

Voluntary Programs, Incentives & Green Building Initiatives

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I. Topic

This Working Group has identified a number of voluntary programs, incentives, and green building initiatives that significantly advance the pathway for commercial buildings to achieve net zero energy. For purposes of discussion, these various activities were grouped together under the following major headings: 1) Tax Incentives; 2) Rebates and Grants Programs; 3) Utility Incentive Programs; 4) Green Building Voluntary Rating Systems; 5) Green Building Codes and Standards; 6) Green Building Incentive Programs; and, 7) High Performance Building Recognition Awards.

The Working Group organized its discussion by first assessing the current state of the art of the identified voluntary programs, incentives and green building initiatives. The Database of State Incentives for Renewables & Efficiency (DSIRE)¹ web site provided an excellent source of information about current voluntary programs and incentives in effect throughout the United States. After assessing the key activities underway, the Working Group then analyzed the primary gaps and barriers that are negatively impacting the current state of the art from advancing towards achieving net zero energy. The Working Group concluded its discussion by providing recommendations on action items that the United States Department of Energy should consider incorporating as part of their national net zero energy initiative.

II. State of the Art

1. Tax Incentives

Corporate Tax Incentives: Corporate tax incentives include tax credits, deductions and exemptions. These incentives are available in some states to corporations that purchase and install eligible renewable energy or energy efficiency equipment, or to construct green buildings. In a few cases, the incentive is based on the amount of energy produced by an eligible facility. Some states allow the tax credit only if a corporation has invested a minimum amount in an eligible project. Typically, there is a maximum limit on the dollar amount of the credit or deduction. In recent years, the federal government has offered corporate tax incentives for renewables and energy efficiency.

Property Tax Incentives: Property tax incentives include exemptions, exclusions, abatements and credits. Most property tax incentives provide that the added value of a renewable energy system is excluded from the valuation of the property for taxation purposes. For example, if a new heating system that uses renewable energy costs more than a conventional heating system, the additional cost of the renewable energy system is not included in the property assessment. In a few cases, property tax incentives apply to the additional cost of a green building. Because

¹ Established in 1995, the Database of State Incentives for Renewables & Efficiency (DSIRE) is an ongoing project of the North Carolina Solar Center and the Interstate Renewable Energy Council (IREC). The site is administered by the National Renewable Energy Laboratory (NREL), which is operated for DOE by the Alliance for Sustainable Energy, LLC.

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property taxes are collected locally, some states have granted local taxing authorities the option of allowing a property tax incentive for renewable energy systems.

Sales Tax Incentives: Sales tax incentives typically provide an exemption from, or refund of, the state sales tax (or sales and use tax) for the purchase of a renewable energy system, an energy efficient appliance, or other energy efficiency measures. Some types of equipment purchases may be eligible for only a partial abatement of the sales tax. Several states have established an annual “sales tax holiday” for energy efficiency measures by annually allowing a temporary exemption – usually for one or two days – from the state sales tax.

2. Rebates and Grants Programs

Rebate Programs: States, local governments and utilities offer rebates to promote the installation of renewable energy systems and energy efficiency measures. The majority of rebate programs that support renewable energy are administered by states, municipal utilities, and third-party administrators. These programs commonly provide funding for solar water heating and/or photovoltaic (PV) systems. Most rebate programs that support energy efficiency are administered by utilities. There is a growing focus, especially in California, on providing rebates to support integrated demand side management (IDSM) energy efficiency “packages” that deliver comprehensive energy management solutions. These packages encompass relevant energy efficiency, demand response and renewable offerings. Rebate amounts vary widely by technology and program administrator.

Grant Programs: States offer a variety of grant programs to encourage the use and development of renewable energy and energy efficiency technologies. Most programs offer support for a broad range of technologies, while a few programs focus on promoting a single technology, such as photovoltaic (PV) systems. Grants are available primarily to the commercial, industrial, utility, education and/or government sectors. Most grant programs are designed to pay down the cost of eligible systems or equipment. Others focus on research and development, or support project commercialization. In recent years, the federal government has offered grants for renewable energy and energy efficiency projects for end-users. Federal and state grants are typically competitive.

3. Utility Incentive Programs

Utility Net Metering: Net metering is essentially an electricity billing arrangement that provides an important incentive for customers to install on-site renewable energy systems. Net metering enables customers to use their on-site renewable generation facility, such as a roof-top solar system, to offset their electricity consumption and send excess on-site renewable generation back to the grid and receive a payment for that generation from the utility. This payment can be received in the form of future kwh credits or monetary compensation. Net metering in certain circumstances may enable small systems to result in zero annual net cost to the customer. In the U.S.A., as part of the Energy Policy Act of 2005, under Sec. 1251, all public electric utilities are now required to make available upon request net metering to their customers.

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Utility Public Benefit Funds: Most utility public benefit funds (PBFs) were developed during the electric utility restructuring era, in the late 1990s, to ensure continued support for renewable energy, energy efficiency, and low-income energy programs. These funds are commonly supported through a very small surcharge on electricity consumption (e.g., \$0.002/kWh). This charge is sometimes referred to as a "system benefits charge" (SBC). PBFs commonly support rebate programs for renewable energy systems, loan programs, research and development, and energy education programs.

Utility Rate Discounts: Some utilities offer rate discounts to encourage energy efficiency. For buildings that meet certain energy efficiency criteria, such as those established by the federal Energy Star program, the owner or tenant is awarded a discount on each month's electric bill.

4. Green Building Voluntary Rating Systems

Building Performance with Energy Star: The U.S. Environmental Protection Agency (EPA) launched a new pilot program in May 2010 that is designed to further improve commercial building energy efficiency. Building Performance with Energy Star will help utilities and state energy efficiency programs achieve increased energy savings and fight climate change by strategically pursuing whole building energy improvements with their business customers. The pilot program is being launched with Energy Star partners comprised of the following members: Commonwealth Edison, Mass Save, MidAmerican, National Grid, New Jersey's Clean Energy Program, Pacific Gas & Electric, Southern California Edison and Focus on Energy.

Leadership in Energy and Environmental Design (LEED): The U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) is a voluntary point-based certification program for green buildings. The LEED system awards points for site selection and development; materials, energy and water efficiency; indoor environmental quality; innovation; and the application of renewable technologies.

Green Globes: The Green Building Initiative's Green Globes is a voluntary green building guidance and assessment program that advances the overall environmental performance and sustainability of commercial buildings. Environmental impacts are comprehensively assessed on a 1,000 point scale for the following categories: energy and water efficiency; indoor environment; site development; greenhouse gas emissions; and resource/environmental management.

Collaborative for High Performance Schools ("CHPS"): CHPS has developed a rating system based on LEED principles for K-12 schools. Although originally developed specifically for California, it has since been licensed to other areas in the nation. CHPS' mission is to improve the quality of education for school children through facilitating the design and construction of learning environments that are resource and energy efficient, healthy, comfortable and improve the indoor and outdoor environment.

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5. Green Building Codes and Standards

ANSI/ASHRAE/USGBC/IES Standard 189.1: The International Code Council (ICC), the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), the U.S. Green Building Council (USGBC), and the Illuminating Engineering Society of North America (IESNA) recently adopted in Spring 2010 the International Green Construction Code (IGCC), representing the merger of two national efforts to develop adoptable and enforceable green building codes. A landmark addition to the technical content of the IGCC is the inclusion of ANSI/ASHRAE/USGBC/IES Standard 189.1, *Standard for the Design of High Performance, Green Buildings Except Low-Rise Residential Buildings*, as an alternate path of compliance. Standard 189.1 is a set of technically rigorous requirements, which like the IGCC, covers criteria including water use efficiency, indoor environmental quality, energy efficiency, materials and resource use, and the building's impact on its site and its community. The organizations are also working together to advance related education and advocacy efforts to promote adoption, enforcement and compliance with the IGCC codes that will pave the way for green commercial buildings throughout the U.S.

CALGreen: In January 2010, the California Building Standards Commission unanimously adopted the first-in-the-nation mandatory Green Building Standards Code (CALGreen) requiring all new buildings in the state to be more energy efficient and environmentally responsible. Taking effect on January 1, 2011, these comprehensive regulations are expected to achieve major reductions in greenhouse gas emissions, energy consumption and water use. CALGreen also includes more stringent voluntary provisions to encourage further action to green their buildings to reduce greenhouse gas emissions and improve energy efficiency.

Executive Orders/Green Building Standards for Public Buildings: Many states and local governments, as well as the federal government, have chosen to lead by example by issuing executive orders requiring new government buildings to meet strict energy efficiency standards. These include policies that have established green building standards, energy education goals, equipment procurement requirements, and/or the use of on-site renewable energy. Many of these policies require that new government buildings (and in some cases renovated buildings) attain a certain level of certification under the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program. Equipment procurement policies often mandate the use of the most efficient equipment, such as equipment that meets the Energy Star program requirements. Policies designed to encourage the use of on-site renewables generally establish conditional requirements tied to life-cycle cost analysis.

6. Green Building Incentive Programs

Green Building Permit Fee Waiver/Reduction Programs: Many cities and counties offer a reduction or waiver of a building permit fee for buildings adhering to green building standards.

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Green Tags/Green Power Purchasing Programs: Many state and local governments, as well as the federal government, have implemented “green tag²” programs for purchasing green power to account for a certain percentage of their electricity consumption. Green power purchases are typically executed through contracts with green power marketers or project developers, or through utility green power programs. Greenpower, as the name implies, has the benefit of reduced environmental impacts associated with the power production, relative to conventional fossil fuel based power generation.

7. High Performance Building Recognition Awards

AIA/COTE Top 10 Green Projects: Since 1996, the American Institute of Architects (AIA) and its Committee on the Environment (COTE) has annually recognized the top ten examples of sustainable architecture and green design solutions that protect and enhance the environment. The COTE Top Ten Green Projects program is the profession's best known recognition program for sustainable design excellence. The program celebrates projects that reduce environmental impacts through strategies such as energy and water conservation, use of sustainable or renewable construction materials, and design that improves indoor air quality.

SBIC Beyond Green: Beginning in 2001, the Sustainable Buildings Industry Council (SBIC) established its own Awards Program to recognize the exceptional contributions its members make to sustainability across the United States. These unique awards recognize initiatives that shape, inform, and catalyze the high performance building market, as well as the real-world application of high performance construction practices. The program is open to all and offers two entry categories, High Performance Initiatives and High Performance Buildings.

III. Key Gaps and Barriers

1. Tax Incentives

- Tax incentives usually have time-consuming application processes that do not coincide with the real estate commercial development cycle.
- In bad economic markets, many states and local governments cannot afford to forfeit property tax or sales tax revenue.

2. Rebates and Grants Programs

- In bad economic markets, many states and local governments cannot fund rebate and grant programs.

² Green tags, also known as Renewable Energy Credits (REC) or Tradable Renewable Certificates (TRC), are tradable, non-tangible energy commodities in the United States that represent proof that 1 megawatt-hour (MWh) of electricity was generated from an eligible renewable energy resource. These certificates can be sold and traded or bartered, and the owner of the REC can claim to have purchased renewable energy.

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- Lack of strategic alignment between rebates and grants for various energy efficiency measures that possibly could create synergies and deeper energy savings.

3. Utility Incentive Programs

- Traditional regulatory utility rate structures that do not value or 'monetize' efficiency represent a significant barrier to effective utility energy-efficiency programs.
- Many utilities across the United States have their profits linked to sales of electricity and natural gas, creating a disincentive to investments in energy efficiency.

4. Green Building Voluntary Rating Systems

- Many green building certification programs do not require a building to have net zero energy use, only to reduce energy use a few percentage points below the minimum required by law.
- Inexperienced designers or architects may cherry-pick points to meet a target certification level, even though those points may not be the best design choices for a specific building or climate.

5. Green Building Codes and Standards

- Code compliance difficult to enforce.
- Many building officials, plan checkers and field inspectors do not have the training nor resources to enforce new code requirements.

6. Green Building Incentive Programs

- In bad economic markets, local jurisdictions cannot afford to reduce or waive building permit fees which help pay for staff salaries and other operating expenses.
- Purchasing green power is usually more expensive than conventional fossil-based energy.

7. High Performance Building Recognition Awards

- Recognition awards are typically valued for their inherent exclusivity and as a business marketing tool– too many award recipients dilute the distinction of being a leader in your field.
- Lack of a common set of selection criteria among the different recognition awards.

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IV. Recommendations for Action

1. Tax Incentives

Strategy: Promote and expand Federal and State tax credits for high performance buildings. These credits will apply to a range of technologies and energy conservation measures, from wind turbines, photovoltaic systems (PV), and cogeneration to efficient interior lighting, weather-stripping, and building insulation.

Case Study: The American Recovery and Reinvestment Act of 2009 ("Recovery Act") amended or added numerous energy tax incentives available to businesses. At least 25 states in the U.S. have established tax credits, deductions, or exemptions to promote investment in energy efficiency and/or renewable energy technology for commercial buildings. For example, Oregon's Business Energy Tax Credit may be claimed for costs directly related to a qualified energy efficiency project, including equipment cost, engineering and design fees, materials, supplies, and installation costs. Loan fees and permit costs also may be claimed. The tax credit is 35 percent of the eligible project cost defined as the incremental cost of the system or equipment that's beyond standard practice. In order to qualify, a high performance building must meet established standards set by the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) for Silver Certification. Trade, business or rental property owners who pay taxes for a business site in Oregon are eligible for the tax credit.

2. Rebates and Grants Programs

Strategy: Financially support utility energy efficiency rebate programs that reward high performance buildings that deliver deep energy savings.

Case Study: In the US roughly 25-30 states offer efficiency programs funded through utility ratepayers and system benefit funds. The most aggressive regions comprise the Northeast, Pacific Northwest, and California which together account for half of the nation's funding for such programs. For example, under the auspices of the California Public Utilities Commission, the Savings By Design ("SBD") program offers services and incentives to help owners and designers of commercial buildings raise energy performance. Qualified non-residential new construction and renovation projects in the service area of one of the five participating utilities are eligible to participate. The five participating utilities are Sacramento Municipal Utility District, Pacific Gas and Electric, San Diego Gas and Electric, Southern California Edison, and Southern California Gas Company. Owners and designers are eligible for incentives if the facility's efficiency is 10% better than California's minimum energy efficiency standards. Incentives are based on

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annualized kWh and therm savings. Owners are eligible for incentives up to 75% of the cost of energy efficiency improvements or \$500,000, whichever is less.

3. Utility Incentive Programs

Strategy: Promote revenue decoupling for utilities nationwide to increase the scale and scope of utility-sponsored energy efficiency programs. Decoupled utilities typically should be allowed to recover the cost of implementing energy efficiency incentive programs and investor owned utilities should be able to generate shareholder earnings in return for successful implementation of energy efficiency incentive programs.

Case Study: The National Association of Regulatory Utility Commissioners (NARUC) and others have supported new rate structures under which profits are 'decoupled' from sales, and utilities are rewarded for providing incentive programs promoting efficiency measures to their customers. Several key states, including California, Idaho, Vermont, and New York, have already adopted decoupling, and have seen energy consumption decrease substantially. In 1982, California adopted an Electric Revenue Adjustment Mechanism and became the first state to decouple utility revenue from sales and removed disincentives for energy efficiency and conservation. The program has been successful and has significantly reduced rate volatility. Approximately two billion dollars of approved investments in efficiency were implemented from 2006 to 2008 alone. It is estimated that every dollar invested by the utilities in efficiency measures have generated more than two dollars in savings for customers. California's decoupling policy is largely responsible for making California the nation's most energy efficient state, while promoting economic growth. Under decoupling, California's per capita energy has remained relatively flat over the last thirty years. In perspective, energy use per capita in the rest of the country has surged by 50%.

4. Green Building Voluntary Rating Systems

Strategy: Support the development of voluntary green building rating systems that target increased energy efficiency performance and ultimately zero net energy for specific building types.

Case Study: Many federal, state, and local governments and school districts have already adopted various types of LEED initiatives and incentives as an important component for implementing their respective green building objectives. LEED provides seven green rating systems for the design, construction and operation of different commercial building types: 1) New Construction and Major Renovations, 2) Core & Shell Development, 3) Schools, 4) Retail New Construction, 5) Commercial Interiors, 6) Retail Interiors, and 7) Existing Buildings – Operations & Maintenance.

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5. Green Building Codes and Standards

Strategy: Promote the adoption of increasingly more stringent green building codes that emphasize energy efficiency standards.

Case Study: No incentive or market-based program can achieve the market penetration routinely achieved by codes. To achieve zero net energy, green building codes that focus on energy efficiency measures need to be a driving policy instrument and ultimately the mechanism by which zero net energy is broadly achieved. For example, the recently enacted Cal Green Code in California provides new pathways to cities for building codes that incorporate three levels of energy efficiency: a basic level, 15% more efficient, and 30% more efficient than the minimum energy measures mandated in California's building code. Cities may adopt one of the three levels as part of their local building codes process.

6. Green Building Incentive Programs

Strategy: Encourage local jurisdictions to expedite their building plan check review and permitting process for high performance green buildings with an emphasis on energy efficiency.

Case Study: The City of Santa Monica adopted an ordinance in August 2005 to encourage the construction of high performance buildings. The ordinance, incorporated into the Municipal Code of Santa Monica, allows for priority plan check processing for building projects that are registered with the United States Green Building Council for certification under the Leadership in Energy and Environmental Design (LEED) Green Building Rating System. The ordinance applies to all new buildings and major renovations which total an amount exceeding 50% of their replacement cost. All applicants wishing to receive priority plan check processing must submit proof of LEED registration and a checklist indicating all of the credits they plan to pursue before they can receive expedited permitting. Applicants must also clearly specify the materials, systems and strategies they will use to achieve the credits in the plans submitted to the City for plan check approval.

7. High Performance Building Recognition Awards

Strategy: Support national, high profile, recognition award programs for exemplary high performance buildings that showcase excellence in sustainable design principles and reduced energy consumption.

Case Study: The AIA/COTE Top Ten Green Projects program, now in its 14th year, is the architectural profession's best known recognition program for sustainable design excellence. The program celebrates projects that are the result of a thoroughly

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integrated approach to architecture, natural systems and technology. They make a positive contribution to their communities, improve comfort for building occupants and reduce environmental impacts through strategies such as reuse of existing structures, connection to transit systems, low-impact and regenerative site development, energy and water conservation, use of sustainable or renewable construction materials, and design that improves indoor air quality.