ATTORNEY GENERAL'S ACTION PLAN

FOR A BALANCED ELECTRIC POWER POLICY

IN NEW YORK STATE

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CONTENTS

INTRODUCTION 1

EXECUTIVE SUMMARY 4

I. New York Must Address its Growing Imbalance in Electric Supply and Demand 11
- A. Electricity Supply and Demand are Out of Balance 11
- B. Supply Must be Greater than Demand, to Avoid Power Outages, and Keep Electricity Prices from Skyrocketing 15
- C. NYPA's Proposed Generators for New York City are Necessary to Meet Peak Demand for Summer 2001 16
- D. Current State Programs that Promote Energy Efficiency and Renewable Energy Should be Expanded 18
  - 1. The Attorney General is Directing Power Plant Settlement Funds to Supplement NYSERDA Programs 19
  - 2. The Legislature Should Enlarge Funding for NYSERDA Programs by Extending the System Benefits Charge 19
  - 3. NYPA Should Work With its Customers to Reduce Demand by an Additional 200 MW Over the Next Two Years Beyond Its Current Goals 21
  - 4. The Legislature Should Direct The LIPA To Increase Its Investments in Demand Side Management 24

II. The Review Process for the Siting of New Generation Facilities Must Be Streamlined 25
- A. Decide Which Siting Applications Merit A Preference for Earlier Review 27
- B. Designate a Project Manager for Each Application 29
- C. Require Applicants to File Environmental Permit Applications with the DEC Before Filing a Siting Application 29
- D. Establish a 30-Day Time Limit to Negotiate Voluntary Stipulations 30
- E. Appoint An Ombudsman For Each Project 31
- F. Set Deadlines for Transmission and Distribution Owners to Contribute to System Reliability Impact Studies 31
- G. Assign Responsibility for Transmission System Upgrades Necessary for New Generating Capacity 32

III. Additional High Voltage Transmission Capacity is Needed 32
- A. Bottlenecks in New York Transmission Cut Off Access to Cheap Power 33
- B. New York's Transmission System has been Neglected 34
- C. Upgrades to New York Transmission Capacity Should Not Await Approval of a Regional Transmission Organization 34

IV. New York Should Encourage New Sources of Generation 35
A. Renewable Generation Sources Should Provide at Least an Additional 10 Percent of New York's Electricity 36
1. The Attorney General Will Use Settlement Funds to Develop Wind Power 38
2. The Legislature Should Enact a Renewable Portfolio Standard 38
B. Policies are Needed to Increase Clean Distributed Energy Sources. 40
1. The Legislature Should Offer Financial Incentives to Develop Clean Distributed Generation 42
2. The Legislature Should Expand the Solar Net Metering Law to Include Wind and Small Hydro Power 43
3. The PSC Should Eliminate Unjustifiable Barriers to Clean Distributed Generation 43
4. NYPA Should Work With Local Governments to Install Fuel Cells at Landfills and Wastewater Treatment Facilities 44

V. Power Prices Must Not Be Permitted To Skyrocket During the Transition to Competitive Markets 45
A. New York Wholesale Power Markets Must be Significantly Reformed 45
1. NYISO Background 46
2. The NYISO Must Ensure That Energy Sellers Cannot Unfairly Exercise Market Power to Raise Electricity Prices 48
a. Automatic Mitigation Must be Implemented Quickly 49
b. Existing Forward-Looking Market Monitoring Must be Strengthened 51
i. The NYISO's Market Monitoring Triggers Must be Refined 51
ii. Authority for Retroactive Mitigation Must be Obtained 51
iii. The Current $1,000 Per MegaWatt Hour Price Cap Must be Retained 53
iv. The NYISO Should Implement Virtual Bidding to Expand Competition 53
c. Exposure to Volatile Prices Must be Minimized Without Shielding Customers From Market Price Signals 55

VI. Demand for Electricity Must be Reduced to Minimize the Environmental and Public Health Impacts of Generation and to Assure Market Competition and Stable Prices 57
A. Market Barriers to Energy Efficiency 61
B. The Legislature Should Enact Tax Incentives to Purchase Efficient Appliances 62
C. The Legislature Should Create an Efficiency Portfolio Standard 63

D. The Comptroller Should Report Annually on Energy Efficiency and Renewable Energy Programs 65
E. The PSC Should Improve Pricing and Revenue Signals to Encourage Flexible Demand and Conservation 66
1. Utilities Should Widely Advertise Offers for Different Time-of-Day Rates to Residential Customers to Encourage Load Shifting 66
2. Direct Metering or Submetering Should be Expanded 67
3. Utilities Should be Given Incentives to Encourage Energy Efficiency and Clean Distributed Generation 68
F. The Federal Government Should Implement New Appliance Efficiency Standards 69

VII. Challenge and Encourage New Yorkers to Assist in Reducing Demand 70

APPENDIX

Table A-1 Electricity Savings: Incandescent vs. Compact Fluorescent Lights 72

Table A-2 Electricity Savings, Electricity Cost Savings, and Carbon Dioxide Emissions Avoided By Implementing Efficiency and Conservation Measures in One Household and in All New York Households 74

ATTORNEY GENERAL'S ACTION PLAN
FOR A BALANCED ELECTRIC POWER POLICY IN NEW YORK STATE

INTRODUCTION

Electric power is in the news and on everyone's mind these days, with good reason. While we usually take for granted this invisible but vital force that permeates our daily lives and provides the power without which our modern society could not exist, recent events in New York and elsewhere demand our close attention and immediate action.

As the economy has grown rapidly in New York over the last decade, so has the demand for electricity. Demand has risen so dramatically over the past several years that it is now outstripping available supply in New York, particularly in New York City and Long Island where transmission constraints require most power to be generated locally. Moreover, in New York's restructured market – where the price of power no longer reflects a regulated price, but rather a market price – the current supply/demand imbalance has caused dramatic price spikes in electricity bills. For example, Con Edison's customers saw their bills increase an average 30 percent last summer, even though it was the coolest summer in years. California's forced rolling blackouts, soaring energy prices, and threatened bankruptcy of several major utilities have also heightened New Yorkers' concerns.

At the same time as New York confronts price spikes and potential shortages, we are faced with continuing reports of the impacts of electricity generation. Power plant emissions contribute greatly to acid rain and urban smog, which, in turn, cause tremendous damage to our health and our environment. Urban smog exacerbates asthma, which is increasing rapidly in New York City and other urban areas – especially among children. Acid rain is killing entire ecosystems in the

Adirondacks and other treasured natural areas. Mercury emitted by coal-fired plants contaminates fish, and greenhouse gases such as carbon dioxide change the climate. Power plant cooling water intake systems injure fisheries upon which many New Yorkers depend.

Clearly, New York needs to find better ways to meet its electricity demands at a reasonable cost while also protecting its citizens' health and the State's natural resources. To meet growing electricity demand, the State has had to rely largely on existing power plants, many of which are old, inefficient, highly polluting, and insufficient to meet projected demand. New York policymakers would be foolhardy to ignore the lessons of California, and our own experience, in developing energy policy.

We must move now on two fronts to develop a sustainable, balanced energy policy that ensures customers a reliable and reasonably priced power supply and that preserves our environment and protects our health. We must meet our immediate short-term needs by increasing clean supply and reducing the growth in demand through conservation and efficiency. We must also secure the longer term by using electricity more efficiently and shifting our dependence on fossil fuel toward renewable sources of electricity.

For the short term, New York must plan for the summer of 2001. Summer is when the demand for power is the greatest in our region, as more air conditioning is used in response to hot weather. We must have enough power supply available downstate to meet expected demand without skyrocketing prices. The power generators the New York Power Authority ("NYPA") is placing downstate - among the cleanest and most efficient available - are a sound approach to accomplish those goals. At the same time, investments in energy efficiency must be significantly increased. The New York Independent System Operator ("NYISO") must enhance the design

and operation of the state's electricity markets to avoid price spikes based on abusive market power, and to ensure the integrity of the wholesale power market. Unless these markets work competitively, deregulation cannot achieve its goals, and consumers, the economy, and the environment will suffer as windfalls are reaped by the few at the expense of the many.

For the longer term, we must address not only *how much* power we have available, but *how* that power is generated. To protect our health and natural resources, the State must move to a cleaner electricity supply and contain the ever-expanding growth of demand. Relying more on renewable energy and using electricity efficiently should also lower bills for consumers.

To assure reliable electricity at steady prices we must build new sources of electric power, expand transmission capacity to reach more existing sources of power, and create more flexible demand during peak demand periods through demand-side management, conservation and more efficient consumption. We can achieve this new, balanced energy portfolio by improving the plant siting process, by enacting policies that promote clean distributed generation and the use of renewable energy sources, and by increasing transmission capacity to allow market sited plants to serve the entire state. We must also ensure that new clean generating capacity displaces older, dirtier, and less efficient power plants.

These goals are achievable if we work together and act with care and speed. New York is one of the largest energy users in the United States, which is the largest energy user in the world. Thus, our choices can have a major influence on global as well as local energy policies and environmental impacts. The following recommendations are a first step toward a balanced strategy on electric power.

EXECUTIVE SUMMARY

The demand for electricity in New York has grown dramatically over the past several years, primarily due to a rising economy. Supply however, has not kept up, raising reliability concerns for the future. New York has also recently restructured its electric power markets, and the current supply/demand imbalance has been reflected in the price of power, sometimes leading to dramatic price volatility in electricity bills downstate. As we confront our energy needs, we must recognize the impacts of electricity generation. Power plant emissions contribute to acid rain, smog, toxic pollution and climate change, all of which have a serious deleterious impact on our health and environment. These facts raise both short-term and long-term concerns for New York about the price, reliability, and impacts of electric power. New York needs to find better ways to meet its electricity demands at a reasonable cost while also protecting its citizens' health and the State's natural resources.

Recommendations

The Attorney General's Bureaus of Telecommunications & Energy and Environmental Protection recommend the following measures:

A. Short-Term Measures

Currently, New York's growing imbalance in supply and demand is greater downstate than upstate, due to the nature of transmission constraints, which make it difficult for significant power to be sent downstate. We must be sure we have enough electric power supply this summer to meet the anticipated peak demand downstate by increasing clean sources of electricity generation and by reducing demand through aggressive conservation and efficiency measures. Not

only must we make sure that the lights stay on this summer, but also that there is enough supply so that electricity prices do not skyrocket.

2. New supply is needed, particularly in downstate areas. Estimates of peak supply shortfall downstate in the summer of 2001 require the additional generation proposed by the New York Power Authority ("NYPA") and others.

3. Immediate efforts to reduce demand will improve reliability, lower price and reduce the need for more supply. Funding for the three existing State programs that promote energy efficiency, conservation and renewable energy must be increased. The Attorney General is directing a portion of its future power plant settlement funds -- totaling approximately $20 million – to the New York State Energy Research and Development Authority ("NYSERDA") for efficiency, conservation and renewable energy programs. Funding for NYPA efficiency programs should be increased immediately from its current level of $60 million annually to $160 million per year, with an emphasis on projects to reduce peak demand in New York City and Long Island. Funding for Long Island Power Authority ("LIPA") efficiency programs should be increased this spring from $32 million per year to $50 million per year. With increased funding for these demand-reducing programs, it is estimated that over 600 MW of generation capacity needs could be avoided statewide over the next two years.

B. Long-Term Measures

In the longer term, we must address not only *how much* power we have available, but *how* that power is generated and used. To ensure environmental protection, a reliable electricity system, and reasonable prices for electricity, we must develop policies today that (1) improve the siting process for new power generation, (2) upgrade the transmission and distribution system,

(3) increase renewable energy and clean distributed generation sources, (4) protect the consumer, and (5) contain the growth of demand and protect the environment.

1. We must increase our supply for the long term. The State needs to recognize that an increase in supply is necessary to keep up with demand. We need to be innovative and forward-looking in considering how to increase supply while protecting our environment.

a. The siting process must be improved. The Siting Process must be improved to ensure that necessary new generating facilities come on line expeditiously, with the least possible impact on the environment and public health:

- The Legislature should require the Siting Board and New York State Department of Environmental Conservation ("DEC") to decide which siting applications merit a preference for earlier review.
- The Siting Board should designate a project manager for each application.
- The Siting Board should require applicants to file environmental permit applications with DEC before filing a siting application.
- The Siting Board should establish a 30-day time limit to negotiate voluntary stipulations.
- The Siting Board should appoint an ombudsman for each project to be a focal point of contact for community groups and to mediate disputes.
- The New York State Independent System Operator ("NYISO") should set deadlines for Transmission and Distribution Owners to contribute to system reliability impact studies.
- The PSC and the NYISO should assign responsibility for transmission system upgrades necessary for new generating capacity.

b. New and upgraded transmission lines are needed. New York needs additional high voltage transmission capacity to move large quantities of power from places with surplus power to areas that currently contain limited generating capacity. For decades, transmission

bottlenecks have restricted the efficient use of New York's overall existing generating capacity as well as access to supplies from out-of-state. Despite these infrastructure flaws, investment in transmission has declined significantly since 1988. Steps have been taken to establish a federally-sanctioned regional transmission organization ("RTO") to address New York's transmission needs. However, whether or when such an RTO will begin operations remains uncertain. The PSC and the NYISO have the authority to begin the work needed to relieve New York's transmission bottlenecks, and should begin immediately.

c. Renewable generation and clean distributed generation sources should be increased. Until recently, solar and wind generation were not economically competitive with fossil fuel power generation. New technologies for solar and wind generation, combined with increased fossil fuel costs, have narrowed the cost gap considerably. The Legislature should join New Jersey, Massachusetts, Connecticut, Texas, and many other states by adopting a Renewable Portfolio Standard ("RPS") requiring retailers of electricity to include in their portfolio of supply an increasing percentage of renewable generation.

Policies are also needed to increase clean distributed energy sources. The need for large power plants and the strain on the transmission system could be lessened by distributing small-scale generation units (*i.e.* fuel cells, wind generators, small-scale hydro, solar cells, and cogeneration facilities) that use minimally polluting technologies directly on the site where the electricity is to be used. The Legislature should (i) expand tax credits for the purchase of clean distributed generation technologies, and (ii) expand the Solar Net Metering Law to include wind and small hydro power -- allowing owners of such generation to sell excess power generated back to the grid. In addition, NYPA should work with local governments across the State to install fuel cells at landfills and

wastewater treatment facilities, which produce large quantities of methane that can be used to power fuel cells.

2. The consumer must be protected during the transition to competitive markets.

a. The NYISO must enhance its market monitoring and price mitigation functions. Electricity prices must not be permitted to soar during the transition to competitive markets for this vital service. The NYISO has made significant progress toward developing competitive power markets and in monitoring the markets for potential abuses of market power. However, more needs to be done to ensure stable prices for the summer of 2001 and beyond, whenever supply and demand are severely out of balance. The NYISO must implement its proposed "automatic" mitigation, which seeks to ensure that prices reflecting potential abusive exercise of market power do not set the market-clearing price. The NYISO must also strengthen its current forward-looking market mitigation, by obtaining approval from the Federal Energy Regulatory Commission ("FERC") to order retroactive refunds when abuses of market power are timely identified. The current $1,000 per megawatt-hour cap on the price of wholesale power should be retained, and should be kept in line with any price caps in adjoining markets, until a judgment is made that New York's markets are reasonably competitive, especially during times of peak demand.

b. Consumers must be protected from extremely volatile electricity prices while receiving necessary market price signals. During the transition to deregulation, utilities should bear some of the risk of high wholesale market prices with customers, rather than completely passing through such prices to consumers. This will incentivize utilities to better manage their risk,

while affording consumers price signals upon which to make decisions about electricity use.

3. Demand must be contained over the long term and the environment must be protected. As the economy and population grows, so will demand. We must meet growth without increasing degradation. Aggressive measures to reduce demand, together with construction of clean and renewable power plants, will greatly increase the probability that older, highly polluting power plants will be displaced.

The NYSERDA, NYPA and LIPA programs that fund efficiency and renewable projects are not required by law. NYSERDA's funding expires in 2006, NYPA's funding is year-to-year, and LIPA's funding expires in 2004. The Legislature should mandate that these programs be funded at a higher level for at least the next ten years. In addition, the Legislature should enact other financial incentives to reduce demand, such as exempting the most energy efficient products from sales tax.

The PSC should improve pricing and revenue signals to encourage flexible demand and conservation. Utilities should promote offers for different time-of-day rates to residential customers to encourage load shifting, and master-metered buildings in New York State should be converted to direct metering or submetering. The PSC should also consider changing the way it regulates the price of electricity distribution. If the rate structure rewarded retailers for reductions in demand, energy conservation would more likely become a priority.

State government can bring utilities into the State's energy efficiency efforts by enacting an Efficiency Portfolio Standard, requiring retail sellers of electricity to achieve certain levels of demand reductions in their service area. The Federal government can similarly act to implement stringent minimum energy efficiency standards for appliances and other electrical products to

reduce demand for electricity nationwide.

* * *

No one proposal within this report stands alone. This package of proposals recognizes the need to address both supply and demand. In so doing, the State will best promote the growth of competitive electric power markets while also protecting both consumers and the environment. Taken together, these recommendations are a balanced approach to address the State's short-term and long-term electric power needs and to lay the foundation for a sustainable energy policy for the future.

I. New York Must Address its Growing Imbalance in Electric Supply and Demand

A. Electricity Supply and Demand are Out of Balance

The recent rapid and welcome growth in New York's economy has spurred a dramatic increase in demand for electricity. Statewide, peak demand for electricity is estimated to be increasing at an annual rate of 1.4 percent, with demand increasing in some regions at more than twice the state-wide rate.[1] Growth in generating capacity and investments in efficiency have not kept pace. Indeed, addition of new electric power sources in New York State has slowed dramatically over the last five years, even compared to the limited amount of capacity built between 1990 and 1995,[2] and state-mandated demand-side management investments (and their associated savings in needed generating capacity) have declined from a high of $330 million in 1993[3] to approximately $170 million in 2000.[4] This growing imbalance between supply and demand, if unaddressed, can lead only to ever-soaring electric power prices and eventual blackouts. However, increasing capacity without regard to environmental considerations, will

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[1] *See, NYISO Installed Capacity Load Forecast Study for Summer 2001. Http://www.nyiso.com/markets/icapinfo.html#summer_2001.*

[2] Only 308 MW of power were added between 1996-2000, compared with 3,410.7 MW added between 1990 and 1995. This data is based on NYISO registration dates for New York power plants currently operating.

[3] New York State Energy Planning Board ("NYSEPB"), *New York State Energy Plan and Final Environmental Impact Statement.* November 1998. p. 3-60, 3-62.

[4] State-mandated DSM Funding in 2000 came from three sources: 1) SBC, *See Order Continuing and Expanding the System Benefits Charge for Public Benefit Programs*, Case NO. 94-E-0952, *et. al.*, (January 26, 2001); 2) NYPA, *see* NYPA press release, November 30, 2000; and 3) LIPA, see LIPA, *Clean Energy Initiative*, May 3, 1999.

exacerbate our state's air pollution problems**.**

The present facts are stark. New York State has a geographical mismatch between generating capacity and where electricity is used.[5] Physical limitations on the amount of electricity that can be transported from one part of the state to another over the existing high voltage transmission system mean that western New York has surpluses of power whereas eastern New York, particularly downstate in New York City and Long Island, are short. Moreover, additional capacity is required to ensure that the lights can be kept on even if a major generating unit or transmission line fails. These reserve levels are required to be 18 percent above the projected peak demand for electricity statewide and in given areas.

New York City is projected to have a summer 2001 peak demand of 10,535 MW,[6] up 4.6 percent from the record peak demand of 10,076 MW during the July 1999 heat wave.[7] The NYISO estimates that New York City will be a glaring 397 MW short of required capacity during the upcoming summer. Electricity supply on Long Island is only slightly better. For Long Island, the NYISO projects a summer 2001 peak demand of 4,733 MW and a capacity shortfall of 131

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[5] New York State's total summer electric generation capacity is 35,098 MW. NYISO *2000 Load And Capacity Data Report*, July 1, 2000, Table III-2, p. 55. Seasonal effects change capacity levels for certain generators, resulting in a state-wide winter capacity of 36,649.8 MW. One megawatt is the amount of power required to light 10,000 100-watt light bulbs. Because demand for electricity peaks in the summer, the winter capacity has less significance for system reliability concerns. The summer peak electricity demand for New York State in 2001 is projected to be 30,620 MW. *See, NYISO Installed Capacity Load Forecast Study for Summer 2001. Http://www.nyiso.com/markets/icapinfo.html#summer_2001.*

[6] NYISO February 15, 2001 *Locational Installed Capacity Requirements Study*.

[7] The power outages experienced in parts of New York City and Westchester County that began on July 6, 1999 were caused by failures in Con Edison's distribution network, not insufficiency in supply. *See*, New York State Attorney General's report, *Con Edison's July 1999 Electric Service Outages*, March 9, 2000.

MW.[8]

For 2001 NYISO forecasts a 1.7 percent annual increase for New York City and a 2.3 percent annual increase for Long Island.[9] Thus, projected summer peak demand in 2002 and 2003 for both New York City and Long Island may well exceed available generating capacity unless supply and demand are quickly aligned.[10] As shown in Table 1, if current demand growth continues unchanged for the next two years, no more generation capacity is added, and efficiency and conservation are not improved**,** both New York City and Long Island risk being unable to supply sufficient power.

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[8] These estimates do not take into account the proposed NYPA generating units or additional projected capacity increases on Long Island. NYISO February 15, 2001 *Locational Installed Capacity Requirements Study*. *See also*, NYISO, *Power Alert: New York's Energy Crossroads*, March 2001, p. 19, and NYISO March 14, 2001 press release, *Expedited Power Plant Development & More Customer Choices Needed To Avoid California-Type Energy Crisis, Says NYISO Report*.

[9] *See, NYISO Installed Capacity Load Forecast Study for Summer 2001*. *Http://www.nyiso.com/markets/icapinfo.html#summer_2001*.

[10] *See*, NYISO Press Release, *New York Independent System Operator Finds That New York City Faces Electricity Shortage*, February 14, 2001. *See also*, NYISO, *Power Alert: New York's Energy Crossroads*, March 2001, p. 19.

Table 1
Downstate New York Shortage Without More Generation Or Reduced Demand[11]

(MegaWatts)

Zone	2001 Zone Capacity Required	2001 Current Capacity	2001 Current Deficit	2002 Zone Capacity Required	2002 Projected Deficit	2003 Zone Capacity Required	2003 Projected Deficit
NYC	8428	8031	- 397	8560	- 529	8680	- 649
LI	4638	4507	- 131	4709	- 202	4776	- 269

In addition to these estimates, the Public Service Commission ("PSC") has identified a "statewide need for 600 MW plus per year of capacity additions to satisfy the demands of a growing economy" and "an immediate need for 300 MW [of added capacity now in New York City], and an additional 200 MW each year thereafter."[12] PSC Chairman Helmer has also stressed that New York must use effective strategies to cut demand, comparing building power plants alone to trying to clap with one hand.[13]

While electricity conservation and demand management programs could substantially reduce the amount of additional generation needed, it is clearly imperative that clean supply be increased, both for the short-term downstate, and for the long-term throughout the state. Indeed, new clean and efficient power plants, combined with aggressive demand-side management and

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[11] Source: NYISO, *Power Alert: New York's Energy Crossroads*, March 2001, p. 19.

[12] *See*, August 2, 2000 testimony of PSC Chairman Maureen Helmer before the Assembly Standing Committee on Energy, *Http://www.dps.state.ny.us/testimony_8_2_ 2000.htm, p.*3.

[13] *See*, Albany Times Union, *Demand the Key to Power Supply*, March 6, 2001, p. E1.

renewable energy investments, should displace older, dirtier power plants and yield reduced emissions and increased generating capacity.

B. Supply Must be Greater than Demand, to Avoid Power Outages, and Keep Electricity Prices from Skyrocketing

In competitive markets, when demand is inflexible and approaches the limits of available supply, the price paid for a product will climb dramatically. This characteristic is especially salient in the case of wholesale electricity markets, where demand currently is relatively inflexible, and where the physical properties of electrical generation and flow are such that electricity cannot be stored in any significant quantity, but is generated, transmitted, and used virtually instantaneously.[14] The amount generated and put into the transmission grid must be balanced with the amount consumed second by second, or the entire system could break down. [15] When demand threatens to outstrip supply during periods of peak use, price spikes will occur. Electricity will be less expensive if surplus capacity is sufficient not simply to keep the lights on, but to keep wholesale prices competitive.

Once a sufficient number of private sector new generation projects are approved to be

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[14] Buyers in other power markets, including natural gas, can ride out peak demand periods by drawing down storage supplies and avoid paying volatile spot prices.

[15] Different generation plants have vastly differing production costs, according to their size, design, operation, and fuel source. Large steam powered generators and nuclear power plants (in the 500 - 1,000 MW range – called "base load" units), cannot be activated quickly, nor can they rapidly adjust electricity output. Therefore, owners of such units normally offer their power into the market at relatively low prices, to ensure that it will be dispatched and they will not have to dump excess output. At the other end of the spectrum, small gas turbines (ranging from 20 to 60 MW) are designed to allow for quick startup and output adjustment and, due to their high operating costs, are most often used during peak hours. Peaking units, including gas turbines, experience greater wear and maintenance costs if run for extended periods. To recover their investment and operating expenses over a relatively limited number of unpredictable hours of use, owners of such units usually offer power at high prices.

brought on line, market forces can be expected to bring supply into better balance with demand, yielding greater wholesale market price stability.

Until we have more experience with market participant behavior, it is difficult to ascertain what specific amount of capacity would provide sufficient surplus to not only assure reliability but also stabilize market prices during peak demand periods. As much as 10-20 percent surplus during peak demand may be required to avoid the steep end of the price curve. The NYISO projects that by 2005, if no new generation is added in New York, "statewide prices could be expected to increase by about 14 percent from present levels", but "[i]f supply is allowed to grow ... statewide prices should actually decrease and could be 20 - 25 percent lower than if no new generation is added," resulting in statewide "savings of over $1.4 billion annually in 2005." [16] Because the mix of generator types and sizes varies in each of the eleven zones where NYISO administers market prices, the surplus capacity needed to avoid volatile prices will necessarily differ for each zone.

C. NYPA's Proposed Generators for New York City are Necessary to Meet Peak Demand for Summer 2001

For the immediate term, by the summer of 2001, we have no choice but to increase the available power downstate by at least 528 MW, *i.e.*, 397 in New York City and 131 MW in Long Island. The NYPA has received approval to construct eleven new gas turbines in New York City with a combined output of 443.5 MW, most of which are expected to be operational at the start of the upcoming summer cooling season. In addition, the Astoria No. 2 plant (a former Con Edison generator fueled by natural gas) is expected to be repowered by Orion Power Holdings, Inc. and

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[16] *See*, NYISO, *Power Alert: New York's Energy Crossroads*, March 2001, p. 9. This NYISO projection assumes that 8,600 MW would be added to New York's supply, and does not include inflation or fuel cost increases.

available sometime during summer 2001, which would add 170 MW. Another 60 MW to the generating capacity in New York City is anticipated from Con Edison's planned reactivation of the Hudson Avenue No. 10 plant (Brooklyn).[17] These new NYPA and repowered units, if completed in time, should address the risk that New York City might otherwise have insufficient power supply if demand peaks at forecast levels.[18]

The NYPA units, which burn natural gas as a fuel, are considered relatively clean in terms of emissions[19] – they emit virtually no sulfur dioxide ("SO_2") and less nitrogen oxide ("NO_x") than oil or coal-fired plants. Thus, the potential air quality impact of this supplemental generation capacity should be limited.[20] In addition, the NYPA has committed to reducing air emissions at other New York City plants so overall air emissions will not increase.[21] Each new unit is comparatively small in scale, which should minimize impact on local communities.[22]

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[17] While a number of other small-scale potential capacity additions to existing units in New York City are being pursued at various sites, it is difficult to determine with certainty which efforts will be brought on line and whether they will meet the need when demand peaks.

[18] The Attorney General supports this effort, but takes no position on the particular sites selected for the NYPA generators.

[19] Power plants emit significant quantities of pollutants, especially sulfur dioxide, nitrogen oxides, particulate matter, carbon dioxide, and mercury. These emissions contribute to acid rain and regional haze, and are dangerous to human health as well as to the health of fish and wildlife.

[20] The NYPA has stated that they will use the best available emission control technology to reduce NO_x, particulate matter, sulphur dioxide and carbon monoxide emissions. In addition, the NYPA performed an analysis of the turbines' fine particulate (PM2.5) pollution and determined the increase to be insignificant. The DEC has issued air pollution control and acid rain permits limiting emissions for each of the sites.

[21] DEC Press Release, dated January 12, 2001. The state's Department of Environmental Conservation (" DEC") and the NYPA should formalize an agreement on reduction of overall area emissions.

[22] The NYPA has also committed to noise mitigation measures at some of the new sites.

On Long Island, the NYPA is installing one 44 MW capacity gas turbine at the former site of Pilgrim State Hospital. In addition, Keyspan is upgrading its Holtsville unit to increase output by 5 MW, and other gas turbines that will add 35 MW more generating capacity on Long Island. A merchant generator turbine is slated for Far Rockaway with 44-50 MW of capacity. Together, these planned additions will barely satisfy the 131 MW capacity needed for Long Island reliably to meet forecast demand. Some of these new units are not expected to be operational by the May 1, 2001 start of the peak season, but instead may not be available until July 1. Even with the anticipated new generating unit upgrades and additions, Long Island electric power resources are likely to be stretched to their limit during peak demand periods this summer.

D. Current State Programs that Promote Energy Efficiency and Renewable Energy Should be Expanded

Several programs in New York State currently encourage energy efficiency and renewable energy. Most are implemented by the New York State Energy Research and Development Authority ("NYSERDA"), the NYPA, and the Long Island Power Authority ("LIPA").[23] They have proven to be highly successful and offer a good starting point for an expanded state efficiency effort.

[23] The NYPA and LIPA are publicly-owned not-for-profit utilities, whose programs are funded by rates charged their customers.

1. The Attorney General is Directing Power Plant Settlement Funds to Supplement NYSERDA Programs

The Attorney General, through his authority to enforce federal and state environmental protection laws, has embarked on a number of clean air initiatives. The Attorney General sued out-of-state coal-fired power plants that upgraded or expanded their old power plants without installing the pollution controls required by the Clean Air Act. The Attorney General, with the DEC, is also pursuing legal action against similar plants in New York. Recognizing the priority the people of New York have assigned to clean air and a balanced energy policy, the Attorney General is negotiating to ensure that settlements are directed to enhancing renewable energy development and efficiency.

The Attorney General is working with the NYSERDA and DEC to ensure settlement funds are spent most effectively to promote energy efficiency and renewables. The settlement funds may also be used to fund some of the transmission infrastructure needed to make available additional wind resources. While agreements-in-principal have not been finalized - - and other cases are in negotiation or litigation - - the lawsuits are likely to yield $20 million or more that can provide the catalyst for an additional 10-30 MW of renewable energy and perhaps 10 MW of savings through efficiency.

2. The Legislature Should Ensure Funding for NYSERDA Programs by Extending the System Benefits Charge

The NYSERDA's programs, under the umbrella of the New York Energy Smart program, are designed to improve energy efficiency through education, improved operations, purchases and use of energy efficiency equipment and services, and technology development and demonstration. The 38 New York Energy Smart programs, range from market transformation (*e.g.* ensuring retail

stores offer efficient products to their customers) to low-income assistance (*e.g.* direct installation of efficiency measures in low-income households) and renewable energy development (*e.g.* production incentives to wind farm developers).

The NYSERDA's programs are funded by the System Benefits Charge ("SBC").[24] The SBC is a small, non-bypassable charge per kilowatt-hour to all customers buying electricity transmitted and distributed by the State's investor-owned utilities. Currently, the SBC rate is just over one-tenth of one cent per kilowatt-hour and collects $150 million per year.[25] The existence of the SBC derives from a PSC Order that expires in 2006.[26] The Legislature should codify the SBC and extend it five years to ensure a long-term, reliable source of funding for energy efficiency and renewables. In addition, the Legislature should make permanent programs funded by the SBC that improve efficiency in low-income households.

The NYSERDA has used over $71.8 million SBC funds since 1998 to encourage efficiency and renewable power investments. These investments have resulted in estimated electric savings of 486,000 MWh annually; demand reduction of at least 125 MW; reductions to electric, fuel oil, and natural gas bills of $54 million annually; reductions to annual air emissions of 464 tons of NO_x, 774 tons of SO_2, and nearly 335,000 tons of CO_2; and the creation of over one thousand

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[24] In *Opinion and Order Regarding Competitive Opportunities for Electric Service*, Case NO. 94-E-0952, *et. al.*, (May 20, 1996), the PSC created the SBC to mitigate the potential adverse environmental impact of restructuring the electric industry.

[25] *See, Order Continuing and Expanding the System Benefits Charge for Public Benefit Programs*, Case NO. 94-E-0952, *et. al.*, (January 26, 2001), p. 12. A small percentage of the funding is administered by the utilities.

[26] *Ibid.*

jobs.[27] While the $71.8 million was paid out once, the savings are annual. Based on this experience, a one-time investment of $100 million in energy efficiency reduces consumer bills by about $75 million per year. This annual savings accumulates over the lifetime of the efficiency measure, yielding a net savings of $375 million over the first five years for just the first year's investment.

The NYSERDA estimates that the total effect of SBC expenditures through the summer of 2002 will reduce peak demand between 600 and 660 MW and between 1,200 and 1,300 MW through 2006.[28] These programs, so critical to New York's energy and environmental future, should be codified.

3. NYPA Should Work With its Customers to Reduce Demand by an Additional 200 MW Over the Next Two Years Beyond Its Current Goals

The NYPA currently provides about $60 million annually to its customers for demand-side management projects and recovers its costs by sharing in the electric bill savings. These projects cost taxpayers nothing to implement, but realize approximately $65 million annually in energy bill savings, and save enough energy each year to service 300,000 people, and avoid 360,000 tons of CO_2 emissions.[29] While the NYPA's demand-side management initiatives currently achieve

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[27] NYSERDA, *New York State Energy Smart Program Evaluation and Status Report, Report to the System Benefits Charge Advisory Group. Interim Report,* September 2000.

[28] NYSERDA, *Proposed Operating Plan for New York Energy Smart Programs (2001-2006),* February 15, 2001, pp. 2,3.

[29] The NYPA's efficiency programs have successfully reduced electricity use and electricity bills. For example, the NYPA is working with the New York City Housing Authority (NYCHA) to replace 180,000 refrigerators with more efficient varieties over 8 years. After this project is completed in 2003, NYCHA will reduce energy consumption by 103,000 MWh per year and save over $7 million annually in energy costs. Similarly, its High Efficiency Lighting Program provides energy-efficiency improvements such as new lighting and upgrades to heating, ventilation and

capacity savings of between 20 and 60 MW per year,[30] significant opportunities exist for greater savings.[31] The NYPA's customers, many of which are public entities, consume over 20 percent of the state's electricity, making this agency well situated to advance the state's need for more aggressive energy efficiency efforts. By reducing the government's demand for electricity, The NYPA can save taxpayers hundreds of millions of dollars in electricity costs. The NYPA should work with its governmental and business customers to reduce demand and increase clean distributed generation and renewable energy by at least an additional 100 MW per year over the next two years and commit to fund its demand-side management programs at an increased level over the next ten years.

Because of the dual benefit of reducing demand and reducing the electricity bills of public entities, the Governor should direct all State agencies to report on energy use and recommend how

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air-conditioning systems with no up-front costs to government and educational institutions. These measures can cut up to 25 percent on electric consumption. *See, Http://www.nypa.gov/html/es.htm. See also* NYPA press release, November 30, 2000.

[30] The NYPA currently spends approximately $60 million per year on demand-side management ("DSM"), but information regarding the amount of generating capacity saved is unavailable. Capacity savings were estimated based on past DSM investments. Between 1990 and 1996, the NYPA spent $255 million on demand-side management programs and reported saving 84 MW (0.33 MW per million dollars spent). Between 1990 and 1997, Investor-Owned utilities spent $1,277 million on DSM and reported saving 1,377 MW (1.08 MW per million dollars spent). Thus, an annual $60 million investment could result in a capacity savings of between 20 and 60 MW per year.

[31] For example, one of the NYPA's largest customers, the Metropolitan Transportation Authority, uses approximately 1,800,000 MWh per year. By updating its lighting and signal systems and other efficiency/conservation projects, it is conservatively estimated that the MTA could reduce its electricity use by 2%. (The NYPA reports that they can achieve up to a 25% reduction in energy consumption for each efficiency project they undertake. Thus a 2% overall reduction is a conservative target.) This project alone could reduce peak demand in New York City – a load pocket – by at least 4 MW, saving 36,000 MWh per year and $2,520,000 in annual energy costs (based on a rate of 7 cents per kWh - the NYPA's rates vary). *See NYPA 1998 Annual Report*.

to reduce both base and peak demand within six months. The NYPA should work closely with the State agencies to develop and implement those recommendations, including providing the financing necessary to obtain technical assistance, conducting energy audits, and purchasing and installing more efficient motors, lights, and other appliances or devices.

The NYPA should also expand its existing efficiency programs to include more local governments and school districts statewide, further reducing electricity costs for taxpayers. The Legislature should direct the NYPA to provide funding for local governments to assess their energy efficiency opportunities within 6 months (for New York City and Long Island) or 12 months (for upstate areas) and reach agreements for their implementation.

The NYPA sells approximately 40,000,000 MWh of electricity per year, much of it to government and educational institutions.[32] For the NYPA to achieve 200 MW in additional savings beyond its current program, it will need to reduce energy consumption from all of its customers by 7 percent over two years.[33] This would save the NYPA's government customers (*i.e.* taxpayers) and business customers $196,224,000 in energy costs annually.[34] The environmental gains would be commensurately large – an estimated 2.7 million tons of CO_2, 14,280 tons of SO_2, and 5,320 tons of NO_x would be avoided.[35] Finally, energy savings of this

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[32] New York Power Authority 1998 *Annual Report*, p.19.

[33] The NYPA would need to achieve 320 MW savings over two years to meet the Attorney General's proposal, assuming the NYPA already achieves 60 MW savings per year through its existing $60 million per year program. A 7% reduction in electricity use = 5,600,000 MWh. 320 MW x 17,520 hours per two years = 5,600,000 MWh.

[34] Based on a rate of 7 cents per kWh. The NYPA's rates vary.

[35] Based on average statewide emission rates according to PSC Historical Fuel Mix and Emissions Data. *Http://www.dps.state.ny.us/fuelmix.htm*.

magnitude would reduce stress on the existing system, improving reliability.

4. The Legislature Should Direct LIPA to Increase Its Investments in Demand Side Management

Shortly after the LIPA acquired the Long Island Lighting Company, its Board of Trustees issued a Clean Energy Policy Statement that declared the LIPA would establish a Clean Energy Initiative to support energy efficiency, clean distributed generation and renewable technologies. The LIPA funded the Clean Energy Initiative at $32 million per year for five years and began implementation in mid-1999.[36] In light of the current demand/supply imbalance on Long Island, the Legislature should direct the LIPA to increase its funding for the Clean Energy Initiative from $32 million to at least $50 million per year for ten years.

The LIPA's existing Clean Energy Initiative – projected to obtain 144 MW of demand-side energy capacity savings by the time it expires in 2004[37] – will not realize all of the potential for

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[36] The LIPA's Clean Energy Initiative offers many programs, including rebates for energy efficient products in their "EnergyWise" catalog. More than 37,000 lighting products have been ordered through the program and an additional 170,000 compact fluorescent lights have been sold in home improvement stores. Together, they represent potential electric savings of nearly $9 million and over 2,970 MWh of electricity. The LIPA's Residential Energy Affordability Partnership, a low-income energy efficiency program much like the NYSERDA's, directly installs energy efficiency measures, such as compact fluorescent lighting, refrigerators, wall and attic insulation, and programmable thermostats. The Solar Pioneer Program offers direct consumer incentives toward the installation of qualified photovoltaic systems between 250 and 10,000 watts, as well as a $3.00 per watt rebate for installing approved solar equipment.

[37] Estimated peak load reductions during the first year of the Clean Energy Initiative, totaled approximately 39 MW. Energy reductions resulting from the Clean Energy Initiative during 1999 were estimated to total approximately 16,000 MWh. These savings were achieved within one year of the LIPA's approval of the Clean Energy Initiative, demonstrating how quickly efficiency measures can be effective. At the end of the five-year, $160 million program, the LIPA estimates that it will save 191,000 MWh of energy per year and avoid the need for 144 MW of capacity. *See*, LIPA, *Clean Energy Initiative*, May 3, 1999.

capacity savings on Long Island. A 1999 study that examined opportunities to meet expected increases in demand on Long Island found that expanded energy efficiency, distributed generation, wind power, fuel cells, and photovoltaics could yield 690 MW by 2010, including 465 MW from energy efficiency alone.[38]

If the Clean Energy Initiative were expanded to $50 million per year until 2010, as recommended, capacity savings over the next ten years could be greater than 450 MW.[39] If the funding were increased immediately, and programs were expanded this year, an additional 30 MW could be avoided over the next two years and an additional 45 MW savings over the remaining 3 years of the LIPA program. Given the cost savings from efficiency programs in the past, the investment of $50 million per year would save Long Island ratepayers approximately $35 million in each succeeding year, leading to dramatic cumulative savings (perhaps $60 million after 3 years). Again, significant environmental and reliability gains can also be expected.

II. The Review Process for the Siting of New Generation Facilities Must be Streamlined

The need for new supply underscores the importance of the power plant siting process, yet significant problems in that process affect the ability to respond quickly to increased demand with increased supply. Power plants cannot simply be built whenever and wherever someone decides they would like to do so. Rather, because of their size and environmental impacts, plans to build power plants are subject to an extensive and careful state approval process. This state-mandated

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[38] Pace Law School Energy Project and Long Island Citizens Advisory Panel, *Power Choices: 21st Century Energy Alternatives for Long Island*, October 1999, p. 3.

[39] Estimate based on LIPA's current projections of 144 MW per $160 million spent over five years (0.9 MW per million dollars spent).

review has been fraught with delay and uncertainty, impeding the ability of aspiring generators to proceed as expeditiously as would be optimal. Oddly, no process exists by which to rank the relative environmental impact of the proposed power plants. To increase the supply of electrical power to meet our economy's needs while protecting human health and the environment, the process must be dramatically improved.

Ideally, the siting process should provide one-stop shopping for generators. Indeed, when the Legislature enacted Article X of the Public Service Law ("PSL") in 1992, the goal was for one entity, the New York State Board On Electric Generation Siting And the Environment ("Siting Board"), to have authority over the entire review process.[40] However, the U. S. Environmental Protection Agency ("EPA") authorizes the state DEC to issue permits under the Clean Water Act and the Clean Air Act. Since such permits are necessary before a generating facility may be built, the process does not readily fit the one-stop shopping model. Additionally, the siting of a power plant is often controversial, so the review process appropriately provides an opportunity for extensive input by interested parties. For these reasons, siting a new plant is neither easy nor quick.[41] Nevertheless, more can and must be done to coordinate and expedite the process if New

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[40] Under Article X, any utility, public authority or merchant generator wishing to build a new generator in New York State with a capacity of 80 MW or more must comply with and obtain a Certificate of Environmental Compatibility and Public Need ("Certificate") from the Siting Board approving the plant's construction and operation. *See also*, 16 NYCRR Chapter X, Subchapter A, § 1000 *et seq.*, which sets forth the Board's rules and procedures. The five permanent members of the Siting Board are the PSC Chairman, who serves as the Siting Board chairman, the Commissioner of Environmental Conservation, Commissioner of Health, Chairman of NYSERDA and the Commissioner of Economic Development. The governor appoints two members of the public as "ad hoc members" for each generator application: one must reside within the judicial district and the other must be from the county where the proposed plant is to be located.

[41] Article X requires an entity seeking approval for a generating facility to file an application with the Siting Board. At least sixty (60) days before filing its application, an applicant must file a preliminary statement with the Siting Board and various offices within the PSC. An applicant

York is going to meet the expected increase in demand with sufficient increase in supply, while at the same time ensuring that the added capacity results in a cleaner environment. Towards that end, the Attorney General urges the following:

A. Decide Which Siting Applications Merit A Preference for Earlier Review

Currently, the Siting Board reviews each application in the order received, on a first-come first-served basis. The Siting Board does not now give a reviewing priority based on relative need for generation at the location of the proposed site or on environmental attributes. The Legislature, however, could and should direct the Siting Board and DEC to give a preference in the review process to applications for plants that:

- Are located in areas that have an acute need for new generating capacity, and thus would have the greatest incremental impact on New York's structural supply deficit;
- Repower existing plants so overall emissions are reduced and community impacts minimized, or otherwise displace electrical generation that produces greater air emissions in the same air basin;
- Achieve a lower emission rate for particulate matter, NO_x, and SO_2 than legally mandated or than other proposed plants, in addition to obtaining the largest offsets (proportional to the plant size);
- Are the most efficient generators, producing the least CO_2 per MWH generated;

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must also obtain environmental air and water permits from the DEC and acceptance of its interconnection study from the NYISO. The PSC and DEC assign staff members to review the application, and each also assigns a project manager to coordinate review within their agencies.

Before filing the application, the applicant, the PSC, DEC, and others may voluntarily engage in negotiations regarding environmental and other studies needed. Once the applicant files its Article X application with the Siting Board, the Chairman of the PSC has sixty days to determine if the application is complete, or needs to be supplemented. Once the application is deemed complete, the Siting Board has twelve (12) months to decide whether to approve it, during which time the DEC and PSC jointly conduct public hearings in which expert witnesses are examined and evidence submitted. The hearing officers make specific statutory findings and recommend a decision to the Siting Board, which has the ultimate decision-making authority.

- Include active controls for mercury emissions;
- Are sited on former industrial "brownfields," which thus would be redeveloped, cleaned and put to use; or
- Utilize dry-cooling techniques to minimize water impacts.

Since the Siting Board reviews applications as they come in, all other things being equal the first applications will be reviewed, approved and built first. As new supply comes on line, later proposals for plants may be withdrawn. However, the later proposed plants may, in fact, be preferable from the perspective of the State's energy needs or the environment.

To ensure that the State's needs are best served by proposed plants, and to encourage the private sector to propose such plants, the Legislature should require the Siting Board to give both procedural and substantive preference to plants that meet the above criteria. A preliminary review of any application should establish whether the plant is located in an existing electricity load pocket, repowers an existing plant, and what its emissions rates are.[42] The Siting Board and DEC staff could be preferentially allocated to plants that meet the criteria listed. That alone would speed the review and approval of such plants given existing staff constraints. Similarly, the Siting Board could, in making approval decisions, give a substantive preference to plants that meet these criteria.

B. Designate a Project Manager for Each Application

The time to review a siting application could be sharply reduced if the Siting Board designated a central Project Manager to be responsible for monitoring and ensuring the progress of an application's review at *all* agencies, rather than relying on separate agency project managers.

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[42] To ease the initial screening process, the application form could require a cover page that indicates which, if any, of the preference criteria are met by the proposed plant.

The lack of coordination among the state agencies, especially the DEC and PSC, has often made it difficult for applicants to get clear direction to move forward. A central project manager for each application would keep the process from getting bogged down through conflicting or confusing directions.

C. Require Applicants to File Environmental Permit Applications with the DEC Before Filing a Siting Application

Initially, applicants filed siting applications and the DEC permit requests at the same time. This led to delays because DEC, subject to EPA requirements in its permit process, cannot generally decide within the Siting Board's 60-day period whether the environmental permit applications are complete. As a result, many applications were rejected by the Siting Board at the 60-day deadline as incomplete, and the process had to be restarted.

Applicants should be required to submit their DEC permit requests well ahead of their siting application.[43] The aforementioned Project Manager could coordinate this "front-loading" of the approval process so that an applicant will have negotiated with the PSC and DEC, secured the required environmental permits, and performed the necessary studies prior to filing the siting application.

D. Establish a 30-Day Time Limit to Negotiate Voluntary Stipulations

The Siting Board encourages, but does not require, applicants to negotiate voluntary stipulations with state agencies and interested parties to identify the issues of public concern and

[43] Underscoring the necessity for a formal rule, the Siting Board recently adopted an informal policy that it will not consider a siting application to be complete unless the DEC has proposed a draft permit.

the studies or analyses appropriate for the project under review.[44] This "scoping process" is intended to speed review by enabling parties to reach early agreement on which issues need to be addressed in the application, thereby reducing later objections or litigation. With no current time frame for completion, these negotiations are often protracted – causing unnecessary delay and uncertainty. To address this problem, the scoping process should be made mandatory and should be overseen by the Project Manager, who should establish a 30-day time frame for the parties, the DEC and PSC to negotiate stipulations. The Project Manager should clarify the details of the environmental and other reviews required by the Siting Board and DEC. Adherence to well-established and understood descriptions of the detailed studies necessary for permitting under the State Environmental Quality Review Act (SEQRA) will also result in greater clarity and expedite the process.

E. Appoint An Ombudsman For Each Project

The Siting Board should appoint an ombudsman to be a focal point of contact for community groups seeking to be involved in the siting process and to work with the Project Manager to mediate issues concerning the scope of necessary studies. Citizens often identify community and

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[44] *See*, PSL § 163. These studies include those describing the expected environmental impact and safety of the facility, both during its construction and its operation, that identify "(i) the anticipated gaseous, liquid and solid wastes to be produced at the facility including their source, anticipated volumes, composition and temperature, and such other attributes as the board may specify and the probable level of noise during construction and operation of the facility; (ii) the treatment processes to reduce wastes to be released to the environment, the manner of disposal for wastes retained and measures for noise abatement; (iii) the anticipated volumes of wastes to be released to the environment under any operating condition of the facility, including such meteorological, hydrological and other information needed to support such estimates; (iv) conceptual architectural and engineering plans indicating compatibility of the facility with the environment; and (v) how the construction and operation of the facility, including transportation and disposal of wastes would comply with environmental health and safety standards, requirements, regulations and rules under state and municipal laws, and a statement why any variances or exceptions should be granted. . .." PSL § 164(c).

environmental concerns about which the DEC and Siting Board members are unaware. Earlier identification and mediation of the issues could speed the permitting process by avoiding the need for amended applications, supplemental hearings, and subsequent litigation.

F. Set Deadlines for Transmission and Distribution Owners to Contribute to System Reliability Impact Studies

A siting applicant must submit to the NYISO a System Reliability Impact Study ("SRIS") that identifies both the impact a new or modified plant would have on existing transmission and distribution systems, and the changes needed to accommodate the proposed additional generating capacity. NYISO approval of an SRIS is necessary.

To prepare an SRIS, an applicant needs essential technical information that only the owners of transmission and distribution systems can supply. Currently, these entities are not required to provide the information within any particular deadline. The PSC and NYISO should quickly correct this deficiency. New York transmission and distribution owners are either subject to PSC jurisdiction or are members of the NYISO. The PSC and NYISO should establish an efficient process for SRIS applicants to obtain information from transmission and distribution system owners, including the deadline by which a system owner must comply with an applicant's request for information. Additionally, formal deadlines for the NYISO to complete its required review should be set.

G. Assign Responsibility for Transmission System Upgrades Necessary for New Generating Capacity

New generators may require costly upgrades or modifications of transmission system facilities to carry the increased power. Transmission facility owners and generators often disagree as to whether a transmission system reinforcement is needed to serve new capacity and which of them should bear an expense. Disputes have the potential to delay or restrict the availability of

new capacity. Currently, no clear rule governs as to who should bear this responsibility. However, between them, the PSC and NYISO have jurisdiction over all possible parties. To ensure expeditious resolution of such disputes, the PSC and NYISO should quickly decide disputes over transmission reinforcement obligations.

III. Additional High Voltage Transmission Capacity is Needed

New York must augment the network of high voltage transmission lines used to move bulk power from places with surpluses to areas where the power is needed. Major transmission bottlenecks in central New York ("Central East bottleneck"), around New York City ("In-City bottleneck") and at our borders with other states and Canada limit the amount of power that can be moved.[45] While minimizing the environmental and aesthetic impact of transmission lines, these bottlenecks must be opened.

High-voltage transmission lines enable large amounts of power to move over long distances, provide flexibility in the location of plants, and increase access to diverse sources of electricity, including sources hundreds of miles away.[46] Long distance access is especially important in New York, which has cheap hydroelectric and Canadian power sources at the extreme western and northern borders of the state.

A. Bottlenecks in New York Transmission Cut Off Access to Cheap Power

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[45] *See generally*, New York State Energy Planing Board, *Report on the Reliability of New York's Electric Transmission and Distribution Systems* (November 2000) (*hereinafter "Planning Board Report")* and New York State Department of Public Service, *Analysis Of Load Pockets And Market Power In New York State, Final Report* (October 1, 1996) (*hereinafter "PSC Analysis")*.

[46] Dependence on power plants fueled by natural gas has contributed to the recent increase in the price of natural gas, which in turn has increased the wholesale price of electric power. Augmenting transmission capabilities would facilitate access to electricity generated by other sources.

New York's transmission network contains segments that are not able at all times to carry the optimum amount of power. Each such inadequate segment forms a "bottleneck."[47] Near Utica, the transmission lines from western New York and Ontario converge with the transmission lines from the north and Quebec to form the Central East bottleneck. Whatever power is available to the west or north, Central East can pass along only 5,995 megawatts.[48] When the demand for power soars in southeastern New York during the summer, the Central East bottleneck may limit access to surplus power west and north of this bottleneck. The In-City bottleneck works similarly to set an even lower limit (4,979 megawatts)[49] on the amount of power New York City and Long Island can import from western and northern New York, Canada and plants in the Hudson Valley.

B. New York's Transmission System has been Neglected

Despite the potential for transmission upgrades to lower our electricity costs and avoid having to build new power plants, fundamental infrastructure is sorely lacking in New York. Measured in constant dollars, between 1988 and 1998 capital improvements to New York's transmission system dropped from $307.7 million per year to $90.0 million per year.[50] The Central East and In-City bottlenecks have existed for at least twenty years. Today only one major project

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[47] A transmission bottleneck resembles a section of highway carrying traffic merging from two or more other highways with the same number of lanes. As long as the traffic is light, the merge flows smoothly. But if the merging traffic is heavy, all lanes slow and movement can cease.

[48] *PSC Analysis, p. 235.* This description of power flows in the New York transmission system is highly simplified and is not intended to take into consideration numerous technical factors that make the movement of bulk power difficult.

[49] *Id.*, p. 123.

[50] *Planning Board Report*, p. 26.

to ease a New York transmission bottleneck is under active regulatory consideration.[51]

Building a transmission upgrade, such as a new high voltage line, is complex and expensive. Once the PSC approves a project, an applicant may then have to negotiate or litigate with possibly hundreds of landowners for rights of way, and obtain dozens of local building permits. Uncertainty about who is responsible for transmission under deregulation and how the cost of transmission construction is to be recovered in a deregulated marketplace has undoubtedly affected decision making on transmission upgrades.

C. Upgrades to New York Transmission Capacity Should not Await Approval of a Regional Transmission Organization

The Federal Energy Regulatory Commission ("FERC") has proposed the creation of disinterested Regional Transmission Organizations ("RTOs") to improve transmission capability[52] and has asked electric utilities to submit proposals for RTOs that would, *inter alia*, have authority to prepare and enforce plans for optimizing transmission systems. A disinterested RTO could weigh the interest of all, decide what transmission network upgrades are in the public interest and then enforce its decisions by ordering appropriate utilities and others to construct improvements. On January 16, 2001, the NYISO and the six private New York electric utilities submitted a joint RTO proposal requesting that the FERC designate the NYISO the RTO for New York.[53]

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[51] The LIPA has applied to the PSC for approval of two transmission lines under Long Island Sound to Connecticut. If constructed, these new lines would ease but not eliminate both the In-City bottleneck and the constraints on importing power from New England. The PSC reviews transmission construction proposals under Article VII of the Public Service Law.

[52] *Regional Transmission Organizations*, Order No. 2000, III FERC Stats. & Regs. ¶ 31,089 (1999); Order No. 2000-A, III FERC Stats. & Regs. ¶ 31,092 (2000).

[53] FERC, Docket No. RT01- __ - 000, *Order No. 2000 Compliance Filing* (January 16, 2001). The NYPA and the LIPA supported the filing but did not join as applicants. *Id., p. 2, fn 3.*

While an RTO is welcome, we should not wait for an RTO to be up and running before addressing New York's transmission needs. The PSC and the NYISO must immediately begin working with the transmission facility owners to assess what transmission upgrades are warranted. In particular, this joint effort should examine what can be done within the next two years to ease the Central East and In-City bottlenecks and increase our ability to import power from other states and Canada. If the FERC approves the application to designate the NYISO an RTO or brings

New York under another RTO, the new RTO could take over this work and not have to start from scratch.

IV. New York Should Encourage New Sources of Generation

While our electricity supply brings innumerable benefits and drives our economy, electricity generation also significantly impacts public health and the environment. Existing electricity generation in the United States produces: one-third of the nitrous oxide emissions that cause urban smog; two-thirds of the sulfur dioxide emissions that cause acid rain; one-third of the mercury emissions that poison fish and wildlife; and one-third of the greenhouse gas emissions, particularly CO_2, that are warming the planet**.**

The impacts of these problems are very severe in New York State, which is characterized by an asthma rate 2-5 times the national average, and 20 percent of Adirondack lakes too acidic to support life. Though up to 40 percent of New York's air pollution comes from sources out of state, it is essential that New York lead by example in creating a sustainable electricity policy.

Not all conventional power plants pose the same level of health and environmental hazards. Modern combined-cycle gas-fired generators, which are most of the units proposed for new

generation in New York, are far more efficient than power plants built in the past, and are equipped with controls that greatly reduce emissions. To the extent that more efficient units come on line and displace older, less efficient and dirtier units, air emissions problems in New York will decrease.[54] To minimize the adverse impacts of even the cleanest fossil generation plants, alternatives such as enhanced transmission, renewable source generation, clean distributed generation, conservation and increased efficiency must have a major role in a balanced package.

A. Renewable Generation Sources Should Provide at Least an Additional 10 Percent of New York's Electricity

For many decades, New York has benefitted from hydro power, a renewable source that does not release air emissions and uses no imported fossil fuels. Hydro power currently produces up to one-fifth of the electricity needs of the State. While ecological and sociological impacts limit the usefulness of further expansion of hydro power, recent developments in solar and wind power generation promise new means of clean electricity generation.[55]

Commercial scale electricity generation from wind and solar (photovoltaic) sources are unlikely to come on line in significant amounts (over 100 MW) by this summer, however they can meet a significant portion of New York's electricity needs in the medium to long term, while reducing air emissions and reliance on imported fossil fuels.[56] Indeed, some argue that renewables

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[54] In the short run, even the most modern gas units will likely increase total air pollutants, until the older units become too uneconomical to operate.

[55] Large scale hydropower can adversely affect fish and other aquatic life and can displace indigenous populations. While solar and wind power cause no air or water emissions problems, wind power can raise aesthetic concerns.

[56] Electric generators in New York State rely on fuels that originate elsewhere in the U.S. or abroad. Increasing renewable generation sources in New York State will produce jobs in-state and keep electricity expenditures in-state.

could satisfy virtually all of New York's need for increased capacity.

New York is particularly well suited for renewable generation. A study by the State University of New York Atmospheric Sciences Research Center concluded that solar power could significantly reduce sharp demand peaks because the state gets most of its sunlight during the same time as electricity demand peaks – hot summer days.[57] Similarly, many areas across the State have strong wind resources. It is estimated that up to 5,000 MW of electric capacity could be produced from large scale wind generation sites in New York, enough to generate about 13 million MWh, or 10 percent of the State's electricity consumption.[58]

In the past, solar and wind generation were not economically competitive with fossil fuel power generation. However, new technologies for solar and wind generation combined with increased fossil fuel costs narrow the cost gap considerably.[59] During most of the 1990's, wind energy was the world's fastest-growing energy source, expanding by 20-30 percent per year; in the last 24 months, nearly 1,000 MW of wind have been installed in the U.S.[60]

The following steps should enhance use of solar and wind power to produce clean electricity for New York:

7. The Attorney General Will Use Settlement Funds to Develop Wind Power

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[57] New York Times, *New York Ranks Near the Top For Efficient Use of Energy*, October 21, 2000, pp. B1, B6.

[58] Bailey, B. and Marcus, M., AWS Scientific, *Wind Power Potential in New York State: Wind Resource and New Technology Assessment*, May 1996. ESEERCO Project EP 91-32, p. 36.

[59] According the U.S. Department Of Energy ("DOE"), today's cost of generating electricity from wind is about $0.05 or less per kilowatt-hour, which represents an 85% drop over the past 15 years. *Http://www.eren.doe.gov/wind/faqs.html*.

[60] American Wind Energy Association, *The Global Wind Energy Market Report*, February, 2001.

The Attorney General's Office sued a number of out-of-state coal-fired power plants that upgraded or expanded their old power plants without installing the pollution controls required by the Clean Air Act and whose pollution significantly harmed New York State. The Attorney General has directed that a major portion of the settlement money arising from the Clean Air Act power plant enforcement cases be used as incentives to develop 10-30 MW of renewable wind generation. The Office is also pursuing legal action against similar plants in New York. These cases will likely generate tens of millions of dollars in payments in lieu of penalties that the State can use for clean air and efficiency projects.

8. The Legislature Should Enact a Renewable Portfolio Standard

The Legislature should join New Jersey, Massachusetts, Connecticut, Texas, and many other states by adopting a Renewable Portfolio Standard ("RPS"). The RPS would require retailers of electricity to include in their portfolio of supply an increasing percentage of renewable generation. This would increase demand for renewables such as wind and solar, that would, in turn, create a competitive market for supplies of renewable generation.

A bill to create an RPS has been introduced in the State Assembly.[61] The Legislature should pass, and the Governor should sign, the Assembly proposal to require 0.5 percent of all retail electric sales to come from non-hydro renewables (650,000 MWh; equivalent to about 300 MW of installed capacity, or enough to power 90,000 homes) by 2003. The percentage grows by a half-percent per year until renewables reach six percent of sales. Thereafter it grows by one percent per year until it reaches 10 percent. The bill includes a cost cap of 2.5 cents/kWh. If renewables at this price cannot be found, retailers have the option of making payments into a

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[61] *See, A.8506-Englebright.*

"Clean Electricity Fund," calculated as 2.5 cents times their RPS obligation. This fund would incentivize the development of renewable generation.

An aggressive RPS could create well over 3,000 MW of renewable generation at little to no additional cost to consumers. For example, a recent study of Massachusetts' RPS (similar to what the Attorney General recommends for New York) found that it would add only 0.4 percent to consumer bills by 2003, rising to 2.2 percent in 2012.[62] An Iowa study – which assumed that the cost of fossil fuels would rise, while wind's costs would decline – showed customers could save $300 million over a 25-year period if the state met 10 percent of its electric demand through wind generation.[63]

Much of the renewable supply needs in New York could be met with wind power, providing significant environmental and economic benefits. It is estimated that for every 100 MW of wind development about $1 million is generated in property tax revenue. New York could see 2,000 MW of wind power by 2010 with an aggressive RPS and financial incentives, generating $20 million annually in tax revenues to rural communities. In addition, since wind farms are generally located on privately owned land, the development of 2,000 MW in New York means annual payments of approximately $4 million to farm and forest landowners.[64]

The reduced emissions of pollution and greenhouse gases resulting from wind power is

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[62] Massachusetts Division of Energy Resources., *Massachusetts Renewable Portfolio Standard Cost Analysis Report.* December 21, 2000, p. 37.

[63] Wind, Thomas, Wind Utility Consulting, *The Electric Price Impact of an RPS in Iowa*, May 1, 2000.

[64] Estimated benefits according to American Wind Energy Association RPS Fact Sheet, *Http://www.awea.org/pubs/factsheets/nyrps001.pdf.*

significant. A single 1.65 MW wind turbine will each year displace emissions of 2,161 tons of CO_2, 11 tons of SO_2, and 4 tons of NO_x, based on the New York State average utility fuel mix.[65]

B. Policies are Needed to Increase Clean Distributed Energy Sources

The need for large power plants could be lessened by distributing small-scale generation units that use minimally polluting technologies directly on the site where the electricity is to be used. Electric power can be efficiently generated at small-scale facilities located on or near the consumer's property. Generation options include fuel cells, wind generators, small-scale hydro, solar cells, and cogeneration facilities that combine heating and cooling with electric generation. Because distributed generation facilities may not always provide the exact amount of power needed, the facility is usually connected to the electric power grid. The grid can provide additional power if the facilities run short, or can take the excess power generated. To the extent that local sources of electricity reduce the demand placed on traditional generating plants, they can reduce both (i) the need to build new power plants, and (ii) the wholesale market scarcity conditions that produce price volatility.

Distributed generation's smaller scale often enables new sources of power to be obtained in less time than with conventional power plants. Another advantage is the greater diversity of generation sources, including renewables such as sunlight and wind, decreasing dependency on fossil fuels. As demonstrated by the current rise in natural gas and oil prices, excessive reliance on fossil fuels subjects New York to risk of fuel shortages and cost volatility. Distributed generation also avoids further strain on the transmission and distribution system.

Many forms of distributed generation are also environmentally cleaner than conventional

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[65] Assumes wind turbine generates electricity 30 percent of the year. Historical fuel mix data and emission rates according to the DPS at *Http://www.dps.state.ny.us/fuelmix.htm*.

power plants.[66] Moreover, their smaller scale can minimize the impact on neighborhoods and open space. However, uncontrolled diesel generators – sometimes used for distributed peak supply – emit many times the pollution of modern, large-scale power plants or any form of renewable generation. Thus, public policies encouraging distributed generation must not include incentives for environmentally detrimental on-site generation facilities.[67]

If more commercial, industrial and multi-family residential buildings installed modern on-site generation facilities, the balance between supply and demand in tight regions such as downstate New York could be improved, reducing the need to construct large new power plants or transmission lines. In the past, many on-site generators did not economically compete with traditional sources of electricity. However, recent technological advances have lowered the costs of distributed generation. In addition, the transition to wholesale market pricing and the ability of distributed generation to shave peak demand levels (thereby relieving all power buyers from prices set at the steepest part of the supply/demand curve) further increase the relative economic benefit of distributed generation.[68]

The following policies should reduce barriers to, and promote additional distributed generation:

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[66] Wind and solar power are cleaner. Fuel cells that operate on hydrogen fuel emit only water vapor. Other fuel cells use natural gas, and thus emit carbon dioxide.

[67] For example, LIPA's recent action to promote the use of on-site back-up generation does not differentiate between clean on-site generation and diesel generators. This action should be revisited to ensure that financial incentives to use diesel generators are removed. See, LIPA Supplemental Service Tariff. *Http://www.lipower.org/supservtalkpoints.html.*

[68] When customers are billed on a real-time basis, such that their bills reflect the power used during peak and off-peak hours, the economic value of solar generation will be maximized, as it is most productive during periods when demand and market prices are highest.

1. The Legislature Should Offer Financial Incentives to Develop Clean Distributed Generation

The NYSERDA should provide low-cost loans to finance the investment necessary to install on-site facilities, and the Legislature should expand New York State's tax credit for residential solar power systems to clean distributed technologies such as fuel cells, wind, and small hydro power projects.[69] Government incentives are necessary to jump-start development of supplemental electricity generation in New York. If the initial investment barriers are reduced, many distributed generation units could be installed in time to help meet New York's electricity needs for 2002.

2. The Legislature Should Expand the Solar Net Metering Law to Include Wind and Small Hydro Power

The Legislature should expand the Solar Net Metering Law (Public Service Law Section 66-j) to include wind and hydro power. The New York State Legislature enacted the net metering law in 1997, allowing customers who install solar power to use excess electricity produced by the solar panels to spin the electricity meter backwards, effectively banking the electricity until it is needed by the customer. This provides the customer with full retail value for all electricity produced. In its current form, the net metering law applies only to facilities powered by solar generation. Of the thirty states with net metering opportunities, New York is the only state where small wind generation systems are ineligible.[70]

3. The PSC Should Eliminate Unjustifiable Barriers to Clean Distributed Generation

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[69] New York State residents can claim a state income tax credit of 25 percent on the cost of their Photovoltaic system, up to a maximum credit of $3,750.

[70] American Wind Energy Association. *Http://www.awea.org/smallwind/newyork.html.*

Distributed generation facilities typically require connection to the utility grid. Utilities therefore need to maintain technical safeguards to prevent distributed generation from adversely affecting the transmission system. Formerly, utilities imposed burdensome insurance requirements on independent generators seeking to connect to the power grid. The PSC recently reviewed such tariff conditions, and adopted improved interconnection standards designed to lower this and similar barriers.[71] However, insurance is still required for solar power systems that are net-metered. The PSC should remove this existing barrier and the NYSERDA should provide low-cost insurance or bond coverage to meet utility interconnection requirements. Furthermore, the PSC should review utility policies and practices to ensure that any unjustifiable barriers to distributed generation are eliminated.

4. NYPA Should Work With Local Governments to Install Fuel Cells at Landfills and Wastewater Treatment Facilities

The NYPA should build on its success with fuel cells and work more aggressively with local governments to install them, particularly local governments in load pockets such as New York City and Long Island. Landfills and wastewater treatment plants produce large quantities of methane, which can be used to power fuel cells to generate electricity. If not used to generate power, the gas is either flared or released, significantly contributing to climate change.

In 1998, the NYPA and the EPA installed the world's first commercial fuel cell powered by waste gas, located at the Westchester County Wastewater Treatment Plant in Yonkers. In its first year, the 200 kilowatt fuel cell converted over 20 tons of waste gas into over 1.2 million kWh of

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[71] *See, New York State Standardized Interconnection Requirements, Application Process, Contract & Application Forms For New Distributed Generators, 300 KiloVolt-Amperes Or Less, Connected In Parallel With Radial Distribution Lines,* issued November 9, 2000.

electricity.[72] The NYPA has also installed fuel cells at NYPD's Central Park Station and North Central Bronx Hospital, both of which run on natural gas.

Other prospects for fuel cells have not materialized. The New York City Department of Environmental Protection ("DEP") has estimated that it flares or releases enough anaerobic digester gas at its fourteen wastewater treatment facilities to fuel between 15 and 25 fuel cells.[73] But a proposal to install two NYPA fuel cells at one of DEP's wastewater facilities did not move forward largely because of the high cost of fuel cells, which are not yet commercially available.[74] The myriad environmental benefits of fuel cells, and the improved reliability to the grid resulting from distributed generation, must not be overlooked in cost/benefit analyses. To fully realize the potential of fuel cells, the NYPA should seek new opportunities for fuel cell installation across the State, and offer attractive financing to its local government partners to ensure the projects are implemented.[75]

V. Power Prices Must Not Be Permitted To Skyrocket During the Transition to Competitive Markets

A. New York Wholesale Power Markets Must be Significantly Reformed

Since New York's wholesale power markets began operating in November 1999,

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[72] March 23, 1999 EPA press release. *Http://www.epa.gov/nheerl/ordpr/1999/pr032399.pdf*.

[73] February 15, 2001 conversation between OAG Policy Analyst Tom Congdon and Energy, Air and Laboratory Services Division Chief Fred Sachs, DEP Bureau of Wastewater Treatment.

[74] *Ibid.* DEP's electric bill would have increased significantly to repay the NYPA for the cost of the fuel cells. The fuel cells installed at Yonkers Wastewater Treatment Plant and the North Bronx Hospital were subsidized by the DOE.

[75] As with other NYPA efficiency and renewable programs, these fuel cells would be financed from the NYPA's existing rate revenue.

significant flaws in the design of these markets have been identified. The markets are not fully competitive at all times in all locations, and thus the opportunity to exercise abusive market power often arises. When improper market power is exercised, electricity prices can suddenly rise to noncompetitive and, indeed, stratospheric, levels. This creates windfalls for generators, as well as unreasonably high bills for energy purchasers. It also impedes the development of truly competitive markets. All possible means must be used to ensure competitive pricing in the NYISO's markets, thwart the abusive exercise of market power, and provide redress for purchasers when market power leads to noncompetitive pricing.

1. NYISO Background

In January 1999, independent power generators, utilities, public authorities and others interested in competitive electricity markets and open access to power transmission requested from the FERC authority to create an "independent system operator" to manage New York's high-voltage transmission grid, operate competitive short-term markets for power, and undertake other tasks essential to establishing a competitive wholesale market for electricity.[76] The NYISO began operations in November 1999.

Today the NYISO manages the transmission grid that moves bulk power around New York, and operates the short-term Day Ahead ("DAM") and Real Time ("RTM") markets that together supply half the power used each day in the state. (The other half is supplied through bilateral contracts between generators and users.) On a typical day, the DAM accounts for about 45 percent of the total power used in New York, while the RTM typically accounts for 5 percent of the power. The DAM and RTM determine the price per megawatt-hour to be paid for wholesale power and the order in which generating plants will be scheduled to run. In highly simplified terms, the NYISO accepts confidential bids stating how much power each utility or other electricity retailer[77] wishes to purchase during each hour of the next day (in the DAM). Simultaneously, each power supplier submits confidential offers stating for each generating plant it owns how much power at a given price it is willing to provide. The NYISO, using complex software, totals the bids and ranks the offers in ascending price order. The most expensive offer

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[76] FERC approval was required because the FERC regulates interstate transmission of power and has mandated open access to transmission services.

[77] In New York, independent electricity supply businesses, termed "energy service companies" or "ESCOs," may compete with traditional utilities for customers.

that must be scheduled to run to provide the total amount of power requested for a given hour sets the price per megawatt-hour paid to all suppliers for power delivered during that time (referred to as "the market clearing price").[78] The RTM operates similarly.[79]

NYISO membership today consists of private generators, utilities, public authorities, power marketers, representatives of commercial and industrial customers, consumer advocates and others, as well as a paid professional staff. A ten-member Board of Directors sets policy for the professional staff and determines the actions the NYISO will take in its relations with the FERC and other government agencies. By NYISO rule, Board members must be disinterested and may not have a financial interest in any aspect of the electric power industry.

A NYISO Management Committee and two other NYISO committees discuss issues and propose actions to the NYISO Board of Directors. The FERC exercises regulatory authority over the NYISO and other independent system operators. The NYISO has sought the FERC's approval of numerous proposed changes in the way NYISO operates and exercises its authority. While many of the changes involve technical and "housekeeping" matters, several have addressed competition problems identified by the NYISO staff's Market Monitoring Unit ("MMU"). Most notable are the NYISO's June 30, 2000 petition for a $1,000 per megawatt-hour cap on the price of power in the short term markets, and its March 27, 2000 petition for a cap on the price of reserve generation capacity. The FERC approved the power price cap petition on July 26, 2000

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[78] Alternatives to market clearing prices to set wholesale electricity prices have been proposed. One approach is to pay each seller its asking price, rather than pay all sellers the highest offer taken. Other proposals would peg each offer price to actual costs.

[79] The NYISO also operates competitive markets for generating reserves and other services related to supplying electricity, and monitors the power markets to ensure that they operate competitively.

and the reserves price cap petition on May 31, 2000. These and other FERC-approved changes in NYISO operations have moderated but not eliminated the potential for exercise of market power.[80]

2. The NYISO Must Ensure That Energy Sellers Cannot Unfairly Exercise Market Power to Raise Electricity Prices

At least two instances have been identified in which the NYISO markets were not competitive in 2000. During certain hours of high demand on June 26, 2000, the price of power in the Day Ahead Market spiked to $1,000 per megawatt-hour due to bidding practices leading to excessively high prices. This behavior cost energy buyers an estimated $100 million in excessive power prices that day. The NYISO has also identified instances of market power in the sale of generating capacity reserves from January to March 2000. The Attorney General has urged the FERC, which has jurisdiction over power transmission and independent system operators, to provide the NYISO the authority it needs to address such exercises of market power.[81]

The NYISO must ensure that design and operational flaws are addressed quickly, before the demand for electricity rises with the start of the summer cooling season in May 2001. In particular, the NYISO must enhance its ability to identify and correct noncompetitive prices and practices. The Attorney General supports a three part approach: (1) "automatic mitigation" of DAM prices as soon as possible; (2) strengthening after-the-fact market monitoring, including retroactive mitigation of noncompetitive prices; and (3) retaining the $1,000 cap on power prices.

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[80] The NYISO professional staff has taken the position that the NYISO Board does not need to seek the FERC's approval of every operational change intended to strengthen the NYISO's efforts to deter uncompetitive actions. Not all NYISO members agree.

[81] October 31, 2000 Letter from Attorney General Eliot Spitzer to FERC Chairman James J. Hoecker.

Finally, the NYISO should follow through on plans to open its markets to increased participation by non-generators and non-load serving entities, so as to enhance competition and liquidity in the power markets.

a. Automatic Mitigation Must be Implemented Quickly

On February 20, 2001, the NYISO Board voted to extend its current forward looking market mitigation to the DAM in a way that is intended to prevent the exercise of market power until competition fully takes hold.[82] To effect this mitigation, also referred to as a "circuit breaker," the NYISO will reprogram the software it uses to operate its power markets so that the software automatically analyzes bids before they set the market-clearing price. If the analysis indicates a potential exercise of market power in the DAM, the suspect power prices will be replaced with competitive prices. The NYISO expects to implement the software changes before the 2001 summer cooling season, *i.e.*, by May, 2001.[83]

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[82] *New York Independent System Operator Approves Automated Process For Reviewing Supply Bids - Measure Enhances NYISO's Ability To Prevent Market Abuse* -, NYISO press release (February 22, 2001).

[83] Automatic mitigation will use as triggering levels the price threshold values in the NYISO's current forward-looking market monitoring procedures. Each day NYISO software will automatically review Day Ahead offers for evidence of market power and recompute excessive offers before they can set the market clearing price. In grossly simplified form, automatic mitigation works as follows: if upon matching offers with bids, the Day Ahead Market in any zone would yield a market clearing price that exceeded $150 per megawatt-hour, a price analysis will be triggered. Depending on where in New York the over- $150 market clearing price appeared, the NYISO software would examine every offer in any zone in the state deemed competitively relevant to the affected zone, and compare it to a predetermined "reference price" associated with the generating facility whose output is represented by each offer. If the difference between any offer and its associated reference price exceeds $100, the NYISO software would substitute the reference price for each offer and recompute a "reference market clearing price" for each affected zone. This recomputed reference market clearing price hen would be compared to the initial "unanalyzed" market clearing price in each affected zone. If the difference between the two market clearing prices is more than $100 in any zone, the NYISO software would then automatically set aside any offer in the affected zone that was initially greater

While agreeing with the general framework, some have objected that the NYISO automatic mitigation would still allow considerable exercise of market power, primarily because the triggering levels in the NYISO proposal are too high. Among other changes, the objectors would lower the initial trigger to $100 per megawatt-hour and the market comparison triggers to $50 per megawatt-hour. Lowering the triggers could more accurately capture the times and places in which market power may be exercised. For this reason, the Attorney General supports lower thresholds for automatic mitigation.

While lowering the triggers would make automatic mitigation more effective, such a refinement would likely constitute a material change from the current NYISO market monitoring standards and thus might require the FERC's authorization before it could be implemented, with the concomitant risk of delay or denial. [84]

Another objection to the current automatic mitigation is that it does not apply to the RTM. The NYISO staff's explanation is that the logistics of the RTM operate on such a short time frame that it is not practical to design an automatic mitigation mechanism for the RTM. Experience with Day Ahead mitigation may suggest ways to make automatic mitigation of the RTM practical. Deployment of Day Ahead automatic mitigation should not be delayed, but the NYISO should continue to evaluate capability for automatic mitigation of the RTM as well.

b. Existing Forward-Looking Market Monitoring Must be Strengthened

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than $100 above its reference price and replace that offer's price with the reference price. These recomputed offers would then be used in the calculation of the official market clearing price for that zone.

[84] Others object to the idea of automatic mitigation as an unnecessary tampering with competitive markets. The markets, however, are not always competitive. Automatic mitigation should prevent excessive prices from occurring in the first instance.

i. The NYISO's Market Monitoring Triggers Must be Refined

The NYISO staff has a fourteen-member Market Monitoring Unit ("MMU") that examines the offers, bids and market clearing prices in the various electricity markets to determine whether noncompetitive prices or practices have occurred. Once it identifies such a price or practice, the MMU takes actions to prevent a repetition. The major difference between automatic mitigation and the current MMU efforts is that the MMU addresses prices and practices after the market has cleared; it does not prevent the initial exaction of noncompetitive prices. As part of its effort, the MMU compares the market clearing prices in the DAM and RTM to numerical triggers. If a market clearing price exceeds a trigger, the MMU then employs procedures to identify potential noncompetitive behavior and fashion forward-looking means for preventing its repetition.

Because the current MMU threshold values may not identify accurately enough all situations in which competition is impaired, the NYISO should seek from the FERC, and the FERC should grant, authority for the NYISO to lower these triggers. This refinement would increase the NYISO's ability to discern noncompetitive market behavior leading to noncompetitive prices. It could also lead to the identification of loopholes in NYISO rules that the current market monitoring protocol does not detect.

ii. Authority for Retroactive Mitigation Must be Obtained

The FERC has not authorized the NYISO to recapture excess profits obtained through the exercise of market power. When the MMU identifies a noncompetitive pricing or practice, the NYISO can at most order the offending act or practice to cease prospectively. Thus, currently, one exercising market power in a NYISO market gets at least "one bite at the apple," risking nothing more than being admonished not to do it again. Such limited enforcement capability is

inadequate. Noncompetitive market conditions for even a few hours on a single day can exact large sums in excessive prices.

Adding automatic mitigation to the MMU's tools and tightening the MMU's surveillance triggers will reduce the likelihood of noncompetitive prices, but no preventive system is perfect. The NYISO needs the authority to recover excessive noncompetitive profits if and when market power slips past the NYISO's preventive measures.

As the Attorney General urged in the October 31 letter to FERC Chairman Hoecker, the NYISO should request from the FERC, and the FERC should grant, authority retroactively to mitigate noncompetitive prices identified in the course of its forward-looking market monitoring. The window for identification of possible exercises of market power and for retroactive refunds should be short, both to maximize the value of refunds as a deterrent and to provide the wholesale power market with certainty. Both consumers and wholesale market participants have an interest in the speedy resolution of market monitoring inquiries, as well as in not being forced to pay noncompetitive prices for electric power.

iii. The Current $1,000 Per Megawatt Hour Price Cap Must be Retained

A $1,000 per megawatt-hour cap on the price of wholesale power currently exists in the NYISO's Day Ahead Market and Real Time Market, as well as in relevant markets in the adjacent New England and PJM power pools.[85] The NYISO should ask the FERC, and the FERC should agree, to retain this cap until the wholesale electric market in New York is fully competitive. While NYISO market monitoring can be the first line of defense against market power, and retroactive mitigation may recover excess profits exacted by market power, there may be circumstances in which neither is able to prevent extreme wholesale power price spikes. The current NYISO price cap thus provides a crucial final safeguard against extreme price spikes. It should be retained until a change in circumstances justifies modifying or retiring it.

To be effective, a price cap must be compatible with conditions in neighboring power pools. Otherwise, power suppliers may have a financial incentive to sell preferentially into the power pool with the highest price cap. Today, both power pools neighboring New York have a $1,000 per megawatt-hour price cap. This compatibility of price caps should be maintained.

iv. The NYISO Should Implement Virtual Bidding to Expand Competition

Today the only parties that may buy or sell electricity through the NYISO are utilities and other entities that provide retail service to end users, and those who own or control generating plants. This limits the number of participants in the NYISO markets. Competition would be enhanced if power marketers, brokers and others not directly involved in generating or retailing electricity could buy and sell power through the NYISO markets. In addition to increasing

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[85] The current price cap is set to expire on April 30, 2001 unless extended by the FERC upon request.

competition, market participation by new types of parties would add liquidity to these markets by increasing the number of ways that power purchases can be contracted for and financed. The downside of opening the NYISO markets to new classes of participants is the increased potential for gaming the markets, especially during times of tight electricity supply.

The NYISO currently plans to implement power trading by parties other than generators and retailers, participation termed "virtual bidding," by November 1, 2001.[86] The NYISO's explanation for the delay in instituting virtual bidding is that it needs to correct flaws in its current operating procedures and to develop appropriate software before adding virtual bidding to an already complex system.[87] FERC has accepted the NYISO's explanation.[88] The NYISO should develop the necessary software and make the operational improvements needed to implement virtual bidding as soon as practicable. At the same time, the NYISO should address the increased complexity that virtual bidding will add to its markets and strengthen its market monitoring capability to accommodate the additional market surveillance that will be needed.

c. Exposure to Volatile Prices Must be Minimized Without Shielding Customers From Market Price Signals

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[86] *See, e.g.*, NYISO, *New York Independent System Operator, Inc.'s Report on the Implementation of Virtual Bidding and Zonal Price-Capped Load Bidding in Docket No.* EL00-90-000, ___ FERC ¶ _____ (February 2, 2001), p. 6.

[87] *Id.*, p. 4.

[88] Some have protested to FERC that the NYISO's implementation of virtual bidding is taking too long. FERC rejected the initial protests as inconsistent with the prudent development of the NYISO's operations. FERC Docket No. EL00-90-000, *Order On Complaint, Morgan Stanley Capital Group, Inc. v. New York Independent System Operator, Inc.*, 93 FERC ¶ 61,107 (October 5, 2000). Certain parties have renewed their protests. *See, e.g.*, Morgan Stanley Capital Group, Inc., *Motion For Immediate Commission Action Regarding Virtual Bidding Implementation Schedule*, Docket No. El00-90-000 (March 5, 2001).

We have seen in New York that highly volatile wholesale electricity prices can accompany the transition from regulated monopoly to competitive commodity markets, especially during times when supply is limited and demand irreducible. During the summer of 2000, Con Edison's customers experienced electricity rates 30 percent higher than during the comparable period in 1999, despite cooler weather in 2000 resulting in lower peak usage levels than usual. In addition to the increased cost of oil and natural gas, an almost twelve-month outage at Con Edison's Indian Point 2 nuclear plant tightened supply in the downstate markets significantly, leading to higher wholesale prices in times of high demand.[89] If New York's summer weather in 2001 or 2002 is normal or hotter, wholesale price spikes remain a threat.

Con Edison's and Orange & Rockland's current rate structures permit them to pass through to their customers nearly all of the commodity cost of electricity, no matter how high.[90] Con Edison

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[89] The Attorney General has taken NYISO analyses and examined the impact of the Indian Point 2 outage on the price of power in the wholesale markets. The unavailability of Indian Point 2's 941 MW capacity output from February 16, 2000 through early January 2001 required the NYISO to rely upon more expensive generators during times of greater demand, and thus increased the market clearing price for peak-hour power purchased by Con Edison. Indeed, it increased the market price throughout the state. The Attorney General, in a motion filed with the PSC has estimated that the outage cost Con Edison's customers $176.5 million and urged that Con Edison be required to reimburse customers for this increase in wholesale power costs. *See*, PSC Case 00-E-0612 - *Proceeding on Motion of the Commission to Investigate the Forced Outage at Consolidated Edison Company of New York, Inc.'s Indian Point No. 2 Nuclear Generating Facility*, December 4, 2000 *Motion by New York State Attorney General Eliot Spitzer For Complete Quantification Of Consolidated Edison's Liability For Alleged Imprudent Management Of Its Indian Point 2 Nuclear Plant*.

[90] Con Edison passes through to its electric customers 90% of the difference between the company's forecasted and actual purchased power costs. *(Con Edison, P.S.C. No. 9 - Electricity, Leaf No. 163, Effective September 11, 2000.)* Central Hudson Gas & Electric's rates permit an automatic pass-through, but this is ameliorated by the utility's long term supply contracts with the companies that purchased their former generation units. Rochester Gas & Electric has not yet progressed as far as the other utilities towards restructuring, and currently retains most of its own generating plants. LIPA, as a public authority, is not regulated, but instead sets its own rates. LIPA thus ultimately recovers from its customers any increased cost of power it purchases from

is a multi-billion dollar company serving over three million customers, and therefore has much more bargaining power than any of its residential or small business customers to control price volatility through negotiation of long-term contracts with generators, and through other hedges that manage risk.[91] To give an electric utility like Con Edison an incentive to hedge its risks in the wholesale market, the company must pay the price for bad market decisions.

Recent experience in California demonstrates that completely insulating consumers from wholesale electricity prices can financially devastate the affected utilities, especially if, as in California, they must buy all their energy requirements in the spot market. While the New York market rules permit and encourage bilateral contracts and other hedging strategies, we cannot ignore the warning of the California experience.

As electric power supplies increase, customers ought gradually to receive more complete price signals to encourage more flexible and efficient demand.[92] Until we reach that point, however, we must ensure price stability for customers during volatile markets. The complete pass-through of energy costs, such as Con Edison and Orange & Rockland currently enjoy, must be modified. The PSC should cap Con Edison's rates once power prices reach a certain per kilowatt hour level. Below that level, customers would pay the passed-through market price. Above that level, Con

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generators, although the lack of automatic pass-through likely delays the impact.

[91] Other New York utilities, such as Niagara Mohawk Power Corporation and New York State Electric & Gas Corp. currently operate under fixed consumer retail rates, and have been able to obtain long-term supply contracts.

[92] Evidence shows that customers react to price signals by reducing demand, and often do so relatively quickly. For example, according to Hal R. Varian, economics professor and Dean at the University of California at Berkeley, when the electric bills of San Diego residents more than doubled last summer, power consumption dropped 5% within a few weeks. *See, The New York Times*, January 11, 2001, p. C2.

Edison would swallow a substantial portion of the difference. Such billing would limit customers' exposure to market volatility extremes while sending them appropriate price signals reflecting the market price of the electricity they use. At the same time, Con Edison would have an incentive to employ long-term supply contracts and other hedges to moderate the cost of power should market prices exceed the rate ceiling established. [93]

VI. Demand for Electricity Must be Reduced to Minimize the Environmental and Public Health Impacts of Generation and to Assure Market Competition and Stable Prices

Aggressive measures to reduce demand, together with construction of clean and renewable power plants, will greatly reduce the environmental and public health impacts of electricity generation and foster competitive markets and lower electricity bills. Reducing electricity use avoids the need for existing power plants to produce that amount of electricity, and the corresponding emissions. Over the long-term, an energy policy is sustainable only if it includes environmental factors among its objectives. When new, more efficient power plants start supplying electricity to the grid, the need for existing, dirtier power plants should be reduced. But only if demand is simultaneously reduced while clean supply is increased will the State ensure a net gain for

[93] The Attorney General opposes alternative bill mitigation proposals that would not accomplish these goals. One proposal would permit customers to postpone payment of that portion of their electric bills representing extremely high levels, and make up the difference during months when prices are below a certain threshold. This proposal would still expose customers to the full cost of power, albeit leveled over a year's bills. Others have proposed to keep rates at or below a certain pre-determined level throughout the year by offsetting higher summer peak market price levels with a variety of customer credits otherwise owed by Con Edison. Since customers are entitled to these rate offsets whether or not power prices rise, this approach to rate mitigation is unsatisfactory, and would conceal from customers what is occurring in the power market.

the environment and for the consumer.[94]

What appears like a small action to reduce demand can have a large impact. For example, replacing just one incandescent light bulb with a compact fluorescent bulb (which uses 70 percent less energy to produce the same amount of light) can save a consumer over $38, save 337 kWh of electricity, and avoid over 300 pounds of the greenhouse gas CO_2 in three years. If all 6,766,000 households in New York State replaced just one bulb, over $260 million would be saved, 2.2 billion kWh would be saved (more than the electricity generated at an 100 MW power plant), and over one million tons of CO_2 emissions would be avoided in three years. (See Appendix.)

New York already ranks as the second most efficient state in per capita energy use nationwide (in large part due to the natural efficiency of apartment living).[95] Nonetheless, opportunities for improved efficiency and conservation abound. A 1997 study claims that cost-effective investments in energy-efficient technologies could reduce New York's electricity use by 34 percent.[96]

New York State has several programs to compensate for market barriers that discourage energy efficiency. But existing programs are not sufficient to create the environmentally sound, reliable, and balanced energy portfolio that is in the State's best interests. The Attorney General

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[94] If the growth in demand is not reduced, there will be a need for both the existing power supply and new capacity. The addition of even the cleanest natural gas plant will result in a net addition of emissions if the State does not ensure that older, dirtier plants are displaced by cleaner new ones.

[95] American Council for an Energy Efficient Economy. *National and State Energy Use and Carbon Emissions Trends.* September 2000, *Http://www.aceee.org/pubs/e001.pdf.*

[96] American Council for an Energy Efficient Economy. *Energy Efficiency and Economic Development in New York, New Jersey and Pennsylvania.* February, 1997.

recommends significantly expanding these programs (see Section I.D.). The Attorney General is similarly using his legal authority to direct litigation settlement funds to energy efficiency and renewable power investments. In addition, utility portfolio standards would over the long-term lead to significant savings – perhaps 1,000 MW through efficiency and 3,000 MW through renewable energy – that will shift New York's energy policy to a more sustainable framework.

Together, the funding proposals below would direct approximately an additional $120 million per year (on top of existing programs) to energy efficiency, conservation, and renewable energy programs in New York State. (See table 2.) This expansion could result in a savings of over 600 MW over the next two years -- an amount sufficient to avoid capacity shortfalls -- and a necessity if New York State's electric grid is to maintain reliability and to minimize price spikes. At the same time, these energy savings will avoid enormous quantities of harmful pollutants – millions of tons of NO_x, SO_2, and CO_2 – and lead to substantial consumer savings.

If New York's funding levels for efficiency and renewables were increased from the current level of $242 million per year to $360 million per year, as recommended, New York will still spend less per capita than many other states in the Northeast. (See Table 3.)

Table 2
Summary of Attorney General's Proposals to Expand Funding for
Current Efficiency and Renewable Programs

Programs	Current Funding (in millions of dollars)	Estimated Annual Capacity Savings from Current Funding	Proposed Funding Level	Estimated Annual Capacity Savings from Proposed Funding
System Benefits Charge (NYSERDA's EnergySmart Program)[97]	$150 million per year until 2005	200 MW	$150 million per year until 2010	200 MW
NYPA Energy Services[98]	$60 million per year	20-60 MW	$160 million per year until 2010	53-160 MW
LIPA Clean Energy Initiative[99]	$32 million per year until 2004	28 MW	$50 million per year until 2010	45 MW
Power Plant Settlements	$0	0 MW	Approximately $20 million	20-40 MW
TOTAL	**$242 million per year**	**248 - 288 MW**	**$360 million per year plus settlement funds**	**318 - 445 MW**

[97] Estimated savings from the funding proposals are based upon NYSERDA projections, *see SBC Proposed Operating Plan For New York EnergySmart Programs (2001-2006)* February 15, 2001, p. 2.

[98] Estimated savings are based upon the past experience in New York and other states. Between 1990 and 1997, the State's investor-owned utilities spent $1.2 billion on efficiency or demand-side management (DSM) programs, avoiding the need for over 1,300 MW of capacity. These programs included rebates for efficient appliances and lighting, consumer education, and low-income weatherization projects. The NYPA spent $255 million on DSM investments between 1990 and 1996, avoiding the need for 84 MW of capacity. *See*, NYSEPB, *New York State Energy Plan and Final Environmental Impact Statement.* November 1998. p. 3-60, 3-62.

[99] Estimated savings based on LIPA's current projections of 144 MW per $160 million spent over five years. *See*, LIPA, *Clean Energy Initiative*, May 3, 1999, p. 21.

Table 3
Comparison of Demand Side Management
and Renewable Energy Spending Per Capita By State[100]

State	Annual DSM Spending Per Capita
Connecticut	**$35.95**
Massachusetts	**$25.91**
New Jersey	**$28.85**
New York	**$13.30**

Attorney General's Proposed Funding Level

New York	**$19.78**

E. Market Barriers to Energy Efficiency

Despite the financial and environmental benefits of efficiency, many opportunities are not taken due to the numerous market barriers to energy efficiency investments. Efficiency often requires a higher capital outlay (*e.g.* to better insulate a home, get a more efficient refrigerator or motor) and many consumers look only to the up-front cost rather than to the lifetime cost when making purchasing decisions.[101] Within companies, purchasing agents may be responsible only for initial costs while another person is responsible for utility bills. In home or office building and renovations, the person making the capital outlay (*e.g.* the builder) rarely pays the monthly energy bills, and thus has no incentive to build in efficiency. Stores with limited shelf space often do not

[100] American Council for an Energy-Efficient Economy. *A Review and Early Assessment of Public Benefit Policies Under Electric Restructuring, Volume 2. Summary Table of Public Benefit Programs and Electric Utility Restructuring., Http://www.aceee.org/briefs/mktabl.htm. See also,* U.S. Census 1999 population estimates, *Http://quickfacts.census.gov/qfd/index.html.*

[101] Most consumers lack information on the energy, cost, and environmental savings that would enable them to comparison shop for more efficient appliances.

offer more efficient products because they are usually more expensive, and thus take longer to sell.

Efficiency investments are also diffuse. Unlike a power plant, which can generate 100 or 500 MW, efficiency savings come in small increments of a few kilowatts or less. Thus, to "generate" efficiency savings of 100 or 1,000 MW, many actors must be involved, and each must reject the incorrect assumption that his/her actions won't make a difference. For these reasons, most programs to stimulate efficiency focus on information disclosure and subsidies (such as tax credits, mail-back rebates to consumers, or payments to sellers) to lower the initial cost, as well as efforts to encourage retailers to sell efficient products.

B. The Legislature Should Enact Tax Incentives to Purchase Efficient Appliances

Since major home appliances account for approximately one-third of residential energy consumption, the Legislature should pass a sales tax exemption[102] for all major home appliances having the EnergyStar label.[103] Past experience with short-term sales tax exemptions suggests that retailers could show significant interest in this initiative.[104] During last year's sales tax exemption on clothing, for example, many stores offered a matching 8 percent-off sale.

If implemented before the coming summer, this incentive could impact air conditioner sales and thus summer peak demand. Other major appliances and products (i.e. refrigerators, clothes

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[102] The Senate Majority Leader has introduced legislation that includes a sales tax exemption for efficient products and other products that promote conservation. *See*, S.0002-Bruno.

[103] EnergyStar is a voluntary partnership between the EPA, DOE, manufacturers, utilities and retailers. Partners promote energy efficiency by labeling qualifying products with the EnergyStar logo. EnergyStar-approved products are 10-75% more efficient than the federal efficiency standard. The NYSERDA is an EnergyStar partner and promotes EnergyStar products.

[104] The sales tax exemption could also encourage consumers in neighboring states to buy appliances from New York State businesses.

washers, dish washers, furnaces, efficient windows, and lighting) also use significant amounts of energy. While not purchased by any individual very often, the cumulative annual sales of these appliances in New York are significant. For example, according to the Association of Home Appliance Manufacturers, 440,700 room air conditioners, 481,800 refrigerators, 297,700 clothes washers, and 133,400 electric clothes dryers were sold in New York State in 1996.[105]

While it is nearly impossible to predict with precision the cost or impact of the sales tax exemption on efficient products, conservative estimates suggest a positive outcome. If, for example, an exemption steered only ten percent of air conditioner purchases to more efficient models, it could save 8,814 MWh per year and would cost the state (in lost tax revenue) perhaps $1,762,800 per year, while saving ratepayers $1,181,076 per year.

The sales tax exemption would additionally draw attention to efficient products and show the environmental and economic benefit of purchasing such products. Consumer education on the impacts of energy conservation and each individual's ability to contribute is critical to implementation of energy efficiency programs.

C. The Legislature Should Create an Efficiency Portfolio Standard

Electricity retailers, unlike electricity generators, have direct contact with electricity consumers through monthly bills . This contact provides an opportunity to educate consumers. However, absent a legislative mandate, retailers lack incentive to conserve energy because the more they sell, the greater they profit.[106] The Legislature should bring retailers into the State's energy

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[105] Association of Home Appliance Manufacturers, Major Appliances - Estimated Distributor Sales by State. *See http://www.aham.org/indextrade.htm*.

[106] Since distribution costs are essentially fixed, higher sales lead to both higher revenue and proportionately higher profits. See also Section VI.E.3. for proposal to correct these existing market disincentives against efficiency.

efficiency efforts by enacting an Efficiency Portfolio Standard, requiring retail sellers of electricity to achieve certain levels of efficiency improvements in their service area.

Retailers could achieve these gains through direct installation of efficiency measures and include the cost of the installation in their prices. They could also provide rebates, promotions, or education. For example, using bill inserts and instructing employees (such as those answering telephone inquiries or installing equipment) to highlight efficiency and conservation opportunities, retailers could accomplish significant savings. A re-institution of the utility compact fluorescent bulb rebate program could be an important promotion.[107]

While an EPS is a new concept, it has two strong antecedents. Many states have implemented a Renewable Portfolio Standard that requires utilities to buy a minimum percentage of electricity from renewable sources. In addition, before restructuring, utilities were required to achieve certain energy savings through rate conditions that effectively acted like an EPS. Indeed, before restructuring, utilities were able to reduce electrical usage through efficiency measures by over 1,300 MW over seven years when State regulations granted utilities incentives to accomplish that result.[108] (A further precedent is provided by New York City's program to install – at its expense – water conservation devices in hundreds of thousands of homes and apartments. This program successfully reduced water use significantly.)

D. The Comptroller Should Report Annually on Energy Efficiency and Renewable Energy Programs

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[107] Replacement of incandescent bulbs with energy efficient compact fluorescents has the potential to significantly reduce energy consumption and consumer costs. See Appendix A-1.

[108] NYSEPB, *New York State Energy Plan and Final Environmental Impact Statement*, November 1998, p. 3-62. The demand-side management programs cost the utilities $1.277 billion between 1990 and 1997.

Both to enhance public support for and understanding of efficiency and renewable programs, as well as to ensure that the money in these programs is spent most effectively, the Legislature should direct the Comptroller to prepare an annual report on the implementation of efficiency and renewable programs. As noted above, three major State programs currently operate: the NYSERDA's EnergySmart program (using SBC funds), the NYPA's Energy Services programs, and LIPA's Clean Energy Initiative. While the PSC requires the NYSERDA to report on the implementation of EnergySmart, the NYPA and LIPA have no reporting requirement. In addition, there should be verification of progress on the Renewable and Efficiency Portfolio Standards.

The Comptroller's annual report, prepared in coordination with the NYSERDA, NYPA, LIPA, PSC and retailers, should include:

- total funds expended on efficiency, conservation and renewable energy;
- total MWh and MW saved as a result of the programs;
- a running list of all completed projects and a list of all planned projects;
- total energy cost savings to consumers;
- comparative effectiveness of programs; and
- remaining barriers to additional efficiency, conservation and renewable energy projects.

Accurate accounting of efficiency and renewable energy projects is essential to understanding how future energy needs should be met. The Attorney General would commit to assisting the Comptroller with this report and in investigating opportunities to remove remaining legal barriers to a sound energy policy.

E. The PSC Should Improve Pricing and Revenue Signals to Encourage Flexible Demand and Conservation

In addition to tax incentives, Portfolio Standards, and direct subsidies through the NYSERDA, NYPA and LIPA, significant opportunities exist to amend pricing mechanisms to foster efficiency and conservation:

1. Utilities Should Widely Advertise Offers for Different Time-of-Day Rates to Residential Customers to Encourage Load Shifting

The Public Service Law requires large electric utilities to offer residential customers the option of paying different rates for different times of day of instead of paying one rate for all electricity used.[109] For example, instead of paying 13 cents per kilowatt-hour 24 hours a day, a customer could pay six cents during the night and 15 cents during the day. Despite this law, it appears that few utilities effectively offer this service to customers.[110] Since this pricing could shift demand away from peak times, the PSC should require utilities to advertise its availability.

Time of use pricing reduces electricity bills for customers who have the flexibility to use certain appliances, such as the clothes washer and dryer, dishwasher, or water heater, at times when the price is cheapest. This pricing also sends truer price signals to the customer, as it is far more

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[109] *See*, PSL §66(27). This law applies only to corporations with annual gross revenues in excess of two hundred million dollars.

[110] In a December 20, 2000 Order, the PSC required electric utilities to file a report identifying measures that could be taken to reduce peak demand. While several of the utilities indicated that "real time pricing" for their very large users of electricity (*i.e.* commercial and industrial) might be included in their portfolio of strategies to reduce demand, very few identified programs that could reduce peak demand from residential customers. Only New York State Electric and Gas (NYSEG) offers residential customers both time of use pricing (to customers who use 35,000 kWh or more annually) and day-night pricing (to customers who use 1,000 kWh or more per month). ConEd indicated that residential customers would be eligible to participate in its Direct Load Program which would reward customers who voluntarily allow ConEd remotely to control their central air conditioning units during peak.

expensive for the utilities to buy electricity during peak periods than in off-peak periods.

Given the failure of utilities to offer or advertise time of use pricing, significant peak demand reductions may be achievable if the PSC requires more aggressive efforts. The PSC should ensure that each retailer offer reasonable time-of-day (or at least day-night) pricing to all customers, and provide consumers an analysis of the possible savings from such pricing. Appropriate means of financing time-of-day meters will need to be analyzed.

2. Direct Metering or Submetering Should be Expanded

While time-of-day meters would enable direct metered customers to shift some power use to off-peak periods, consumption is not measured individually in many apartments, but rather through the building's "master" meter. Studies have indicated that residents in master-metered buildings tend to consume significantly more electricity than residents with direct meters or submeters. Consideration should be given to the possibility of converting master-metered buildings in New York State to direct metering or submetering.[111] In master-metered buildings, individual residents do not pay for their electricity directly. Rather, electricity charges are included in the rent. These tenants thus have no direct price signal associated with their electricity consumption.

Direct metering and submetering use direct market forces to encourage conservation. For example, a NYSERDA pilot project in 1981 showed an energy savings potential of 18-26 percent

[111] Current Energy Code requires all residential new construction to have separate meters for each dwelling *(See,* 9 NYCRR §7813.52(b)*)*. Between 1951 and 1979, however, the PSC banned submetering. Thus, much of the housing built during this time - including most public housing and other publicly assisted co-ops - have master meters. The Energy Code states that whenever more than 50 percent of a residential building's electrical system is replaced in a twelve month period, each dwelling unit is to be provided with a separate meter. *See,* 9 NYCRR §7810.6.

from submetering.[112] If comparable energy savings were achieved in the approximately 400,000 apartments in 1,800 master-metered buildings in the Con Ed service area,[113] demand in the New York City load pocket would be reduced significantly. The considerable costs involved when converting to direct metering or submetering can be offset by the savings in the electricity bills over time.

Efforts to expand direct metering and submetering are ongoing, and should continue. For example, as part of its Residential Innovative Opportunities program, the NYSERDA has pilot projects to enhance submetering of cooperative apartment buildings, and has provided technical advice to building operators interested in converting to submetering.

3. Utilities Should be Given Incentives to Encourage Energy Efficiency and Clean Distributed Generation

While generators of electricity are allowed to sell their power at market value in the current restructured environment, the transmission and distribution retailers – the utilities – have remained regulated monopolies. That is, the rates received by the utilities from their customers for the transmission and distribution of electricity is still set through rate agreements with the PSC. Among the most central issues raised by the restructured marketplace is whether the utilities' profits should be linked directly to sales.

Under the current rate structure there is a rate cap, which means the more electricity a retailer sells, the greater the retailer's profits. But, a retailer's fixed costs for distribution do not

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[112] NYSERDA, *Facilitating Submetering Implementation*, Report 96-7, May 1996, p. A-2.

[113] *Ibid.*, p. S-1.

increase substantially when marginally more electricity is sold, and thus the rate of profit increases for each additional kilowatt-hour of electricity sold. As a consequence, clean distributed generation, energy conservation or efficiency – all of which reduce a retailer's sales – is usually not in a retailer's best interests despite its significant benefits to consumers and the public.

If the rate structure rewarded retailers for reductions in demand, energy conservation would more likely become a priority for retailers and consumers. The PSC should develop a formula for the distribution charge that rewards (or at least does not discourage) efficiency, distributed generation, and similar efforts.

F. The Federal Government Should Implement New Appliance Efficiency Standards

The DOE should implement the new appliance energy efficiency standards[114] to reduce energy use in an important sector. Not only would this help New York's energy efficiency efforts, but since New York receives significant pollution from upwind states, efficiency efforts elsewhere can improve New York's air.

In 1977, the DOE promulgated efficiency standards for residential refrigerators, residential room air conditioners, and fluorescent lamp ballasts. These standards have been very successful in leading manufacturers to produce far more efficient products, often 25 percent or more efficient than previous models. The DOE estimates that the standards already promulgated will save enough energy to eliminate the need for over 13,000 MW of generation capacity nationwide.

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[114] *See*, 66 Fed. Reg. 3313-33, January 12, 2001 (clothes washers); 66 Fed. Reg. 3335-56, January 12, 2001 (commercial heating and cooling equipment); 66 Fed. Reg. 4473-97, January 17, 2001 (water heaters); and 66 Fed. Reg. 7169-7200, January 22, 2001 (residential air conditioners).

In early 2001, the DOE announced the adoption of new energy efficiency standards for four additional types of appliances –residential central air conditioners and heat pumps, residential clothes washers, residential water heaters, and commercial heating and cooling equipment. These new standards are projected to save consumers and businesses more than $19 billion through the year 2030 and to alleviate the need to build 91 new 400-megawatt power plants. The residential central air conditioner standard alone is estimated to avoid the need for 53 of these plants.[115] It is critical that these standards be adopted by the new administration and fully implemented.

VII. Challenge and Encourage New Yorkers to Assist in Reducing Demand

Every New Yorker can help to save energy, clean the air, and prevent climate change. By implementing these measures, consumers will also save on their electricity bills. State officials should use available opportunities to educate the public on efficiency, renewable power and conservation options.

An average U.S. family spends close to $1,500 a year on its home utility bills (both heating fuel and electricity bills). Businesses spend much more. Unfortunately, not even including inefficient appliances, a large portion of that energy is wasted through actions such as running an almost empty dish or clothes washer, or uninsulated attics, walls, floors, and basements. Lights left

[115] *See*, *New Efficiency Rules Cut Need for 91 New Power Plants*, Environment News Service, Washington, D.C., January 19, 2001. A more complete description of the standards can be found at Http://www.eren.doe.gov/buildings/codes_standards/stkappl.htm.

on when no one is around, at home or in stores or offices after hours, consume electricity needlessly. The DOE estimates that the amount of energy wasted nationwide is about the same amount of energy that we get from the Alaskan pipeline each year.[116]

Individual consumers can do many things at home to save electricity, reduce air pollutants, and reduce their energy bills. Table A-2 in the Appendix illustrates ways, many of which are free and available immediately, to save electricity. For example, if a household increases the air conditioner thermostat in summer by merely three degrees, it would save 937 kWh/yr, and $126 annually. If all New York households did the same, then 6.3 million MWh of energy would be avoided, along with over 3 million tons of carbon dioxide. Avoiding this amount of carbon dioxide is tantamount to removing 600,000 cars in one year.

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[116] DOE, *www.eren.doe.gov/comsumerinfo/energy_savers/introbody.html*. Electricity generated by fossil fuels for one home plus the energy that is generated in the home (for example, a boiler) emits twice as much carbon dioxide as does one typical car in one year. Every kilowatt hour of electricity avoided in New York State saves almost one pound of CO_2 from entering the atmosphere.

APPENDIX

Table A-1
Electricity Savings: Incandescent vs. Compact Fluorescent Lights

Savings show result of replacing one incandescent bulb with a compact fluorescent bulb in one household and in each of the 6,766,000 households in NYS.

Bulb Type	100 watt incandescent	23 watt compact fluorescent	SAVINGS OVER THREE YEARS BY REPLACING BULB
Purchase Price	$0.75	$11.00	
Life of the Bulb	750 hours	10,000 hours	
Number of Hours Burned per Day	4 hours	4 hours	
Number of Bulbs Needed	about 6 over 3 years	1 over 6.8 years	
Lumens	1,690	1,500	
Total Cost of Bulbs	$4.50	$11.00	
Total energy used over 3 years	438 kWh per household 2.964 billion kWh if all households 100 w (4 hrs/day)(365 days/year) (3 years) = 438000 watt-hours or 438 kWh 438 kWh(6,766,000) = 2.964 billion kWh	100.74 kWh per household 682 million kWh if all households 23 w (4 hrs/day)(365 days/year) (3 years) = 100740 watts-hours or 100.74 kWh 100.74 kWh(6,766,000) = 682 million kWh	337.26 kWh per household 2.282 billion kWh if all households (equivalent to the power generated from an 86.8 MW power plant, 24 hours every day.)
Total Cost of Electricity for 3 years (avg price in 1999: 13.4 cents/kWh)	$58.69	$13.50	

Total Cost over 3 years (cost of energy + cost of bulbs)	$63.19 per household $427,543,540 if all households	$24.50 per household $165,767,000 if all households	$38.69 per household $261,776,540 if all households
Total CO_2 emissions over 3 yrs (avg emission rate: 996.7 lbs/MWh or 0.9967 lbs/kWh)	436.56 lbs per household 1,476,882 tons if all households 438 kWh (.9967 lbs/kWh) = 436.56 lbs 436.56 lbs (6,766,000)/2000 = 1,476,882 tons	100.41 lbs per household 339,687 tons if all households 100.74 kWh (.9967 lbs/kWh) = 100.41 lbs 100.41 lbs (6,766,000)/2000 = 339,687 tons	336.15 lbs. per household 1,137,195 tons if all households
Total SO_2 emissions over 3 yrs (avg emission rate: 5.1 lbs/MWh or 0.00511 lbs/kWh)	22.38 lbs per household 75,711 tons if all households 438 kWh (.00511 lbs/kWh) = 22.38 lbs	0.52 lbs per household 1,759 tons if all households 100.74 kWh (.00511 lbs/kWh) = 0.52 lbs	21.86 lbs. per household 73,952 tons if all households
Total NO_x emissions over 3 years (avg emission rate: 1.9 lbs/MWh or 0.0019 lbs/kWh)	0.83 lbs per household 2,807 tons if all households 438 kWh (.0019 lbs/kWh) = 0.83 lbs	0.19 lbs per household 643 tons if all households 100.74 kWh (.0019 lbs/kWh) = 0.19 lbs	0.64 lbs. per household 2, 164 tons if all households

Table A-2
Electricity Savings, Electricity Cost Savings, and Carbon Dioxide Emissions Avoided By Implementing Efficiency and Conservation Measures in One Household and in All New York Households

Household Measure	Electricity saved for one household (kWh/yr)	Electricity saved for all NY households (MWh/year)	Money saved for one household	CO_2 avoided for one household (lbs/yr)	CO_2 avoided for all NY households (tons/yr)
Replace a 1970s refrigerator w/a new EnergyStar refrigerator	2,197	14.9 million	$294	2,190	7,408,770
Increase AC thermostat by 3F degrees for cooling	937	6.3 million	$126	934	3,159,410
Replace 5 incandescent light bulbs with compact fluorescent	562	3.8 million	$75	560	1,894,480

Source: U.S. Energy Information Administration, Household Energy Consumption and Expenditures 1993, and Rocky Mountain Institute's calculations at www.rmi.org (1999)