

Strategies and Incentives for Retrofitting Commercial Buildings to Reduce Energy Consumption

Cory Vanderpool

Executive Director, GreenLink Alliance



GreenLink Conservation Alliance

- Non-profit trade association (501c6) established June 2008
- Our goal is to promote energy conservation through the use of innovative, smart building technologies.
- We advocate for “power to the people”
- Alliance partners include Continental Automated Buildings Association, LonMark International and EnOcean Alliance
- GreenLink supports members with:
 - Business development/marketing support
 - Understanding federal and state government opportunities
 - Legislative landscape information & lobbying
 - Resources, research and networking
 - Guidance on availability of federal and state incentives
 - Technical advice on building retrofits



The Case for Building Retrofits

- According to DOE, commercial buildings in the US:
 - Consume 39% of all energy
 - Consume 73% of all electricity
 - Generate 48% of carbon emissions
- According to DOE EIA energy expenditures in US total \$365 billion annually
- According to EPA, by 2030, 56 percent of the world's energy use will be in Asia
- Nearly 300 new power plants will be needed to meet our electricity demands by 2030
- In 2008, 9% of US electricity is generated from renewable sources
 - Goal is for 20 percent to be provided by renewables by 2039
- Utilities are raising prices 24% in part to pay for new plants and to upgrade the grid

What is a Smart Building?

- Building Automation and Controls
 - We advocate for “Total Facility Control”
- “No new wire” systems offer cost effective solutions, especially in retrofits
- Where green + smart buildings meet (designer vs. owner)
 - Green buildings are about resources, materials and renewables
 - Smart buildings include building systems for operational efficiencies and enhanced management
- Smart grid & intelligent buildings
 - Optimize energy flows and enhance 2-way communication
 - Building automation is key to demand response programs

Building Automation & LEED

- Critics point out that some LEED certified buildings don't score high enough to reach EPA's Energy Star label
 - USGBC admitted that 50% of buildings didn't meet Energy Star
- In terms of LEED certification:
 - An HVAC control system earns on average only 3 points
 - Lighting control system does no better
 - Adding necessary sensors and building controls, points grow to almost 25
 - Fully integrated systems can almost achieve LEED certification alone

Energy Star

- Normalizes building energy consumption
 - Accounts for weather, operating hours, occupant density & plug load
- Benchmarks for comparison (Portfolio Manager)
 - Rating can be compared to similar buildings nationwide
- Provides recognition opportunities
 - ENERGY STAR Label, Challenge and Leaders
- Over 120,000 buildings have been measured and 9,000 have earned the Energy Star

Federal Incentives

Tax deduction for commercial buildings (EPACT)

- \$1.80 per square foot for new or existing commercial buildings saving at least 50% heating and cooling over current ASHRAE Standards.
- In the case of a building that does not meet the whole bldg req of 50 percent, partial deductions (\$0.60) are allowed for separate building systems
 - Interior lighting system (20%)
 - Heating, cooling, ventilation and hot water (20%)
 - Building envelope (10%)
- Provision is for property placed in service Dec 31, 2005 and prior to January 1, 2014
- Multi-level parking garages are a fast growing EPAct category for lighting
- Largest category of commercial property owners capturing EPAct benefits are national and regional retailers, both stores and distribution centers

Pass Through Option

- There is a provision in the Commercial Buildings Tax Deduction Bill to “pass through” the value of the tax deduction on public projects (Federal, State or local) to the designated design lead.
- Public agency could assign the credit to the building designer, or company responsible for the retrofit, and then negotiate a fee reduction, realizing the tax deduction benefits in a different way
- Designer is considered an architect, engineer, contractor, environmental consultant or energy services provider.

H.R. 4226 “Expanding Building Efficiency Incentives Act of 2009”

- Introduced December 9, 2009 by House members Reichart, Kind, Blumenauer, Davis, Perriello and Lee
- Increases CBTD to \$3.00 (from \$1.80) and partial deduction to \$1.00 (from \$0.60)
- Energy Efficient Homes:
 - New energy efficient homes that are 50% better than code with respect to heating, cooling, water heating, lighting and appliance energy use would receive \$4,000 through 2013
- \$500 tax credit to become energy rater
- \$200 to undergo an energy audit

American Clean Energy and Security Act

House Passed Version of REEP

- \$0.15 psf for 20-30% ES
- \$0.75 psf for 30-40% ES
- \$1.60 psf for 40-50% ES
- \$2.50 psf for 50%+ ES
- 39 co-sponsors
- Rep. Peter Welch (D-VT)
- NRDC, Johnson Controls

Senate Maj Version of REEP

- \$0.15 psf for 20-24% ES
- \$0.75 psf for 25-29% ES
- \$1.20 psf for 30-34% ES
- \$1.60 psf for 35-39% ES
- \$2.05 psf for 40-44% ES
- \$2.50 psf for 45-49% ES
- \$3.00 psf for 50%+ ES

These incentives are meant to function as rebates. You do the retrofit, prove out the savings, get your check.

Clean Energy Jobs and American Power Act

Senators Kerry and Boxer

- Retrofit for Energy and Environmental Performance
 - \$0.15 psf for 20-30% ES
 - \$0.75 psf for 30-40% ES
 - \$1.60 psf for 40-50% ES
 - \$2.50 psf for + 50% ES
- State and local investment in energy efficiency and renewable energy
 - Distributes emission allowances to States, Indian Tribes, local governments for programs to reduce GHG emissions, promote energy efficiency and conservation.
- Energy Efficiency in Building Codes
 - Set a national goal for improvement in building energy efficiency.

Building STAR

- Building STAR promotes energy efficient installations in commercial and multi-family residential buildings
- Introduced March 4, 2010 by Sen. Jeff Merkley and Sen. Mark Pryor
- Goal is to have it become part of “jobs” legislation
- Proposed items covered by Building STAR incentives include:
 - Building envelope insulation
 - Mechanical insulation
 - Windows, window films and doors
 - Low slope roofing
 - HVAC equipment, water heaters and boilers
 - Duct testing and sealing
 - **Variable speed motors**
 - **Interior and exterior lighting**
 - Building energy audits, commissioning, tune ups and training
 - **Energy management and monitoring systems**
- \$6 billion would create at least 150,000 jobs

Building STAR Rebate Process

1. A building owner, or designee, proposes energy-efficient upgrades using the pre-approved list of products and services and rebate levels.
2. The building owner, or designee, electronically submits the application to the U.S. Department of Treasury or the Department of Energy (DOE) to be placed in the “pipeline” for this rebate.
3. The Treasury Department or DOE will then send a confirmation electronically to a building owner, or designee, verifying that the rebate money is, in fact, available for the intended project.
4. A building owner, or designee, installs the equipment or undertakes the services called for as part of the rebate application, and pays for the work, except for the portion to be covered by the rebate.
5. The building owner, or designee, signs a confirmation certifying that the work specified in the application has been completed according to the requirements
6. An independent third-party verifier contracted by the Treasury Department or DOE reviews the application to ensure calculations are correct. If the application is accurate, the rebate money is disbursed to building owner, or designee, by the Treasury Department or DOE within 30 days of receipt of confirmation.

GreenLink's Efforts

- We reviewed current and proposed incentives, including available data on utilization
- Decided upon a strategy meant to *incentivize* consumers to retrofit
- Goal is to promote specific technologies by providing a directed incentive
- Provides a different model that can be used to calculate the amount of funding needed to support the bill
- Jobs legislation or Energy Bill?
- Potential sponsor Congressman Bob Goodlatte

Commercial Retrofit Tax Credit

Size of Bldg	Annual Energy Costs	Energy Savings	New Annual Energy Costs	Energy Costs Saved/Year	Credit Percentage	Additional Credit	Total Savings
100000	75000	20%	60000	15000	5.0%	3750	18750
100000	75000	25%	56250	18750	7.5%	5625	24375
100000	75000	30%	52500	22500	10%	7500	30000
100000	75000	40%	45000	30000	15%	11250	41250
100000	75000	50%	37500	37500	15%	11250	48750

Job Creation

- Excerpt's from address by CEO of Serious Materials Kevin Surace
 - With a soaring \$12 trillion in debt, how will we pay that back if no one is buying anything from America?
 - *“Invent, manufacture, install”*
 - Pay back debt, create long term growth
 - Next Revolution is the Energy Economy
 - Small business is the engine of job creation
 - Green should be MADE in America