan Implementation Strategies,* New Jersey states within the "CHP Retail Margin Fund Incentive to Develop 1500 MW of Cogeneration" that a minimum 70 percent combined efficiency standard would be appropriate. U.S. EPA notes that, based on the work of other states looking into portfolio standards, 50 percent or 60 percent would also be appropriate.
- Another way New Jersey may ensure that projects are developed to utilize both the electric and thermal output of CHP is to include a minimum percentage of thermal energy products. For example, Connecticut's Renewable Portfolio Standard CHP requirements state that a CHP system must meet a total efficiency level of at least 50 percent. The sum of all useful electrical energy output must comprise at least 20 percent of the technology's total usable energy output. The sum of all thermal energy products must also constitute at least 20 percent of the technology's usable energy output.
- U.S. EPA notes that the *Energy Master Plan Implementation Strategies* "Sales and Use Tax Exemption" for natural gas used to generate on-site power in CHP facilities would be a beneficial incentive for CHP because most CHP projects are fueled by natural gas.

Master Plan Goal 5: Invest in innovative clean energy technologies and businesses to stimulate the industry's growth in New Jersey / Implementation Strategies: Invest in Clean Energy Technologies and Businesses

Action Item 1: Expand the Edison Innovation Fund to invest in innovative clean energy technologies including both energy efficiency and renewable energy manufacturing businesses to stimulate the industry's growth in New Jersey.

- U.S. EPA sees New Jerseys' plan to strengthen research and development (R&D) and foster technology development as an important element of a comprehensive clean energy program. New Jersey's focus on technologies in the R&D phase, providing R&D support, gap funding, equity investments, etc. reflect tried-and-true strategies that help bring technologies from the lab to the marketplace. Once in the marketplace, however, there will still be hurdles for these technologies to overcome, such as lack of awareness, higher first costs, and competition with older, cheaper, established technologies. To help build demand for these new clean technologies, New Jersey may wish to consider funding demonstration projects, training sessions, and public awareness campaigns.

[3] The average efficiency of fossil-fueled power plants in the U.S. is 33 percent and has remained virtually unchanged for 40 years. When purchased electricity is combined with on-site thermal generation (assuming 80 percent boiler efficiency), the typical combined efficiency is 49 percent. CHP systems typically achieve overall fuel efficiencies of 60 percent or more and reduce fuel use 20 percent to 50 percent over separate heat and power. This improvement in efficiency is an excellent pollution prevention strategy that reduces emissions of air pollutants and carbon dioxide, the leading greenhouse gas associated with climate change. Furthermore, because CHP is located at the energy user's site, it reduces electric transmission and distribution losses (averaging 7 percent to 10 percent) resulting in further efficiency gains. It also results in efficient use of our natural resources such as coal and natural gas through a highly-optimized system producing two or more useful outputs from one fuel input.

It may also wish to consider nominating the most promising technologies for EPA's Climate Choice recognition once products have made it to the marketplace.[4]

- In addition to investment in energy efficiency and renewable energy manufacturing businesses, New Jersey may want to consider targeted investment in service industries that supply the labor for installing and servicing innovative clean energy technologies, as discussed in Action Item 2.

Action Item 2: Develop a "Green Collar" jobs program to ensure that sufficient numbers of New Jersey workers have the skills demanded by industry to fill the jobs that are created from the action items in this Master Plan.

- U.S. EPA considers effective implementation of this action an essential compliment to all the goals in the *Energy Master Plan.* and commends New Jersey on the development of a "Green Collar" jobs program. Widespread increases in renewable energy installations and energy efficiency improvements, such as a whole building strategy like HPwES, offer a change from status quo home improvement contracting. As consumer awareness increases, demand for the program will start to exceed the supply of qualified professionals that deliver the service. The increased interest will fuel "Green Collar" job growth.

Additional Action Items that are Listed Outside the Goals: The State Must Lead by Example

We have seen state governments achieve substantial energy cost savings across their facilities and operations through clean energy Lead by Example (LBE) programs. States can also demonstrate energy and environmental leadership, raise public awareness of the benefits of clean energy technologies, improve air quality, reduce greenhouse gas emissions, improve energy supply and reliability, and foster markets for environmentally preferable products through these programs. As New Jersey moves forward on their commitment to implement LBE activities, we offer the following suggestions..

- New Jersey consider establishing a comprehensive LBE program across all buildings, facilities, operations, and fleets to produce the greatest benefits for the state. A comprehensive program typically (1) offers greater benefits due to its broader scope, (2) increases the cost-effectiveness of LBE activities, due to economies of scale from bundling individual activities, (3) garners more political support by appealing to a variety of constituencies, and (4) increases the visibility of LBE activities.
- New Jersey follow a systematic approach to identify those measures that will provide the largest results for a given level of available funding. This includes following a stepwise approach: (1) establish the program framework: determine LBE team and obtain support, set clean energy goals, and establish implementation mechanisms; (2) screen LBE activities and measures; (3) develop a comprehensive LBE program; and (4) track, evaluate, and report on LBE program progress. And it includes screening measures across a wide variety of possibilities for possible incorporation into its *Implementation Strategies*. These measures include:
  - Improve Energy Efficiency in Government Facilities. Improving energy efficiency in state government-owned and leased facilities through a comprehensive energy management approach can lead to significant energy, environmental, economic, and other benefits. States are

[4] Climate Choice is an EPA partnership program that recognizes emerging technologies that have the potential to substantially reduce greenhouse gas emissions once they are more widely adopted. By partnering with Climate Choice, businesses, organizations and individuals have the opportunity to help advance technologies that protect the climate and be recognized as leaders in climate protection. For more information, visit: www.epa.gov/cppd/climatechoice/.

demonstrating annual savings on the order of $1 million – $15 million dollars, depending on efficiency programs and goals.

- Incorporate Energy Management in "Green" Building Designs. The planning, design, and construction process for new and renovated buildings offers opportunities to combine energy efficiency and renewable energy design features with other measures that have environmental and health benefits (e.g., selecting sustainable sites, using recycled-content materials, and landscaping to reduce water and energy use).
- Procure Energy-Efficient Products. Energy-efficient product procurement can be a cornerstone of a state or local government's energy management strategy and can be particularly helpful for fostering the development of in-state markets for clean energy products. Energy-efficient product procurement can target products as they are replaced, with many energy-efficient products having little or no cost premium.
- Purchase Green Power. Green power is electricity produced from renewable sources that causes no man-made GHG emissions, has a superior environmental profile compared to conventional power generation, and was built after January 1, 1997. By choosing to purchase green power, state governments reduce reliance on fossil fuel-based energy and help reduce GHG emissions, reduce vulnerability to conventional energy price volatility, and improve energy supply reliability.
- Use Clean Energy Supply Technologies. States are implementing clean energy generation – such as on-site renewable energy generation and clean DG and CHP – to provide a clean energy-supply alternative that reduces GHG and air pollutant emissions, hedges against conventional energy price volatility, improves energy supply reliability, and can sometimes reduce energy costs.
- Implement Other Energy-Saving Opportunities. Demand response (DR) programs and environmental activities such as recycling, water efficiency, and sustainable landscaping strategies can also result in significant energy cost savings.

- U.S. EPA's Clean Energy-Environment State Partnership, of which New Jersey is a member, tracks LBE activities undertaken by all states. Summary information about state LBE actions, goals, and targets can be found at: www.epa.gov/cleanenergy/energy-programs/state-and-local/state-best-practices.html. We would be happy to provide additional details and information upon request.

In closing, *Draft New Jersey Energy Master Plan* and companion document, *Draft New Jersey Energy Master Plan Implementation Strategies* represent a tremendous accomplishment in presenting a clean plan and implementation steps for advancing clean energy in New Jersey. We look forward to working together in partnership with New Jersey on the further development of the *Energy Master Plan*, as well as its implementation in the coming years.

Sincerely,

Kathleen Hogan, Director
Climate Protection Partnerships Division.