

Energy Efficiency & Water Sustainability in New York, II

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The Swedish-American Chamber of Commerce in New York,
GreenTech Division

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Energy Efficiency and Water Sustainability in New York

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Part 2

Introduction

The aim of this report is to provide a summary of the most important insights gained from the ongoing work of the Swedish-American Chamber of Commerce and its GreenTech division. The GreenTech division has identified energy efficiency and water sustainability as two areas of specific interest in New York State.

The first part (Part 1) of the report was released early fall 2009 and described an overview of current developments, significant issues as well as trends in the energy efficiency and water sustainability sectors in New York. Numerous factors drive developments in these sectors. Initiatives on federal, state and local levels to reduce emissions include extensive financial incentives to encourage lower energy consumption. Additionally, new regulation is expected to transform and kick-start the market as awareness of green building benefits builds. Environmental awareness among New Yorkers is growing, and energy consumption habits are being questioned – and changed. The global financial crisis has also contributed to these developments as demand for cost-effective methods rise. Investments in energy efficiency improvements are attractive as they usually have a short payback time. About 80 percent of New York City's carbon emissions come from existing buildings, making energy efficiency one of the most important components of the City's goal to reduce carbon emissions. Unlike most other states, New York has an abundance of water. One of the largest issues in New York, in addition to reduced carbon emissions, is to maintain and improve water quality.

This second part of the report (Part 2) will begin with a short description of some important policies and incentive programs available at state and local levels in New York. This is followed by a snapshot of areas and technologies considered to be developing with potentials as interesting business opportunities in New York now and in years to come.

There is an outline of New York State's share of the [federal stimulus package](#) relating to energy efficiency and water. Furthermore, programs available in [New York State](#) are described, using the following subcategories (click on the category name in order to be transferred directly to the description): [Energy Standards for Public Buildings](#), [Corporate Tax Credit](#), [Industry Recruitment/Support](#), [Personal Tax Credit](#), [Property Tax Exemption](#), [State Grant Program](#), [State Loan Program](#), [State Rebate Program](#). Finally, [local New York City](#) programs will be covered. To read more about a program, click on the link "[Read more](#)" following the program descriptions below. Please note that additional programs to those covered in this report may be available and that these programs are constantly changed.



New York State's Share of the American Recovery and Reinvestment Act

In order to stimulate the U.S. economy, President Barack Obama signed the American Recovery and Reinvestment Act (ARRA) into law on February 17, 2009. ARRA is an economic stimulus package of \$787 billion and includes domestic spending in various sectors. Below is an outline of how the money granted to New York State (in the energy and infrastructure sectors) was allocated.

Clean Water State Revolving Fund (CWSRF)

New York State CWSRF received \$433 million, which represents about 11% of the total amount given to CWSRF, making New York State the single largest recipient. It is required that at least 20 % of the funds are used for innovative green technologies and infrastructure projects. Each state maintains a CWSRF loan fund to provide low-cost financing for water quality infrastructure projects.

[Read more](#)

Drinking Water State Revolving Fund

New York State has received \$87 million for investments in water supply infrastructure and improvements of water quality. [Read more](#)

Weatherization Assistance Program (WAP)

The Program has received approximately \$394 million; New York is thereby the state receiving the largest share. The program provides low-income households with home energy conservation services. [Read more](#)

Energy Efficiency & Conservation Block Grant

New York's share of this grant amounted to a cap of \$175 million. The money is to be used to develop and implement projects to improve energy efficiency and reduce energy consumption and fossil fuel emissions. [Read more](#)

State Energy Program

New York has received \$123 million to be used for maximizing benefits of energy efficiency and renewable energy, and also for improving the security of the energy infrastructure. [Read more](#)

New York State Programs

Energy Standards for Public Buildings

New York - Energy Efficiency Standards for State Facilities

New construction and substantial renovation of state facilities must follow and exceed LEED building guidelines. New buildings are required to better the New York State Building Code by a minimum of 20 %, and renovations by 10%.



Also, state organizations must choose Energy Star labeled products when purchasing energy equipment. [Read more](#)

New York City - Green Building Requirements for Municipal Buildings
New City-funded construction and reconstruction projects, with an estimated cost of more than two million, with few exceptions, must meet LEED Silver Certification standards. [Read more](#)

Corporate Tax Credit

Green Building Tax Credit Program (Corporate)

The incentive program applies to buildings and tenant spaces which meet certain "green" standards. Regulations are still in development and will be in place early 2010; there is a \$25 million allocation [Read more](#)

Industry Recruitment and Support

NYSERDA - Clean Energy Business Growth and Development

In order to help clean energy businesses, including energy efficient technology, achieve success in New York, this program provides grants of up to 50 % of a project's cost, with a maximum of \$200,000 per project. A total of \$6.4 million is available for five rounds of funding through November 3, 2010. [Read more](#)

NYSERDA - Renewable, Clean Energy, and Energy Efficient Product Manufacturing Incentive Program

Financial assistance is provided for developing facilities to manufacture renewable, clean, and energy-efficient products in New York State. A total of \$10 million is available and proposals will be accepted through June 30, 2011 or until funds run out. [Read more](#)

Business Partners Commercial Lighting Program Incentives

These incentives are offered to participants of the Commercial Lighting Program, in order to encourage Partners to promote, design, and implement energy-efficient lighting in commercial spaces. Applications are accepted through May 31, 2010. [Read more](#)

Home Energy Rating System Providers for the New York ENERGY STAR® Homes Program

NYSERDA is issuing a request for qualifications for the selection of Home Energy Rating Systems (HERS) Providers. HERS Providers must be accredited by the Residential Energy Services Network (www.natresnet.org) at the time of application. Applications are accepted until June 30, 2011. [Read more](#)

Modeling Software for use in the New York Home Performance with ENERGY STAR® Program

NYSERDA seeks applications from software developers to provide building modeling software for use in NYSERDA's New York Home Performance with ENERGY STAR® Program. [Read more](#)



Personal Tax Credit	<p><u>Green Building Tax Credit Program (Personal)</u> Same as Green Building Tax Credit Program (Corporate) described above. Note: This tax credit is not available for single-family residential homes. Read more</p>
	<p><u>Refundable Clean Heating Fuel Tax Credit</u> A personal income tax credit for biodiesel purchases used for residential space heating and water heating is available until December 31, 2011. Read more</p>
Property Tax Exemption	<p><u>Energy Conservation Improvements Property Tax Exemption</u> Single- to four-family residences that conduct energy-conservation improvements are exempt from real property taxation. Read more</p>
State Grant Program	<p><u>NYSERDA - Assisted Home Performance Grants</u> The program provides grants to low-income home owners for up to 50 % of costs (60 % for National Grid gas customers) for energy efficient improvements. Read more</p> <p><u>NYSERDA - EmPower New York</u> The focus in this program is on cost-effective electric reduction measures, particularly lighting and refrigerator replacements. Customers must live in a building with a hundred or fewer units and either participate in a utility assistance program or have a income at 60 % or less of the median income. Read more</p> <p>There are additional gas efficiency incentives for income-qualified natural gas customers of National Grid (Read more) and Con Edison (Read more) residing in single- to four-family homes.</p>
State Loan Program	<p><u>NYSERDA - Home Performance with Energy Star Loan Program</u> An unsecured loan for the installation of qualified energy efficient and renewable energy measures is offered to owner-occupied 1-2 family homes. Read more</p>
State Rebate Program	<p><u>NYSERDA - Energy \$mart Multifamily Performance Program</u> Existing or new construction of multifamily buildings are eligible for incentives which improve energy savings through energy-efficient solutions. Read more</p> <p>There are additional incentives for projects that serve low-income tenants and income qualified housing which meet certain sustainability guidelines.</p> <p><u>NYSERDA - Energy \$mart New Construction Program</u> The program provides assistance to incorporate energy efficiency measures into the design, construction, and operation of new and substantially renovated buildings. Eligible applicants include governmental entities, not-for-profits, health care facilities, K-12 schools, colleges and universities. Read more</p>



NYSERDA - Existing Facilities Program

Incentives are offered to electricity customers paying the System Benefits Charge. Natural gas customers of Con Edison who pay the monthly rate adjustment, small customers of National Fuel, and energy service companies which implement efficiency measures for eligible customers are also eligible. Both pre-qualified equipment rebates and performance based rebates are offered. Deadline for applications is June 30, 2010. [Read more](#)

NYSERDA - Industrial and Process Efficiency Performance Incentives

Funding is accessible until December 2011 to offset the cost of projects which save energy and improve productivity for Industrial and Data Center facilities, existing or new construction. [Read more](#)

To find additional funding opportunities visit:

<http://www.nyserdera.org/funding/funding.asp?i=2>

Local New York City Programs

PlaNYC 2030

In 2007, the City of New York released PlaNYC ([Read more](#)), a sustainability plan for how to reduce the City's greenhouse gas emissions. The goal is to reduce the emissions 30% below 2005 levels by 2030.

Greener, Greater Building Plan

In order to reach carbon emission goals in PlaNYC, it is necessary to target buildings, as they account for about 80% of the City's total emissions. A six step-plan to improve energy efficiency has been created, called the Greener, Greater Buildings Plan ([Read more](#)). The plan is expected to kick-start a broader move to energy efficiency and green building.

The six steps are:

1. *New York City Energy Code*

New York has had a unique exception rule in its Energy Code exempts renovations of buildings (impacting less than 50%), from compliance with the [codes requirements](#). [The exemption will be removed effective July 1, 2010](#). [Read more](#)

2. *Lighting upgrades*

As of July 1, 2010, the lighting systems of large buildings will be required to comply with the Energy Code at the time of renovation and no later than December 31, 2022. [Read more](#)

3. *Benchmarking*

By July 1, 2010 large buildings must conduct an annual analysis of their energy consumption. The data will be available to the public and is a way to increase



transparency, people and enable comparisons of energy usage among similar buildings. [Read more](#)

4. *Audits and Retrofits*

Large buildings will be required to conduct an energy audit of its central systems every tenth year and make improvements which will pay for themselves within five years. Approximately 2,200 buildings will be due every year. [Read more](#)

Note that lighting upgrades, benchmarking, audits and retrofits are only applicable for buildings larger than 50,000 square feet. Although they only represent the 22,000 largest buildings (thus a small percentage of total buildings), they consume about 50% of the entire city's energy.

5. *Green Workforce Development training*

Over 19,000 construction jobs will be created over the next 13 years in order to implement required energy efficiency improvements. The city will identify training needs, design and fund-required training. [Read more](#)

6. *Green Building Financing*

The City will use \$16 million of the Federal stimulus to create a fund that will provide loans for smart retrofits to homeowners who are in financial need or have conducted an energy audit. [Read more](#)

During the next ten years, 10% of the City's energy budget will go to energy efficiency improvements in governmental buildings (approximately \$100 million on an annual basis). The city government represents about 6.5% of the total energy consumption.

Water Conservation

Residential Water Survey

DEP offers free leak surveys for residential building in New York City. Some small commercial buildings may also qualify. [Read more](#)

Comprehensive Water Reuse Program

NYC Water Board offers a water rate reduction for buildings that recycle much of their water and reuse it. For more details visit NYC Water Board's [Water and Wastewater Rate Schedule](#) (Part VI Section 10). [Read more](#)

Green Roof Tax Abatement

The abatement provides \$4.50 per square foot of green roof. The green roof tax abatement is a pilot program set to end March 15, 2013. [Read more](#)

As noted, there is a broad range of incentive programs for consumers and businesses to apply for. However, it can be difficult to evaluate the size of these incentives and the actual impact of these programs. Nevertheless, what



is clear after studying these efforts is that New York is investing significantly in energy efficiency and water sustainability.

Energy Efficiency - Business Opportunities

Current trends in energy efficiency, described in Part 1, will result in transformed market conditions and new business opportunities. New strong financial incentives will encourage, and regulation will often even require, people in New York to switch to more energy-efficient appliances. There is an increased focus not just on new construction, but on the energy efficiency of existing buildings. This has expanded the market for related products. In addition, there is an ongoing evolution of the mind-set of New Yorkers, as they start to question old, inefficient energy technologies and wasteful energy consumption. Standards of different kinds have also been developed, such as LEED certification and Energy Star, making it possible to label and measure energy efficiency of buildings and products. However, much of the technology available today is not as cost-efficient as it needs to be in order to be in a competitive market.

According to Carl Pope, the executive director of [Sierra Club](#) (an organization that aims to protect the environment), New York is going to create a new model by having all major buildings examined by professionals who will identify potential cuts in energy consumption. This will result in a whole new market for products related to energy efficiency, such as high-efficient windows, air-conditioning and insulation, etc. There also appears to be general consensus that there will be a significant market in New York for smaller, high-efficient household appliances. Outlined below are some areas and technologies in the energy efficiency sector expected to have strong future demand.

Lighting Technology

The market for high-efficient lighting technologies is very promising according to professionals working with energy efficiency. As described, it will soon be mandatory for New York City buildings over 50,000 square feet to switch to energy efficient lighting, provided that payback time is less than five years. Lighting represents about 20% of New York City's total energy consumption and lighting modifications can be made relatively easily. In addition, lighting investments are attractive as they usually have a short payback time, typically one to two years.

All types of lighting devices which provide more visible light for the same amount of electrical energy input will be in demand. The market for replacing incandescent lamp bulbs is expected to be huge (for example retrofitting with Light Emitting Diode (LED) lamps and (Compact) Fluorescent Lamps (CFL) which use less power and have a longer lifetime). Automated lighting systems which eliminate waste (such as sensors that turn the light on and off) are becoming increasingly popular. Architects have pointed out that installing such



sensors would, for most offices, lead to an immediate decrease in lighting time and subsequently a significant reduction in kilowatt-hours consumed.

Control of Whole Systems Professionals believe that future technologies will be based in areas which enhance functionality of whole systems. In general, focus will be on control and integration of systems .

Ventilation and Insulation Energy efficiency consultants believe that ventilation optimization will become even more important in the future and that materials such as air sealing and insulation (which prevent air from escaping), will be very popular. Also, air systems which improve air quality in homes could potentially be in strong demand in New York- Existing technologies need to be developed further and become more cost-effective.

Monitoring Energy Usage Customers are increasingly requiring transparent energy consumption information. This has created a huge demand for technologies which monitor and display energy usage. According to green-building architects, many small tweaks can have a big impact as awareness builds. For example, raising the temperature by one degree during the summer would have a significant and favorable impact on the energy bill.

Grid Systems In the future, there will be a demand for all types of technologies linked to smart grids, according to the Vice President of the Green Sector Development at New York City Economic Development Corporation. This is a result of the problem discussed in Part 1 relating to the heavy-loaded transmission line. Small grid systems is a technology which needs to be developed further.

Combined Heating Power Combined heating power (CHP) is a developing technology according to consultants within the energy efficiency sector. CHP is a way to generate electricity and capture waste heat simultaneously. Savings generated can be up to 40% of the energy bill.

Windows High-performance windows with features like multiple glazing and insulated frames are expected to become very popular in New York. Multiple glazing, for example, is still an uncommon feature. High-performance windows are better insulated and more air-tight, resulting in reduced energy consumption for heating and cooling.

Non-technology Opportunities There are areas, additional to technology which will be important in the future. One example is space planning and how to optimize the use of space to save energy. According to architects, customers are more energy smart. For example, taking daylight into consideration when choosing location can have a positive effect on employee morale while also requiring less lighting. In years to come, more attention will probably be given to workforce productivity as well as how people are affected by changes in the working environment.



Water - Business Opportunities

Part 1 illustrated current trends in the water sustainability sector in New York State. Trends can be described on two levels. Projects being conducted on a larger scale are often related to water supply infrastructure, storm water management and water quality. On a smaller and more individual scale, there is movement toward smarter use of water and water conservation. A new standard called WaterSense has been introduced which makes it possible to label water efficient appliances.

Below are examples of business areas and technologies which will have strong demand in the future.

Combined Sewer Overflows

One of New York's largest issues related to water is combined sewer overflows (CSOs). Any technology which can improve the function of the system by reducing some of the water pressure could have significant business potential.

Pipes Replacements Monitoring Equipment

As described in Part 1, there are many large infrastructure projects being conducted throughout the state. Technologies which can replace piping without having to dig up existing pipes will be attractive, as well as remote monitoring equipment, which can monitor decay or damage.

Methane Gas

A big problem facing New York City is leakages of methane gas from wastewater treatment plants. According to a senior policy advisor at the Mayor's Office, this is an area where technology needs to be further developed.

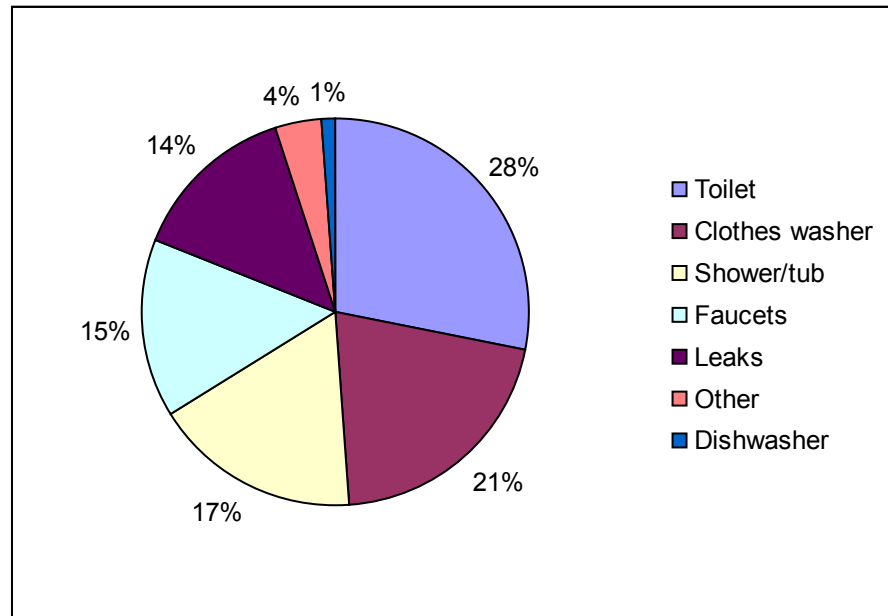
Nitrogen

Another issue expected to be enormous in New York is removing nitrogen from water, as further restrictions are expected.

On a residential level, there is a need to replace many existing appliances and fixtures to more water-efficient alternatives. Over 1.2 trillion gallons of water are consumed each year in the U.S. As a result, even a modest increase in efficiency has the potential to save billions of gallons of water each year. For this reason, all technology that can decrease water use without compromising product performance will have tremendous opportunity in the U.S. and in New York State in particular. The chart below illustrates an overview of various appliances and fixtures, and their share of water consumption in the average home.



Indoor Water Use in the “Average” Use Home



Source: New York City Department of Environmental Protection

Low Flow Toilets

Toilets alone represent almost one third of home water-usage in the U.S. In general, toilets are not as efficient as in most parts of Europe. For example, the use of dual flush toilets is still uncommon, but this is expected to change. There are only a few small companies in the dual flush market; there is room for a larger player.

In the U.S., toilet flush volume is limited by federal law to 1.6 gallons (six liters) per flush. There are ongoing discussions to change the New York City Building Code to introduce a limit of 1.28 gallons per flush and require construction and performance specifications meet the requirements of the WaterSense Program.

High-Efficient Washing Machines

Washing machines represent as much as 21% of indoor water use in an average home. Washing machines which use less water and energy will be in great demand.

Low Flow Faucets and Showerheads

As illustrated in the chart above, showerheads and faucets represent about 17 and 15% respectively of the residential indoor water use in the U.S. Switching to low flow faucets and showerheads are some of the easiest changes to make, and professionals expect these changes to come rather quickly.



Water Recycling

All technologies related to water recycling should be considered developing. According to a policy advisor at the Mayor's Office, there is great potential for relatively compact and low cost water recycling appliances, as the market is not yet mature.

Waste and use of water will be an issue everywhere in the future. Therefore, any improved technologies for filtration and purification of water will have strong demand.

Conclusion

The incentive programs and policies described in this report verify that New York State and City governments are highly dedicated to the reduction of carbon emissions by encouraging, educating and regulating water consumption efficiency. The trends in actual energy and water usage are in line with the political agenda. There are new business areas evolving and new professions being created, such as green architects, designers, consultants and installers of new technology. Standards such as LEED certification and WaterSense now make it possible to measure and label energy and water efficiency of products and buildings. In addition, larger buildings will be required to benchmark their energy consumption and publicly post results. The new policies, standards and transparency requirements will most likely educate consumers and possibly lead to more discussion about energy and water consumption in general.

If you are interested in learning more about New York and potential business opportunities, please [contact the Swedish-American Chamber of Commerce](#) in New York. Founded over 100 years ago, the Chamber of Commerce has built an extensive network in a broad range of fields. Business Services and the GreenTech division can help your business by identifying potential partners in New York and initiate and organize business meetings. In addition, professional consultant services are also offered in order to assess business opportunities in New York.

