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Energy Efficiency Programs in New York State: Principles and Strategies for Effective Implementation

What is Energy Efficiency?

Everything we do consumes energy, from the cars we drive to the homes and offices in which we live and work. Although it is neither possible nor desirable to stop using energy, we can use energy more efficiently. This means using less energy while getting the same or improved level of service from its use.

Opportunities to use energy more efficiently abound. For example, air sealing and adding insulation to a home is an energy efficient investment because less heating and cooling energy is required to achieve the same indoor temperature. Replacing an incandescent light bulb with a compact fluorescent light bulb is a more visible example of energy efficiency (EE) because the same amount of light is produced with less electricity. Similarly, purchasing an appliance with an Energy Star label is another highly visible example of energy efficiency in which the buyer sacrifices nothing in terms of the service that the appliance provides. Whatever the service, lowering energy consumption is usually achieved by using a more efficient technology or process rather than by changing behavior.[1]

The Barriers to Energy Efficiency

If we can get the same level of service without changing behavior and save money on energy at the same time, why aren't the most energy efficient technologies already in widespread use? The answer to this question is that there are a number of market barriers that discourage widespread use of the most energy efficient technologies. What follows is a brief discussion of some of the most widely recognized market barriers to energy efficiency.

Incremental and First Cost Barriers

It simply costs more to add insulation to a house, and a quick comparison of the cost of a compact florescent light bulb to its incandescent equivalent will reveal that it costs more as well. This is true for most energy efficient technologies, including Energy Star appliances. However,

[1] Diesendorf, Mark (2007). *Greenhouse Solutions with Sustainable Energy*, UNSW Press, p. 86.

higher incremental costs, also known as first costs, do not mean that EE technologies are not cost effective.

On the contrary, many energy efficient technologies pay for themselves long before their useful lives are through, and in the case of compact florescent light bulbs, the payback period is almost immediate. This is true despite the fact that the purchase price of the compact florescent light bulb can be seven times higher than its' incandescent equivalent. Why? The reason is that the compact florescent light bulb uses 75% less electricity to produce the same amount of light, so the savings from the electricity not used quickly repays the incremental cost. As an added benefit, the CFL lasts ten times longer. This both offers replacement savings and adds to the savings it brings to the customer over its lifetime.

Life Cycle Cost Estimate for
ENERGY STAR Qualified Compact Fluorescent Lamp(s)

	ENERGY STAR Qualified Unit	Conventional Unit
Number of units	1	
Electricity Rate ($/kWh)	$ 0.106	
Hours used per day	3	
Initial cost per unit (estimated retail price)	$3.50	$0.50
Wattage (watts)	15*	60
Lifetime (hours)	10,000	1,000

**ENERGY STAR wattage is calculated based on the wattage selected for the incandescent unit, user can enter an alternative value if desired.*

Annual and Life Cycle Costs and Savings for a CFL

	1 ENERGY STAR Qualified Units	1 Conventional Units	Savings with ENERGY STAR
Annual Operating Costs*			
Energy cost	$2	$7	$5
Maintenance cost	$0	$4	$4
Total	**$2**	**$11**	**$9**
Life Cycle Costs*			
Operating cost (energy and maintenance)	$13	$81	$68
Energy costs (lifetime)	$13	$52	$39
Maintenance costs (lifetime)	$0	$29	$29
Purchase price for 1 unit(s)	$3.50	$0.50	-$3.00
Total	**$17**	**$82**	**$65**
		Simple payback of initial additional cost (years)†	**0.3**

* *Annual costs exclude the initial purchase price. All costs, except initial cost, are discounted over the products' lifetime using a real discount rate of 4%. See "Assumptions" to change factors including the discount rate.*
† *A simple payback period of zero years means that the payback is immediate.*

Source: US EPA, http://www.energystar.gov/ia/business/bulk_purchasing/bpsavings_calc/CalculatorCFLs.xls

As we can see, there is a compelling economic case to purchase and install a CFL in the home. However, consumer purchasing decisions are seldom this sophisticated, and consumers are not always informed about the benefits of an energy efficient product. As a result, consumers often fail to appreciate an energy efficient product's money saving benefits, and will purchase the alternative with the lowest first cost.

Split Incentive Barriers

Split incentives are situations in which the savings from an energy efficient purchase do not accrue to the person who is paying for it. This situation is common in residential or commercial rental properties where the tenant is responsible for the energy bills while the landlord is responsible for maintaining the property. As a result, the rental property owner has no incentive to provide the most efficient lighting, appliances, and HVAC[2] equipment because he is not responsible for the energy bills and will not reap the benefits of reducing those costs. As a result, the owner will usually choose the equipment with the lowest first cost.[3]

The split incentive barrier is also prevalent during the construction of new buildings. Builders work under budgetary constraints, and like rental property owners, have little incentive to install more efficient, but also more expensive, equipment.

Other Barriers

There are a variety of other barriers that people encounter when faced with making a decision to make an energy efficient investment. For instance, lending institutions almost always fail to consider the fact that energy efficient homes have lower operating costs, which increases the borrower's cash flow and their ability to repay the loan. This is an underwriting barrier**.** If lenders did recognize this dynamic, not only would owners of energy efficient homes pay lower interest rates and have higher amounts of disposable income, but owners of standard homes would also have an incentive to invest in efficient upgrades and refinance at lower interest rates.

There are also regulatory barriers to energy efficiency. Because retail energy prices are fixed by regulatory bodies, customers do not experience the real and volatile price fluctuations that are a core characteristic of energy markets. As a result, consumers do not realize that EE not only saves them money on their energy bills, but also decreases their exposure to volatile energy prices through reduced energy consumption.

People are creatures of habit, and frequently make decisions based on their past customary behavior, instead of a rational consideration of present day facts. When people do take the time to weigh the costs and benefits of a purchase, they may suffer from a lack of information about the energy efficient benefits of the product. This is not only a problem for consumers, but also for retailers, builders, and contractors.

Because information and marketing are ubiquitous, consumers often question the trustworthiness of the information that is available, and even when quality information is available to the consumer, the energy efficient features of a particular product are sometimes bundled with other features that are inseparable from the overall product in question. Such inseparability not only complicates the purchase decision, it can preempt an otherwise rational desire to make an energy efficient purchase decision.

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[2] HVAC means "Heating, Ventilation, and Air Conditioning."

[3] Market Barriers to Energy Efficiency: A Critical Reappraisal of the Rationale for Public Policies to Promote Energy Efficiency, William H. Golove and Joseph H. Eto, Energy & Environment Division, Lawrence Berkeley National Laboratory, March 1996

There are windows of opportunity that, once closed, preclude energy efficient alternatives for many years. New construction and remodeling of residential and commercial buildings are common examples, but there are also windows of opportunity during the design phase of many products that can have profound effects on energy use. Finally, access to credit is a common barrier to making investments in EE, particularly for low-income individuals and small business owners who are frequently unable to borrow as the result of their economic status or credit score. When people or businesses cannot borrow, they are often unable to make investments in EE.

The Benefits of Energy Efficiency

Overcoming these barriers and making EE a pervasive part of our economic decision making brings with it a number of important benefits. The first and most obvious is the dollar savings that are realized by having lower energy bills. However, the retail savings to the end use customer are only the beginning of the benefit stream from EE. The savings from EE affect the larger economy through a variety of channels.

- **Avoided Utility Costs**: The host utility no long needs to purchase as much energy from the wholesale market, and realizes a savings as a result. The same utility has to maintain less investment in the distribution infrastructure (poles, wires, pipelines, power plants, etc.) which reduces its' costs over time.
- **Job Creation**: Because the EE industry is inherently more labor intensive than the utility industry, money spent on EE creates a net increase in employment over time.
- **Localization of Economic Benefits:** In contrast to money that is spent to import energy from distant sources, dollars spent on energy efficiency circulate primarily within the local economy.
- **Protection from Price Volatility:** Energy efficiency is, in effect, a long-term investment in meeting energy needs that, once made, does not vary in price by fluctuating fuel costs or sudden market shortages. In fact, the value of an energy efficiency investment *increases* as the market price of other supply options goes up.
- **Reduced Power Plant Emissions**: Power plans are required to control many of their emissions, including NOX, SOX, particulates and mercury. There are tradable permit systems in place today for NOX and SOX as part of the Clean Air Act, and New York has chosen to control CO2 emissions under the Regional Greenhouse Gas Initiative's (RGGI) tradable permit system. Because EE eliminates the need to generate electricity, it reduces both real air emissions and the costs of tradable permit systems.

A Brief History of Energy Efficiency Programs in New York

New York was among the first states to recognize the benefits of energy efficiency, and has a 20 year history of implementing programs that have addressed many of the market barriers to EE. Those efforts have been comparatively strong with respect to electric efficiency, with the NYSERDA, NYPA and LIPA all having long histories of promoting efficiency.

A recent report lists New York as one of the top 14 states in terms of promoting electric efficiency, with its ranking being between the 6th best and 11th best state, depending on which metric one uses.[4] A number of New York programs have won prestigious national awards, including "exemplary program" awards from the American Council for an Energy Efficient Economy. Those programs, like other leading programs across the country, typically include an integrated and coordinate set of strategies designed to comprehensively address barriers to efficiency investments in specific markets. Such strategies often include financial incentives, loan offerings, marketing campaigns, and technical training.

Until recently, much less effort has been focused on natural gas efficiency and very little has been focused on addressing opportunities for improving the efficiency with which unregulated fuels (e.g. fuel oil and propane used for residential space heating) are used. New York is not unique in that regard; nationally natural gas efficiency program efforts have lagged behind electric efficiency initiatives and almost no attention has been paid to unregulated fuels.

In recent years, New York's efforts – like those of several other states – have ramped up considerably, on both the electric and gas sides. Meeting the Governor's 15% savings by 2015 goal will likely require further ramp up.

The following sections present a brief description of the EE programs that are currently offered by three of the largest and longest standing electric efficiency program administrators in the State.

[4] ACEEE, www.aceee.org/pubs/u091.htm

Long Island Power Authority (LIPA)

In May 1999, the LIPA Board of Trustees approved a Clean Energy Initiative ("CEI" or "the Initiative"), "a five-year, $160 million effort targeted at achieving energy and capacity savings for LIPA, delivering electric bill savings to customers and providing environmental benefits to society." In 2001 the overall commitment through 2003 was increased by $10 million to a new total of $170 million. In 2003, LIPA earmarked $185 million for the CEI from 2004 through 2008. Thus, in total LIPA will have spent $355 million over the first ten years of the CEI (1999 through 2008).

The CEI portfolio currently contains eleven programs that pursue investments in EE, renewable energy, peak load reduction, and a variety of research, development and demonstration (RD&D) projects. Among the key characteristics of these programs are their flexibility, multi-year commitments and their combined treatment of all customer classes.

The CEI is primarily administered through National Grid which oversees the activities of a host of contractors who carry out program implementation in the field such as the Energy Star Homes Program, Home Performance with Energy Star Program, Lighting and Appliance Program, Commercial Construction Program, and the Residential Energy Affordability Program.

The efficiency measures installed between the CEI's inception and the end of 2007 are producing annual savings of nearly 600,000 MWh. The cumulative savings over that time period (i.e. adding energy savings in 1999 to those in 2000 and so on through 2007) are about 2.4 million MWh. Those savings have resulted in reduced emissions of over 1.5 million tons of CO_2, over 2000 tons of NO_x and over 6500 tons of SO_2. Finally, the measures installed from CEI inception through 2007 have provided over 190 MW of peak demand savings.[5]

Beginning in 2009, LIPA has launched a new, even more aggressive initiative designed to capture 520 MW of peak demand savings with a budget of $920 over 10 years (2009 through 2018).

The New York Power Authority's (NYPA) Energy Efficiency Programs

In 1990, the New York Power Authority (NYPA) implemented EE programs for its government customers in New York City and Westchester County. Over the next 4 years, NYPA expanded its Energy Service Program (ESP) statewide to include state-operated facilities, public schools, community colleges, and county and municipal governments.

NYPAs's programs seek to implement all cost effective EE improvements in a single, comprehensive effort. As a result, NYPA works with facility managers to identify opportunities where efficient lighting, appliances, motors, and HVAC systems can be designed and installed to save energy. These projects are financed by sharing in the resulting electric bill savings

[5] LIPA, http://www.lipower.org/pdfs/cei/annual07.pdf

combined with a loan program. Once the loan is repaid, typically within 10 years, the customer retains all of the savings which can be up to 25 percent.

To date, NYPA has completed over 1,400 EE projects at 2,650 public facilities, saving taxpayers over $100 million a year. A sampling of the customers who have participated in NYPA's efficiency programs include the Kingston School District, State University of New York (SUNY), New York City Subway, New York City Policy Department, and the Brooklyn Supreme Court.[6]

New York State Energy Research and Development Authority (NYSERDA) Programs

In 1996, a System Benefits Charge (SBC) was levied on the state's electric rate payers, and NYSERDA, a public benefit corporation, used part of this funding to create the New York Energy Smart℠ program. New York Energy Smart℠ implements a variety of EE programs for residential, commercial, and industrial customers, and also uses SBC funds for renewable energy research and development, environmental monitoring and protection, combined heat and power and low-income programs.[7]

To date, approximately 2,700 projects across 40 individual programs have been implemented through the Energy $mart program, saving about 1,400 GWh/yr and $198 million in annual energy costs. The Energy $mart programs have also created or retained an estimated 4,200 jobs, leveraged $2.50 in private investment for every dollar spent, and reduced electrical demand by 860 MW, not to mention the environmental savings from reduced power plant emissions. [8]

In 2008, the Public Service Commission (PSC) issued a decision establishing New York's Energy Efficiency Portfolio Standard (EEPS). The Commission established targets and funding through 2011 for statewide programs to reduce New Yorkers' electricity and natural gas usage by 15% of forecast levels by the year 2015.[9] This decision effectively doubled the electric SBC to $347 million per year. NYSERDA is receiving $260 million to expand its' EE programs, and the remaining $87 million is allocated to the State's public utilities who are ordered to propose or expand their own EE programs.[10]

The Energy Efficiency Portfolio Standard

Of all the EE policies available to New York, the Public Service Commission's (PSC) Energy Efficiency Portfolio Standard is arguably the most compelling. In the June 18, 2008 Order, the PSC declared:

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[6] New York Power Authority, www.nypa.gov
[7] NYSERDA, www.nyserda.org
[8] The New York Observer, Steve Cohen, Promoting Energy Efficiency: Comparing New York State to California, September 17, 2008
[9] New York Public Service Commission, Order Approving an Energy Efficiency Portfolio Standard, October 2008
[10] The New York Observer, Steve Cohen, Promoting Energy Efficiency: Comparing New York State to California, September 17, 2008

One of New York State's highest energy priorities is to develop and encourage cost-effective energy efficiency over the long term, and immediately to commence or augment near-term efficiency measures. The determinations in this Order establish the framework for ensuring that energy efficiency becomes an integral part of the New York energy industry. This initiative is in the context of the broader State policies for the development of the clean energy industry and economy in the State: policies including Executive Order No. 2 of Governor David Paterson, the Renewable Portfolio Standard, the Regional Greenhouse Gas Initiative (RGGI), and improvements in State energy building codes and appliance efficiency standards.

We reaffirm our support for the long term goals and purposes set forth in the Initiating Order. Most important, we adopt the goal of reducing electricity usage by 15% statewide by 2015.[11] *The objectives of the EEPS are to realize New York's untapped potential for energy efficiency and make this a high priority energy resource.*

The EEPS was adopted with a well defined goal of achieving 15% energy savings by 2015 and an expanded budget that was explicitly set by multiplying this goal times the expected program cost of $305/MWh[12]. It also authorized specific energy efficiency programs for immediate implementation, directed the State's investor-owned utilities to collect SBC funds through 2011, and required the State's utilities to adopt their own EE programs.

The EEPS goals represent both an opportunity and a challenge. As the next section will show, the opportunity to reduce energy consumption is large. The challenge facing NYSERDA and New York's electric utilities is to thoughtfully design and implement complementary EE programs that maximize energy savings, keep program costs within established funding limits, and effectively coordinate the efficient delivery of EE services to electricity consumers.

Energy Efficiency's Untapped Potential

Despite the decades-long effort that these programs represent, there is a substantial amount of cost effective EE potential that remains untapped. In 2003, NYSERDA received a study that it had commissioned to determine how much potential existed for electric EE and renewable energy to displace fossil-fueled electricity generation. The study examined the potential for efficiency technologies and practices to lower end-use electricity requirements in residential, commercial, and industrial buildings over a 5, 10, and 20 year time horizon.

The study's objectives were to

1. Estimate the theoretical maximum amount of electricity that EE could provide,

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[11] "The purpose of the proceeding is to design an EPS to meet the targets for energy efficiency which, along with additional renewable resource development, and other programs, decreases the State's dependence on fossil fuel based generation and imported fuels, and reduces its greenhouse gas emissions. An EPS should be designed ultimately to reduce customer bills, stimulate State economic development, and create jobs for New Yorkers." Case 07-M-0548 – Proceeding on Motion of the Commission Regarding an Energy Efficiency Portfolio Standard, Order Instituting Proceeding (issued May 16, 2007) (Instituting Order).

[12] $305/MWh represents the first year cost of energy efficiency, not the lifetime cost.

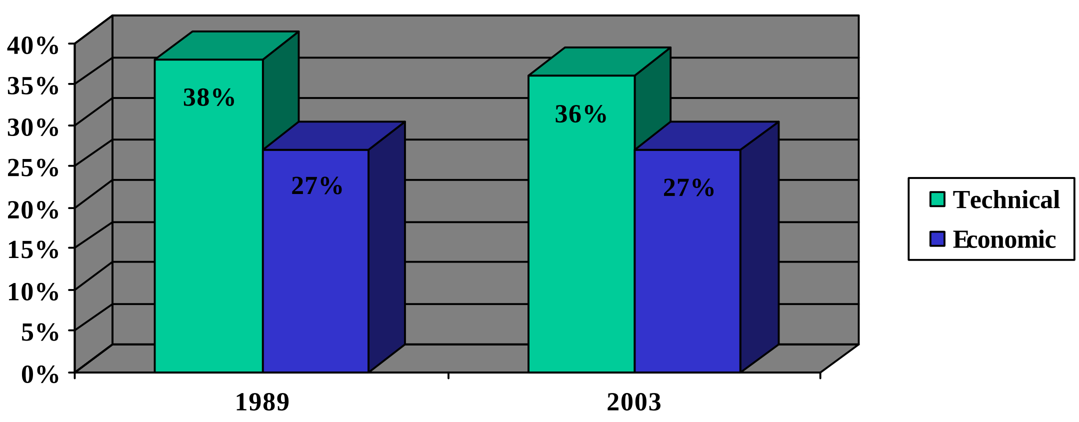
2. Determine how much of that potential would be economical compared with conventional generation, and
3. Independently assess the impacts throughout New York from currently planned energy policy and program initiatives.

The study found large amounts of technical potential for efficiency and renewable energy. It also found that much of this theoretical potential would be economical compared to conventional electricity generation.[13]

Projecting from market intervention strategies that have proved successful in the past, the study concluded that efficiency and renewable energy could enable New York to meet then greenhouse gas emission reduction targets being considered at the time while actually reducing statewide electricity costs. Specifically, the study found that it was possible to reduce New York's annual electricity generation requirements by more than 32,000 GWh (more than 16% of baseline forecast sales) by 2022, while saving the state ratepayers between $9.1 and $16.6 billion.[14] About 70% of both the reductions in traditional electric generating requirements and the economic benefits from those reductions were attributable to efficiency measures.

Although these numbers are compelling, they do not tell the entire story of EE potential. Energy Efficiency potential is not a fixed quantity. As electricity prices increase, technologies evolve or are newly invented, and other factors such as Climate Change and a concern for Energy Independence gain priority, the level of EE potential is replenished and can increase. In fact, this dynamic has already been experienced in New York. Even after 14 years of successful EE program implementation, the electric EE potential in New York was practically the same (in percentage terms) in 2003 as it was in 1989.

Comparison of Energy Efficiency Potential in New York State: 1989 vs. 2003



Source: Steve Nadel, ACEEE

[13] The 2003 study could already be considered to be on the low end of estimated potential. Recent discussions in Massachusetts suggest the possibility of much deeper levels of efficiency potential.
[14] Energy Efficiency and Renewable Energy Resource Development Potential in New York State, Volume One: Summary Report, Prepared for NYSERDA by Optimal Energy et. al., August 2003

Studies of natural gas efficiency potential have not been as detailed as those for electric efficiency. However, New York did commission an assessment of how much could be saved in the state with an annual gas efficiency program budget of $80 million. The study was completed in 2005 and recently updated. It found that 10 years of programs at that funding level could reduce total natural gas consumption by 2.8%. That was estimated to be only about 15% of the total achievable potential (i.e. if all cost-effective efficiency were pursued without budget constraints). Even at that level of savings, the benefits to New York ratepayers were estimated to be nearly $1.4 billion.[15]

Principles of Effective Program Implementation: Coordination, Integration, & Structure

Like many states, New York's EE programs have operated under modest funding and at a correspondingly modest scale for many years. Now that New York has committed the funds to scale up its EE efforts and achieve specific EE goals through the EEPS, it faces the challenge of scaling up its EE programs. The principles needed to accomplish this fall under three broad categories; Service Coordination, Program Integration, and Organizational Structure**.**

EE programs are usually organized by market segments such as residential, multifamily, commercial, and industrial. However, markets themselves are inherently dynamic and seldom lend themselves to such neatly defined categories. For instance, a multifamily property is typically operated as a business by a business entity, yet it is occupied by residents who may have individual residential utility accounts. Such a property may include commercial grade mechanical equipment, residential appliances and both commercial and residential grade lighting.

Certain market segments cut across any boundaries one might attempt to establish to compartmentalize market services. For example contractors, whether HVAC contractors or electricians, typically work in both the residential and commercial markets; they work in new construction and in existing facilities; they do retrofit and new construction projects. Today's policy makers must strive to avoid creating programs that are rooted in the distinct customer segmentation which has been common practice for some time in the utility EE industry.

A better EE strategy is to coordinate all service offerings by engaging the market's entire value chain from the outset of the program's implementation. This is called a Markets Approach to Service Coordination.

Four hallmarks of the Markets Approach are:

1. Offerings designed to *complement* one another and be *integrated* across programs;
2. Movement away from "a la carte" program marketing to a more strategic approach;
3. An assessment of each customer's needs (not which program they should enter);

[15] Optimal Energy, "New York State Natural Gas Efficiency Program Assessment Update", memorandum from Phil Mosenthal et al. to the New York Department of Public Service, January 28, 2008.

A Markets Approach to structuring the delivery of EE programs integrates internal development and delivery of services to produce a seamless set of messages and services for the consumer. This means that the delivery of efficiency services must continue to focus on overcoming market barriers. This is the motivation underlying original EE program designs, and to remain effective, EE program design and delivery must evolve by continually observing exactly what the market barriers are today and how best to overcome them. In some cases, this means recognizing that a programmatic, a la carte approach to EE programs can itself be a market barrier.

The Markets Approach can be extended beyond electrical efficiency programs to include other fuels (primarily heating fuels) as well as distributed energy resources (solar, wind, combined heat and power, and demand management). If we believe in a coordinated, markets based approach for electric energy efficiency, shouldn't we also offer customers EE and renewable energy services to the greatest extent possible in an integrated (or at least coordinated) fashion?

The need for this approach is perhaps most obvious in the need to integrate gas and electric efficiency offerings. A series of EE programs that make the customer go on a separate research project for each aspect of efficiency or renewable energy investment at their site is simply ineffective. If we are going to realize the levels of savings that are needed to meet the 15% by 2015 goals, we must make sure that service offerings are comprehensive and integrated. Strategies should be designed to offer the information and support that will make the best options available and attainable for customers.

This does not require that there be a single vendor, or even that there be a single implementation entity. It does require that there be a high level of coordination among key players from gas and electric companies to weatherization contractors and renewable energy vendors.

In this context the savings from EE efforts and the other resources that come from Demand Management (DM), Combined Heat and Power (CHP) and customer-sited Renewable Energy (RE) begin to merge into a broader concept that is sometimes described collectively as Distributed Resources (DR).

Establishing a supportive organizational structure is an essential component of any effort to develop a sustained and deep level of EE and RE investment. EE programs are a product of the people and the organization who implement them, and coordination between programs necessarily requires coordination among people within organizations. This requires a thoughtful design of the implementation effort, and here policy makers can have a direct influence by;

- **Aligning** the mission of the Implementing Entity with policy goals. EE efforts will only maximize savings if the mission of the implementing entity is fully aligned with the savings objectives. Often times, an implementing entity does not have a clear incentive to maximize efficiency. For instance, utility shareholder interests now compete with efficiency efforts. As a result, it is critical that those barriers be overcome with decoupling mechanisms and/or clear performance incentives.

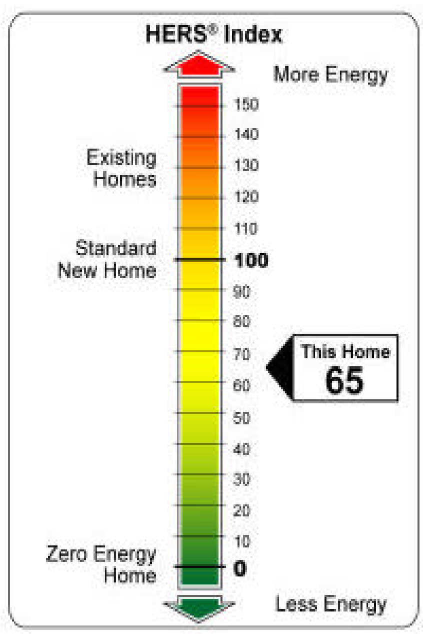
- **Designing Flexibility** into the Implementing Entity so that it can change the details of program design, resource allocation, and implementation to respond to changes in the marketplace. For example, the implementing entity should be able to alter incentive levels in response to market experience and understanding, and even reallocate resources from incentive budgets to staffing budgets if customers are in need of more personal service.

- **Creating a Single Point of Access** for all customers who are interested in making investments in efficiency. The Governor's 15% by 2015 proposal has recommended the creation of such a clearinghouse for schools, hospitals, and local governments. However, the underlying need is common for all customers, and it makes sense to expand the concept to all customers.

Emerging Policies and Programs for a Sustainable Energy Future

Aggressive programs will always be most effective if supported by related policy initiatives. Several policies could be particularly helpful in the coming years as the state attempts to meet the governor's aggressive savings goal. Some of them are described below.[16]

Time of Sale Home Energy Rating Requirements



Home Energy Ratings provide a standardized evaluation of a home's energy efficiency and expected energy costs. A home energy rating, such as the Home Energy Rating System (HERS) Index, consists of an audit and rating certificate that allows a home buyer to easily compare the energy costs between homes.

The Time of Sale concept is simple. All homes would be required to obtain a Home Energy Rating when they are sold. This requirement would start the process of disclosing and educating home buyers on the energy efficiency of different homes, and over time, the entire housing stock would have a rating. This will help home buyers to make more informed home buying decisions, facilitate the use of Energy Efficient and Energy Improvement Mortgages, and allow energy efficiency programs to accurately target the most promising energy savings opportunities within the housing stock.

Clean Energy Tax Assessment Districts

[16] See the very helpful white paper by the Building Energy Codes Project, entitled:: Model Progressive Building Energy Codes Policy for Northeast States.

Berkley, California has pioneered the concept of having a municipality attach property tax assessments to properties that have invested in long-lived EE or renewable energy projects. The idea is to use the municipality's low cost borrowing capacity to finance energy efficiency and renewable energy retrofits over a long enough term to enable building owners to see positive cash flow (i.e. quarterly or annual energy bill savings are greater than the loan repayment for the same period) than from such investments. The innovation is part financial and part ownership. In a Clean Energy Tax Assessment District, the owner of a property who has made a substantial investment in EE or renewable energy can sell the property in the future without having to absorb the lost opportunity cost of the future energy savings or the sunk cost of the initial investment.

Geographic Targeting for Efficiency Investments

The practice of directing energy efficiency efforts toward targeted geographic areas across the State can help relieve the electric load on constrained transmission and distribution (T&D) systems, and should be an integral part of a utility's least cost plan. A constrained T&D system is an area where the demand for power on the electric T&D facilities is at or near capacity during periods of peak demand for electricity. These peak demand periods typically occur during the hottest days of the summer or coldest days during the winter. As electricity demand increases, the need to take action, either to upgrade the electric transmission and distribution infrastructure or to reduce the load becomes more critical. In addition to lowering the energy costs of participating homes and businesses, the energy savings from Geographic Targeting reduces the overall peak demand for electricity.[17]

Building Codes and Standards

In addition to the proposal to create an effective Time of Sale energy Ordinance, discussed above, a number of helpful suggestions have been made by the Northeast Energy Efficiency Partnerships, Inc. (NEEP), which proposed improvements to existing building codes and minimum equipment efficiency standards effort in New York.

NEEP's comments focus on Section 4 of the draft document, *A Strategy for Enhanced Building Codes and Appliance Standards,* prepared by NYSERDA to guide attainment of the EEPS.

1. NYSERDA should consider expanding the pilot program of fee-for-service plan review to include energy code inspections. This pilot effort has begun to develop a sustainable funding mechanism for plan review and inspection of buildings subject to code.
2. New York should include an Informative Appendix in the state code to help in the development, adoption and implementation of advanced building energy codes. This innovative approach would contain alternative building energy code models that have proven to provide greater energy savings than the minimum state building energy code. Many of the procedures discussed in the strategy proposed by NYSERDA would be used to develop the Informative Appendix; the difference, however, is that local jurisdictions, once the Informative Appendix is in place, would have an approved, easily accessible model from which to adopt and implement an advanced code.

[17] Source: http://www.efficiencyvermont.com/pages/Common/News/geotarget_news/

3. Consumer electronics should be made an area of focus for the updating of appliance efficiency standards by NYSERDA and the Department of State (DOS).

Summary & Conclusion

A great deal of care is required to effectively design and implement a comprehensive, ambitious set of energy efficiency policies and programs. Each EE policy and program must be managed in the context of other policies and within the larger framework of the State's overall policy goals. This does not imply that policy makers need to intervene regularly to deal with the inevitable changes in energy market conditions. What it does mean is that policies should be designed at inception to be coordinated, flexible, and consistent. At the highest level, this kind of policy integration should include the following characteristics.

1. **Stable, adequate, and comprehensive funding of programs.** An ACEEE[18] study recently concluded that this is the single most important factor in determining a State's energy savings performance.[19] The simple reality is that first, *stable* funding, and second, *adequate* funding of EE programs are the best resource investments that can be made on behalf of customers and utilities. Erratic and low funding levels represent a clear choice that the goal of attaining all cost-effective EE is not taken seriously. Third, as efficiency efforts move to an "all-fuels" approach some form of "systems benefit charge," perhaps through a dedicated tax, should be adopted to fund both expanded Weatherization and support for unregulated fossil fuel efficiency efforts. Active public support for the systems benefit charge, or other regulatory mechanism that provides these resources is essential.

2. **Ensure adequate coordination across policies, programs, and all fuels.** First, it is critically important to ensure consistency across programs so that the messages to consumers and trade allies are as simple and clear as possible, and transaction costs for them to participate in programs are minimized. We can't have programs from different providers competing with or even confusing each other if we want to meet aggressive goals. Second, integration across different fuels needs to be achieved. Finally, integrating EE with DR and T&D planning should be addressed. A high priority must be put on reaching all market segments and all policy goals. In the long run, EE programs need to be fully integrated with all Distributed Resources (DR), and thereby included actively in every utility's Resource Plan as well as in the T&D Planning of the New York Independent System Operator. Ultimately, EE and DR must be incorporated into the many areas of intersection where fuels that appear to be discreet actually interact with one another.[20]

3. **Foster a Supportive Regulatory Environment**: We must support adoption of key state and local policies to support EE program efforts. Some examples listed above include a time of

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[18] ACEEE = American Council for and Energy Efficient Economy

[19] Kushler, York, and Witti, ACEEE, Meeting Aggressive New State Goals for Utility-Sector Energy Efficiency, March 2009

[20] For instance, if there is a serious movement toward electricity as a transportation fuel, the EE and DR discussion needs to be broadened considerably. Even this paper indicates the segmentation of energy forms and end uses, since it has hardly addressed the issue of transportation.

> sale energy rating requirement, clean energy tax assessment districts, least cost T&D planning, and more aggressive codes and standards. As noted above such policies can play a critical role in either driving participants to programs, creating new program opportunities and/or locking in efficiency gains so that limited program funds can be spent on raising the bar even higher."

The opportunities for effective governmental action on energy policy have never been greater, and states like Massachusetts and California are leading the way toward showing what is possible when legislation is enacted that requires "all cost effective efficiency" to be acquired. Not only can EE reduce our future needs for energy, but they can actually reduce absolute energy use. The same potential exists in New York, and with effective and coordinated EE programs, this potential can be realized.