



WHITE PAPER

Public Policies Driving Energy Efficiency Worldwide

Derek Supple

SUSTAINABILITY PROGRAMS MANAGER

Imran Sheikh

SENIOR RESEARCH ASSOCIATE

Johnson Controls, Inc.

The price we pay for energy today does not reflect the true cost to society because it does not reflect externalities such as pollution, natural resources depletion, energy insecurity and health impacts.

Introduction

The political environment for energy efficiency has never been better. In the past few years it has become abundantly clear that our current energy system is unsustainable, and that energy efficiency is the fastest, cleanest, and cheapest solution to our economic, security and climate challenges. It also is evident that energy efficiency is a necessary step in developing technical and energy infrastructure advances such as the smart grid and renewable energy.

Business and policy leaders from all political persuasions increasingly are examining ways to expand implementation of energy efficiency, especially in facilities. In the U.S. alone, buildings account for more than 70 percent of electricity use and almost 40 percent of CO₂ emissions.¹ A change in political willingness to invest public dollars in energy efficiency and renewable energy means that forces are combining like never before to radically change the building efficiency landscape, with tremendous results. According to Pike Research, the total opportunity for major green renovations in the commercial building sector (both public and private) is approximately \$400 billion over the coming years. Comprehensive efficiency retrofits are expected to more than triple in annual revenue to \$6.6 billion by 2013.²

Seizing this opportunity will require greater awareness of three types of various existing and proposed federal, state and local policies that can impact businesses and organizations – market-based incentive policies, performance-based regulations and information programs.

Policy Types

Market-Based Incentive Policies

The price we pay for energy today does not reflect the true cost to society because it does not reflect externalities such as pollution, natural resources depletion, energy insecurity and health impacts. Subsidies, taxes, and cap-and-trade systems may be used to correct for market failures that lead to underinvestment in energy efficiency versus a level that is optimal for society.

Subsidies – In addition to externalities, energy efficiency faces other market barriers that lead to capital misallocation. Businesses often make purchase decisions based on first cost alone rather than using discounted cash flow methods to assess total cost of ownership. Efficiency measures inherently trade capital expense today for savings tomorrow. But businesses may not have access to capital, even for projects with very attractive ROIs. Subsidies can take many forms from tax credits to grants to loan guarantees. These financial incentives shift the economics so that investments in energy efficiency become more attractive.

Taxes – Implementing a carbon tax on industries that emit the most CO₂ will create incentives to use less energy and emit fewer emissions.

Cap-and-trade – A growing number of governments – both internationally, and regionally in the U.S. – are regulating carbon emissions through a cap-and-trade system or a carbon tax to put a price on carbon emissions. In a cap-and-trade system the government will determine the quantity of baseline emissions and allocate fewer permits each year so that the emissions decrease over time. Emitters that reduce emissions faster can sell their excess permits to those that reduce it slower. Using market mechanisms like this assure that the cheapest carbon reductions are done first.

Performance-Based Regulations

One of the biggest problems in the marketplace is the split incentives problem, where one party (the landlord, builder or manufacturer) makes decisions about energy impact, while another party (tenant, buyer or user) foots the bill. That means parties are usually

systematically rewarded for inefficiency, such as a real estate developer who has an incentive to minimize first cost prior to flipping the property. These market failures and barriers to energy efficiency can be overcome through performance-based mandates.

Codes - By regulating energy efficiency through stricter building codes or appliance standards, the government can force improved performance. The Alliance to Save Energy states that building energy codes are the most effective way to improve the efficiency of new homes and commercial buildings, and that improved codes could save at least 150 million tons of carbon dioxide emissions a year by 2030, equivalent to taking 28 million cars off the road.³ A listing of state and local energy-efficient building codes is located here: <http://bcap-energy.org/>

Resource Standards - Energy efficiency resources standards (EERS) are targets set by state public utility commissions or other regulatory bodies requiring that utilities meet a fraction of forecasted load growth through measured and verified efficiency investments. The state of Texas was the first to enact an EERS, and they are now in operation in California, Vermont, Connecticut and Nevada. A listing of state EERS is located here: <http://www.aceee.org/energy/national/StateEERSSummaryNov-2009.pdf>

Utility Restructuring - Utility regulatory structures also lead to perverse incentives for efficiency. Most utilities are rewarded for selling more energy and penalized for delivering the same useful energy services (hot showers, cold beer) more efficiently. These issues are being addressed through revenue decoupling, forward capacity markets, and clean energy requirements imposed on utilities. A listing of utility energy efficiency action plans is located here: <http://www.epa.gov/cleanenergy/energy-programs/napee/index.html>

Information Programs

In order for markets to work properly, consumers and businesses need access to the right information to make investment decisions. By developing both the standards for measurement and the vehicles for communicating results, governments and NGOs are addressing this need through a variety of labeling, certification and reporting programs. Most started as voluntary efforts, though a growing number of governments are mandating the certifications be employed in new buildings.

Labeling - U.S. EPA's ENERGY STAR® certification program, with more than 75 percent brand recognition, spurs high levels of efficiency by creating a label that consumers trust. The label started with appliances and now the U.S. ENERGY STAR program and its European counterpart can also certify whole-building performance. ENERGY STAR homes and buildings give owners and potential buyers the confidence that facilities are energy efficient. Recently, some governments have acted or proposed to require building energy labeling so buyers have transparency to how buildings perform in energy use. The building market today is not transparent enough to let consumers compare options in terms of energy use and lifecycle cost.

Certification - Going beyond energy efficiency, various green building certification systems developed by governments or industry collaborations have gained significant traction and recognition in the marketplace. The U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) rating system has become the accepted, third-party certification program for building designs in the U.S. and in many other countries. A large number of local governments ranging from the City of Chicago to the State of New York have created standards based on LEED for new public building design and construction. The Building Research Establishment in the UK developed an environmental assessment method, the BRE Environmental Assessment Method (BREEAM) that has become the most popular voluntary rating system in Europe. Similar green building rating systems include HQE in France, Green Star in Australia, Three-Star in China, Comprehensive Assessment System for Building Environmental Efficiency (CASBEE) in Japan, and Green Globes which also is used in the U.S. and Canada.



The Alliance to Save Energy states that building energy codes are the most effective way to improve the efficiency of new homes and commercial buildings...

Reporting - Voluntary or required greenhouse gas emission reporting and registry programs create information transparency to organizations' carbon footprints. Under some programs, such as U.S. EPA Climate Leaders, partner companies not only commit to inventorying and reporting their emissions but also set aggressive emission reduction targets. By forcing organizations to monitor emissions and creating awareness at the senior level, these programs drive organizations toward better energy management.

Better access to information doesn't just help make better leasing or purchase decisions, it also can help decision makers to develop more energy efficient buildings, creating higher demand, higher prices, and more incentive to improve energy efficiency of all buildings. Registry and benchmarking programs provide the information necessary to illuminate cost effective energy savings opportunities.

Policy Examples

Table 1 provides a list of international policies that are impacting the design, construction, and operation of buildings to advance energy efficiency and onsite renewable energy. Following are more detailed descriptions of some of the most important among the policies on this list that are either recently enacted or currently being proposed.

Enacted Policies

Because of economic, environmental and social pressures, it is challenging to keep up with the various proposed and enacted state, local and federal policies. The following are some recent examples:

United States Federal Government

Federal Building Mandates

In early October 2009, President Obama issued Executive Order 13514, which requires federal agencies to meet a number of energy, water and waste reduction goals. Executive Orders from previous administrations, along with the Energy Policy Act of 2005 and Energy Independence and Security Act of 2007, already have set federal agencies on the path to energy efficiency. The new Executive Order requires agencies to implement high performance sustainable Federal building design, construction, operation and management, maintenance, and deconstruction by:

- Ensuring all new Federal buildings, entering the design phase in 2020 or later, are designed to achieve zero net energy by 2030.
- Ensuring all new construction, major renovations, or repair or alteration of Federal buildings comply with the Guiding Principles of Federal Leadership in High Performance and Sustainable Buildings.
- Ensuring at least 15 percent of existing agency buildings and leases (above 5,000 gross square feet) meet the Guiding Principles by fiscal year 2015 and that the agency makes annual progress towards 100 percent compliance across its building inventory.
- Pursuing cost-effective, innovative strategies (e.g., highly-reflective and vegetated roofs) to minimize consumption of energy, water, and materials.
- Managing existing building systems to reduce the consumption of energy, water, and materials, and identifying alternatives to renovation that reduce existing asset deferred maintenance costs.



Table 1.
List of Building
Energy Policies

	Market-Based Incentive Policies	Performance-Based Regulations	Information Programs and Policy Targets
U.S. Federal	<p>Renewable energy production tax credit, investment tax credit</p> <p>Commercial building efficiency tax deduction (\$0.30-1.80/sf)</p> <p>RD&D incentives</p> <p>Sec. 48C advanced energy manufacturing tax credits</p> <p>Carbon Cap & Trade (ACES):</p> <ul style="list-style-type: none"> • 3% cut by 2012 • 17% cut by 2020 • 42% cut by 2030 • 80% cut by 2050 <p>Efficiency retrofit loan guarantees</p>	<p>Appliance and commercial equipment energy efficiency standards</p> <p>Building energy codes</p> <ul style="list-style-type: none"> • 30% better by 2010 • 50% better by 2016, + new target every 3 yrs <p>Renewable portfolio standard (ACES): 6% by 2012, 20% by 2020; 5% can be met thru energy efficiency</p>	<p>EnergyGuide appliance labeling requirements</p> <p>ENERGY STAR ratings for appliances, buildings</p> <p>EPA Climate Leaders industry-government voluntary emission reduction program</p> <p>DOE marketable Net Zero Energy Commercial Building target: in all climate zones by 2020</p>
U.S. State/Local	<p>Equipment buy-down rebates/grants</p> <p>RE investment tax credits</p> <p>Weatherization programs</p> <p>Tax-lien financing programs (e.g., Berkeley FIRST)</p> <p>Northeast Regional Greenhouse Gas Initiative (RGGI)</p> <p>California AB 32: return to 1990 emission levels by 2020</p>	<p>State RPS / EERS</p> <p>ISO NE forward capacity market</p> <p>Building energy codes (e.g., CA Title 24)</p> <p>EE retrofit mandates (e.g., Plan NYC)</p> <p>Green standards for public buildings (e.g., State of NY, City of Chicago)</p>	<p>Climate registry requirements (e.g., CA Climate Action Registry)</p> <p>Consumer education programs</p> <p>Workforce training</p> <p>Clean energy research (e.g., PIER)</p>
Europe	<p>EU Emission Trading System Phase III</p> <p>UK Climate Change Levy (CCL)</p> <p>UK Carbon Reduction Commitment (CRC)</p> <ul style="list-style-type: none"> • 32% cut by 2020 • 60% cut by 2050 <p>DE Solar Feed-In Tariffs</p> <p>EU Parliament requires financial instruments for EE by 2011</p>	<p>Energy Performance of Buildings Directive</p> <ul style="list-style-type: none"> • Net zero emission new construction by 2020 • Minimum requirements for renovations and retrofits • Smart meter requirements <p>HCFC Phase Out</p>	<p>Energy Performance Certificate (EPC) with all sales and rentals</p> <p>UK BREEAM</p> <p>EU ENERGY STAR</p> <p>British Std EN 16001</p>
Asia/ANZ	<p>Australia Carbon Pollution Reduction Standard</p> <ul style="list-style-type: none"> • Cuts 5-15% below 2000 levels by 2020 <p>Japan DPJ GHG reduction target: 25% vs. 1990 by 2020</p> <p>South Korea GHG target: 21-30% below BAU by 2020</p> <p>China Light Bulb Rebate Program 50% rebate</p> <p>China Solar Roofs incentive: CNY20/watt</p>	<p>Japan Renewable Portfolio Standard</p> <ul style="list-style-type: none"> • 12 TWh by 2010 • 16 TWh by 2016 <p>China 2006 Building Energy Code</p> <ul style="list-style-type: none"> • 50% improvement • Gov building set point requirements <p>IIEC Indian Energy Efficiency Building Code</p> <p>ASEAN-USAID codes</p>	<p>China's 2008 Energy Conservation Law</p> <ul style="list-style-type: none"> • -4%/yr energy intensity reduction target • Top 1,000 Energy Enterprises Program • 3 Star rating system <p>India Climate Action Plan</p> <p>Kyoto CDM Projects in Annex 3 countries</p> <p>Australia Green Star rating system</p>

Legend:

Enacted Polices (Black)
Proposed Polices (Gray)

The U.S. DOE's Net-Zero Energy Commercial Building Initiative (CBI) aims to achieve marketable net-zero energy commercial buildings in all climate zones by 2025.

U.S. DOE Net-Zero Energy Commercial Building Initiative

The U.S. DOE's Net-Zero Energy Commercial Building Initiative (CBI) aims to achieve marketable net-zero energy commercial buildings in all climate zones by 2025. CBI is charged to develop and disseminate technologies, practices, and policies for the development and establishment of zero net energy commercial buildings for

- any commercial building newly constructed in the United States by 2030;
- 50 percent of the commercial building stock of the United States by 2040; and
- All commercial buildings in the United States by 2050.⁴

U.S. Energy-Efficient Commercial Buildings Tax Deduction

The U.S. Federal Energy Policy Act of 2005 established a tax deduction for expenses incurred for energy efficient building expenditures made by a building owner or tenant. It includes any retrofit expenses that can be capitalized, including labor. The Emergency Economic Stabilization Act of 2008 extended this tax deduction December 31, 2013. The policy provides a tax deduction of \$0.30-\$1.80 per square foot, depending on technology and amount of energy reduction. To reach the \$1.80/square foot maximum incentive, the company must achieve whole-building energy savings of 50 percent or more in comparison to a building compliant with ASHRAE Standard 90.1-2001. In the case of a building that does not meet the 50 percent whole building energy savings target, a partial deduction is allowed with respect to each separate building system which is certified as meeting or exceeding the applicable system savings targets: 20 percent for interior lighting, 20 percent for HVAC & hot water, and 10 percent for building envelope.

A comprehensive list of other federal incentives can be found here: <http://www.dsireusa.org/incentives/index.cfm?state=us&re=1&EE=1>

Europe/UK Initiatives

UK Carbon Reduction Commitment

Starting in April, 2010, the Carbon Reduction Commitment (CRC) will charge CRC participants for emissions allowances for all emissions each year. The CRC policy was developed by the Department of Energy and Climate Change of the UK, the Scottish Government, the Welsh Assembly Government and the Department of Environment Northern Ireland.

The scheme will cover large public and private sector organizations, which are responsible for about 10 percent of the UK's emissions. Organizations qualify for the CRC if they have at least one half-hourly electricity meter settled on the half-hourly market and electricity consumption exceeding 6000 MWh during 2008. Total emissions are reduced by setting a cap on the number of allowances available. The emissions trading scheme creates a financial incentive to reduce emissions when reductions come at a lower cost than allowances. The scheme will achieve emissions reductions of at least 4Mt CO₂ per year by 2020. Failure for qualifying organizations to comply will lead to financial or other penalties.

European Energy Performance of Buildings Directive of 2009

The European Parliament has agreed that all buildings built after 2020 must have high energy-saving standards and be powered to a large extent by renewable energy. Public authorities will lead the way two years earlier and part of the funding for these changes will come from the EU.

By the end of 2020 EU Member States must ensure that all newly constructed buildings have a "very high energy performance," under new rules agreed in November 2009. And their energy needs must be covered to a very significant extent from renewable sources, including energy produced on-site or nearby. The public sector must set an example by owning or renting only this kind of buildings by the end of 2018 and by promoting the conversion of existing buildings into "nearly zero" standard.⁵

U.S. State Government

Not satisfied to wait for federal action, the states are aggressively moving forward with energy efficiency policies. The American Council for an Energy-Efficient Economy (ACEEE) has developed an annually state energy efficiency scorecard based on these policy areas: (1) utility-sector and public benefits programs and policies; (2) transportation policies; (3) building energy codes; (4) combined heat and power; (5) state government initiatives; and (6) appliance efficiency standards.

The top ten states in this year's scorecard are: California, Massachusetts, Connecticut, Oregon, New York, Vermont, Washington, Minnesota, Rhode Island and Maine. The "most improved" states, which climbed at least eight spots from last year's rankings, include Maine, Colorado, Delaware, the District of Columbia, South Dakota, and Tennessee.⁶

Keeping an eye on the policies being proposed and enacted in the states provides a glimpse into what could become federal policies down the line. The most comprehensive list is located at the DSIRE database - <http://www.dsireusa.org/summarytables/finee.cfm> - but others are mentioned here.

California Title 24

California Code of Regulations Title 24, also known as the California Building Standards Code, is a compilation of building standards from national model codes, amended model codes for meet California conditions, and additional to model codes as required by the state legislature. Part 6 of this title is the California Energy Code, established in 1978 and periodically strengthened over the years. Title 24 has several aggressive energy efficiency requirements for new construction and is viewed to be a reference point toward which local buildings codes will evolve across the world. The latest update, which takes effect January 1, 2010, is considered the nation's first green building code. The new rules will require all new construction to reduce energy use by 15 percent, water use by 20 percent and water for landscaping by 50 percent.

Clean Energy Public Benefit Funds (e.g. Efficiency Vermont)

Several U.S. states have government, utility, or independent third-party administered clean energy programs funded by public benefit surcharges on utility bills. These funds generally provide technical assistance and financial incentives to accelerate the development and deployment of energy efficiency and renewable energy technologies.

One of the more innovative and successful examples is Efficiency Vermont, created in 2000 by the Vermont legislature and Public Services Board and commonly referred to as the nation's first statewide "energy efficiency utility." Since 2000, Efficiency Vermont has helped businesses and homeowners to save over 300 GWh annually, lower Vermont summer peak load by over 43 MW, and will reduce greenhouse gas emissions by 3 million tons over the lifetime of the installed measures to date. Efficiency Vermont is moving toward franchise-like utility under performance-based regulation model to acquire cost-effective statewide electric efficiency resources. In 2007, the program yielded savings at a levelized cost of about \$0.022/kWh and resulted in negative statewide load growth.

California's Long Term Energy Efficiency Strategic Plan

In September 2008, California Public Utilities Commission (CPUC), with support from the Governor's Office, the California Energy Commission, the California Air Resource Board, the state's utilities, local government, and others, adopted a statewide energy efficiency Strategic Plan for the period 2009-2020, including:

- All new residential construction in California will be zero net energy by 2020
- All new commercial construction in California will be zero net energy by 2030
- The Heating Ventilation and Air Conditioning (HVAC) industry and market will be transformed to ensure that its energy performance is optimal for California's climate
- All eligible low-income customers will be given the opportunity to participate in low income energy efficiency programs by 2020⁷



More than one in five large U.S. cities surveyed by the American Institute of Architects has a policy of promoting green buildings.

Local Government

More than one in five large U.S. cities surveyed by the American Institute of Architects has a policy of promoting green buildings, and the number of cities building green is on the rise. A November 2009 AIA survey shows that 138 cities have green building programs, compared with 92 cities in 2007 – an increase of 50 percent.

Municipal Tax Lien Financing Programs (PACE)

Many cities and local governments have launched tax lien financing programs, also known as property assessment clean energy (PACE) financing. These programs provide loans for energy efficiency retrofits and renewable energy installations in residential or commercial properties, with payback added to property tax assessments.

The advantage of this system is that it gives access to capital at favorable interest rates to those who might not otherwise have access, and in the event that the building is sold before the loan is paid off, the future owners are responsible for the unamortized balance for the system. By attaching the loan to a property rather than an individual, it overcomes the holding-period barrier and allows sequential owners to share the cost and attractive return on investment. The financing model also removes the “split incentive” barrier of landlords who utilize net lease agreements since property taxes qualify as “pass-through” expenses. One of the first examples of such a program is the Financing Initiative for Renewable and Solar Technology (FIRST) program in the City of Berkeley, in which the city will pay for the entire cost of a solar PV installation upfront (\$5,000 to \$37,500) and recoup the payment via a tax lien on the property. The building owner then pays for the PV system over the next 20 years.

PACE financing could enable a significant increase in the amount of capital invested in energy efficiency and renewable energy projects. The structure provides lenders with repayment security through the priority of the tax lien on the property, and tax liens are senior to mortgages. Municipal bond issues to fund these programs are a way to bundle and commodify energy efficiency projects in order to truly leverage liquid capital markets for financing.

In November 2009, the New York State legislature authorized PACE programs for municipalities throughout the state. It joined 14 states that have passed enabling legislation (CA, CO, IL, LA, MD, NV, NM, OH, OK, OR, TX, VT, VA, WI). PACE also was recommended on a national basis in the “Recovery through Retrofit” report released by Vice President Joseph R. Biden Jr. and the White House Council on Environmental Quality.

Public Building Green Building Requirements (e.g., The Chicago Standard)

In late 2000 the City of Chicago began an energy efficiency program to audit and retrofit HVAC equipment in 15 million square feet of buildings owned by the city. By 2004, more than 5 million square feet were audited and retrofitted. Upon completion of the full project, the City and sister agencies are expected to save \$6 million annually. In addition to retrofitting existing City buildings, Chicago also has developed and adopted the “Chicago Standard” for new municipal facilities. The Chicago Standard is based on the LEED rating system of the US Green Building Council, and is specifically tailored to those LEED points that are reasonable and appropriate for Chicago. All buildings that meet the Chicago Standard will also be eligible for a LEED Certified rating. This Standard will lead to 15 to 20 percent less energy spending, lower water use, and more comfortable and productive indoor environments.

Proposed Policies

ACES – The Waxman Markey Bill

The American Clean Energy and Security Act of 2009 (ACES) is a combined energy and climate bill passed by the House of Representatives in June 2009. This bill places a cap on carbon and aims to reduce covered emissions (which make up 85 percent of all emissions) by 83 percent by 2050. About 85 percent of emission permits would be given away free at the start of the program, with an increasing percentage auctioned over time.

The bill also includes renewable electricity standards of 20 percent by 2020, a quarter of which may be met by energy efficiency (40 percent if governor petitions). The bill would also require utilities or states to set peak electricity demand reduction goals for 2012 and 2015, which will serve as a driver for smart grid investments and demand response programs.

ACES directs DOE to establish State Energy and Environment Development (SEED) Accounts to manage emissions allowances dedicated to energy efficiency and renewable energy. The SEED funds may be used for a variety of activities, including implementation of building codes, labels, and deployment of renewables and efficiency. DOE also will fund eight Clean Energy Innovation Centers, one of which will likely focus on energy efficient building systems and designs according to the FY 2010 budget request.

ACES also contains an aggressive policy and timetable for improved building energy codes. It encourages independent code-setting organizations to develop the codes, and state and local governments to adopt and enforce them, but quickly provides a federal "backstop" if they do not. ACES directs DOE to establish codes that achieve 30 percent savings within one year of enactment, 50 percent savings by the end of 2014 for homes and 2015 for commercial buildings, and an additional 5 percent savings every three years until 2030. ICC and ASHRAE will receive financial and technical assistance from DOE to develop the codes. States must adopt these new codes within one year and demonstrate high rates of compliance within two years after that. ACES also directs EPA to develop a new construction building performance labeling program to reduce information barriers related to energy efficiency. It would also set new efficiency standards for lighting products, commercial furnaces, and other appliances.

Also included in the bill is creation of the Retrofit for Energy and Environmental Performance (REEP) program, which will help provide incentives and financing mechanisms to accelerate nationwide efficiency retrofitting programs. The bill also would increase efficiency standards for HUD housing and provide incentives for lenders to provide lower interest loans to consumers who build, buy, or remodel homes with a focus on energy efficiency.

ACELA

The American Clean Energy Leadership Act (ACELA) is one Senate counterpart bill to the ACES led by Senator Jeff Bingaman, chair of the Senate Energy and Natural Resources Committee. ACELA focuses on the energy provisions and does not presently incorporate climate regulations of greenhouse gas emissions. ACELA contains renewable electricity standards of 15 percent by 2021, of which 4 percent can come from energy efficiency. It contains similar targets related to building energy codes of 30 percent improvement by 2010 and 50 percent by 2016, with an eventual goal of net-zero energy buildings.

ACELA also includes funding for research and implementation for energy efficiency technologies, expansion of Industrial Assessment Centers, and new appliance and equipment standards (portable lighting, commercial furnaces, reflector lamps). ACELA establishes an Initiative to promote technologies and strategies that facilitate the design and construction of Zero-Net-Energy residential buildings, and to make net zero energy residential buildings cost effective by 2020.

The Kerry-Boxer Bill - CEJAP

The Clean Energy Jobs and American Power (CEJAP) Act is another Senate counterpart bill that was recently introduced to the Environment and Public Works committee by Sen. John Kerry and Sen. Barbara Boxer. Slightly more aggressive than the ACES bill, the proposal calls for cutting U.S. greenhouse-gas emissions 20 percent from 2005 levels by 2020. As currently drafted, the bill does not contain provisions for the allocation of emission allowances nor for the tariff treatment of goods imported from other nations without comparable carbon constraints. These issues are to be addressed during the bill's work-up by other Senate committees. The CEJAP proposes a more stringent approach to ensuring emission offset integrity by requiring the accounting of offset reversals and the avoidance of offsets with adverse environmental or human health effects.



Large buildings (over 50,000 square feet) make up half of the total space in New York, and making these buildings more efficient will deliver significant environmental and economic benefits.



The CEJAP Act also contains several provisions for energy efficiency, low carbon generation technologies, and climate change adaptation assistance for developing countries. These provisions build-off and complement provisions in ACELA. The bill would promulgate a rule establishing national energy efficiency building codes for residential and commercial buildings. It establishes the Retrofit for Energy and Environmental Performance Program to provide allowances to States to conduct cost-effective building retrofits. The bill would also authorize EPA's WaterSense program, a voluntary program for labeling water-efficient products, modeled after the ENERGY STAR program.

CEJAP has a particularly strong focus on workforce development. It authorizes grants for clean energy curriculum development, a clearinghouse for renewable energy vocational and job training resources, and a green construction careers demonstration project.

PlaNYC Legislation

The New York City Council has instituted PlaNYC, a plan to make improve energy efficiency throughout the city. Large buildings (over 50,000 square feet) make up half of the total space in New York, and making them more efficient will deliver significant environmental and economic benefits. This plan is expected to save \$750 million in energy costs, create 17,800 construction jobs, and reduce GHG emissions by 4.75 percent. It includes:

- Annual ENERGY STAR performance benchmarking
- Disclosure of energy and water information for public buildings and large private buildings
- Every decade, requiring energy audits and retrocommissioning for large buildings
- Lighting upgrades and the sub-metering of tenant spaces greater than 10,000 sq ft in large, privately owned buildings
- Instituting a tougher New York City Energy Code for existing buildings
- Partnering with real estate, labor groups and the USGBC to identify green job qualifications and training.

Conclusion

In an era of political and economic uncertainty in all regions of the world, businesses and organizations are turning to energy efficiency in buildings as a safe investment to improve infrastructure, save money, create jobs and reduce emissions. By becoming familiar with the current energy and climate change policy landscape, they will be better positioned to take advantage of incentives, be prepared for regulation, standardize best practices and develop their own policies to meet the ongoing challenges.

Resources

- ¹ Energy Information Administration (2009). Assumptions to the Annual Energy Outlook.
<http://www.eia.doe.gov/oiaf/aeo/assumption/electricity.html>
- ² Energy Efficiency Retrofits for Commercial and Public Buildings
<http://www.pikeresearch.com/research/energy-efficiency-retrofits-for-commercial-and-public-buildings>
- ³ ASE (2008) – “The Role of Energy Efficiency in Climate Legislation”
<http://ase.org/content/article/detail/4859>
- ⁴ DOE (2009) – Net-Zero Energy Commercial Building Initiative
http://www1.eere.energy.gov/buildings/commercial_initiative/
- ⁵ EU (2009) – “Energy-saving buildings: agreement reached”
http://www.europarl.europa.eu/news/expert/infopress_page/051-64747-322-11-47-909-20091118IPR64746-18-11-2009-2009-false/default_en.htm
- ⁶ ACEEE (2009) – State Energy Efficiency Scorecard - <http://aceee.org/pubs/e097.htm>
- ⁷ State of California (2008) – 2009–2020 California Statewide Energy Efficiency Strategic Plan
http://californiaenergyefficiency.com/docs/stakeholder_summary/Industrial%20Sector%20Recomm_Jan0508final.pdf
- ⁸ AIA (2009) – “Green Building Policy in a Changing Economic Environment”
<http://www.aia.org/advocacy/local/AIAB081637?dvid=&recspec=AIAB081637>



Printed on recycled paper.

©2010 Johnson Controls, Inc. P. O. Box 423, Milwaukee, WI 53201
Printed in USA PUBL-6335 (1/10)

www.johnsoncontrols.com

