



CTED | Community, Trade and
Economic Development

An Analysis of Green Building Tax Incentives

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Report to the Legislature
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EXECUTIVE SUMMARY

House Bill 3120, (Chapter 1, Section 1, (1) (b), Laws of 2008), identified increasing “green building” activity in the state as an approach that could help the state address a number of energy and environmental concerns. This report focuses on options to provide tax incentives and the use of public financing methods to encourage green building.

In Washington, residential and commercial customers account for 47 percent of natural gas sales and 54 percent of electricity sales. Construction and demolition waste made up 34 percent of the solid waste generated in Washington in 2002. Recent state Climate Action Team report note that buildings account for about twenty percent of the state green house gas emissions annually.

This report first details the environmental impacts of the buildings, and a range of benefits provided by green building. This is followed by a discussion of existing green building programs, both national and state. Then the report provides background on a number of government incentives developed out of state that encourage green building. This is followed by detailed descriptions of green building tax incentives and public financing ideas that were developed specifically to fit Washington State’s tax system. Tax incentives and financing options outlined in this report include:

1. Sales Tax Exception for Clean Technology Purchases
2. Sales Tax Refund for Non Residential New Construction
3. Sales Tax Refund for Existing and New Residential Buildings
4. Public Utility Tax (PUT) Credit
5. Transferable Energy Tax Credits (TETC)
 - a. High Performance Home Tax Credit
 - b. Commercial Buildings Transferable Energy Tax Credit
6. Local Improvement District (LID) for Green Buildings

Because of a tight revenue forecast in 2009 for Washington State, CTED recommends that the Legislature consider the energy efficiency and green building proposals that are likely to emerge from the executive branch climate proposal. With respect to the various policy options examined in this report we believe the following five approaches merit further consideration.

1. Sales Tax Remittance for Clean Technology Purchases
2. Sales Tax Refund for Non Residential New
3. Public Utility Credit
4. Transferable Energy Tax Credit
5. Property Tax Based Incentive

Each of these approaches uses a different mechanism to encourage sustainable and green construction and we believe there should be a field test of each with rigorous monitoring and verification to determine which approach is the most effective at stimulating green building and producing cost effective results in the form of reduced energy use and green house gas emissions.

INTRODUCTION

House Bill 3120, (Chapter 1, Section 1, (1) (b), Laws of 2008), identified increasing “green building” activity in the state as an approach that could help the state address a number of energy and environmental concerns. This report focuses on options to provide tax incentives and the use of public financing methods to encourage green building.

Building construction and operation place a large demand on energy resources and water resources and is a major contributor to the waste streams communities are asked to manage. Green building implements a range of solutions that reduce the demand for these services while providing good - if not superior - service to the occupants at a reduced life cycle cost. This benefits the occupant, building owner, and the community at large.

House Bill 3120 required the Washington Community Trade and Development Department (CTED) to:

- Identify existing tax incentives with the primary purpose of encouraging green building;
- Propose tax incentives that would encourage green building, with special emphasis on sales and use tax exemptions on green building construction activities and business and occupation tax incentives for contractors or architects that build or design green buildings;
- Provide an estimate on the fiscal cost for each tax incentive identified under these subsection;
- Provide an estimate of cost savings and emission reductions for the estimated number of buildings that would qualify for a tax incentive identified under these subsection;
- Recommend other tax and programmatic policy changes that would encourage green building;
- Evaluate whether tax incentives should target communities that encourage green building; and;
- Evaluate current trends in green building and whether tax incentives would support these trends.

Building energy demand and the creation of building materials are major contributors to the state green house gas inventory. Building energy use accounts for more than 20 percent of the state carbon emissions inventory¹. Because of this the state Climate Action Team (CAT) identified the buildings sector as an area of interest. In 2008, the special CAT working group on Energy Efficiency and Green Building developed a number of proposals for reducing building green house gas emissions through a range of suggested legislative and administrative actions. Of

¹ Leading the Way: A Comprehensive Approach to Reducing Greenhouse Gases in Washington State
Recommendations of the Washington Climate Advisory Team February 1, 2008

these, tax incentive and public financing programs for green building programs were a major component. In this report we have taken advantage of this work, and have included a number of the CAT concepts.²

This report also draws on the experience of other state and local programs developed to encourage green building. This includes Oregon's Business Energy Tax Credit (BETC) and Residential Energy Tax Credit (RETC), New York's Green Building Tax Credit and others. These concepts have been modified to fit in the Washington State tax system.

This report first details the environmental impacts of the buildings, and a range of benefits provided by green building. This is followed by a discussion of existing green building programs, both national and state. Then the report provides background on a number of government incentives developed out of state that encourage green building. This is followed by detailed descriptions of green building tax incentives and public financing ideas that were developed specifically to fit Washington State's tax system. Tax incentives and financing options outlined in this report include:

1. Sales Tax Exception for Clean Technology Purchases
2. Sales Tax Refund for Non Residential New Construction
3. Sales Tax Refund for Existing and New Residential Buildings
4. Public Utility Tax (PUT) Credit
5. Transferable Energy Tax Credits (TETC)
 - 5a. High Performance Home Tax Credit
 - 5b. Commercial Buildings Transferable Energy Tax Credit
6. Local Improvement District (LID) for Green Buildings

It should also be noted that the economic forecast for the coming biennium projects a significant revenue deficit. In this situation it may be difficult to find revenue to launch a new program that will have large revenue impact on the state general fund. The options presented later in this report are scalable and can be adjusted in a number of ways to manage the fiscal impacts. Examples might include setting an overall dollar cap on the amount of program activity, setting a per project dollar cap, inserting a sunset date, or by specifying exceptionally high standards that limit program participation, while providing good early adoption examples.

² Report to the Climate Action Team, 2008 Climate Action Team Appendix 3: Energy Efficiency and Green Building IWG.

BUILDING CONSTRUCTION AND OPERATIONS IMPACTS

Buildings have a significant impact on the natural environment, economy, health, and productivity. In the United States, the built environment accounts for approximately one-third of all energy, water, and materials consumption and generates similar proportions of pollution. The Environmental Protection Agency (EPA) classifies indoor air quality as one of the top five environmental health risks today, affecting the health and performance of occupants. Such health risks have special import for children in our nation's public schools. Emerging research studies point to links between green buildings and labor productivity -- business expense that dwarfs other building operating expenses.³

According to USDOE, there are more than 76 million residential buildings and nearly 5 million commercial buildings in the United States today.⁴

Collectively, these buildings consume:

- 37 percent of all energy used in the United States
- 68 percent of all electricity
- 12 percent of fresh water supplies and
- 88 percent of potable water supplies
- 40 percent of raw materials

Collectively, these buildings generate:

- More than one-third of municipal solid waste streams
- 36 percent of total emissions of anthropogenic carbon dioxide (CO₂) emissions, the primary greenhouse gas associated with global climate change
- 46 percent of sulfur dioxide emissions (SO₂)— a precursor to acidic deposition— through the consumption of fossil-fuel-fired electricity
- 19 percent of nitrogen oxide emissions (NO_x),
- and 10 percent of fine particulate emissions

In Washington, residential and commercial customers account for 47 percent of natural gas sales and 54 percent of electricity sales.⁵ Construction and demolition waste made up 34 percent of the solid waste generated in Washington in 2002.⁶ Recent state Climate Action Team report note that buildings account for about twenty percent of the state green house gas emissions annually.⁷

³ Building Momentum, 2002 U.S. Green Buildings Council Roundtable for Senate Environment and Public Works Committee

⁴ U.S. Department of Energy, Energy Efficiency and Renewable Energy Network (EREN). Center of Excellence for Sustainable Development, 2003.

⁵ Chuck Murray, CTED Energy Analyst, Based on U.S. Energy Information Administration 2005 gas and electric sales data.

⁶ Washington State Department of Ecology. <http://www.ecy.wa.gov/beyondwaste/greenbuilding.html>

⁷ Leading the Way: A Comprehensive Approach to Reducing Greenhouse Gases in Washington State Recommendations of the Washington Climate Advisory Team February 1, 2008

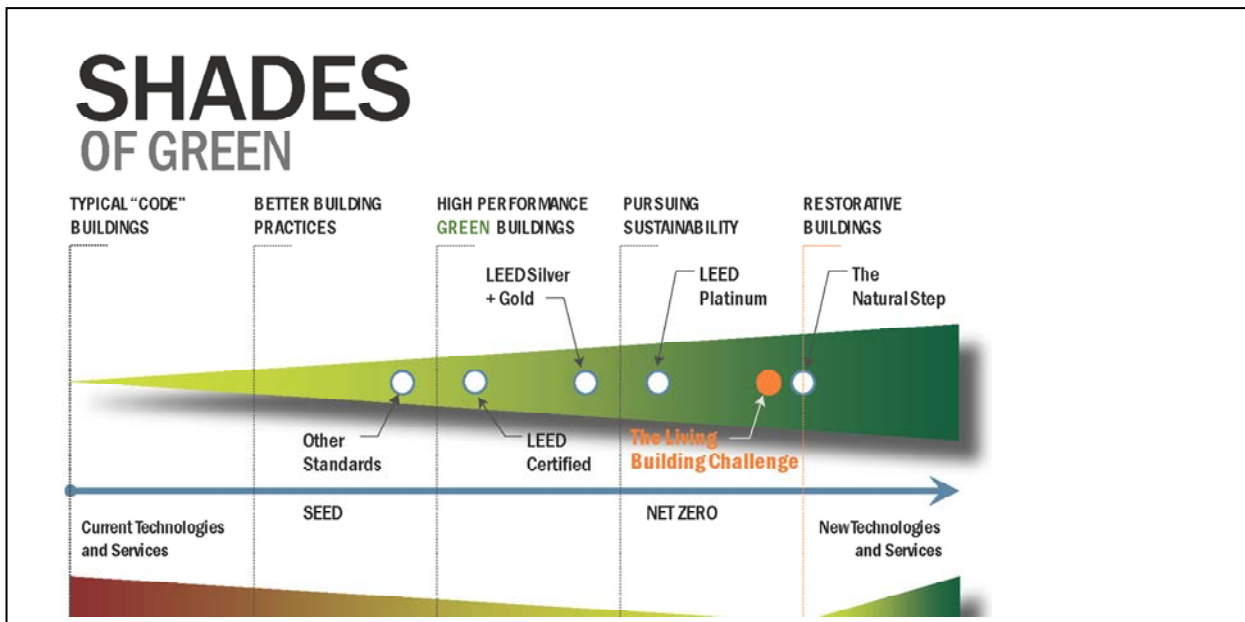
WHAT IS A GREEN BUILDING?

One of the first steps in establishing a green buildings program is to define what we mean. A practical general definition is:

Green building is the practice of increasing the efficiency with which buildings use resources — energy, water and materials — while reducing building impacts on human health and the environment, through better siting, design, construction, operation, maintenance, and removal — the complete building life cycle.

Figure 1, Shades of Green⁸, displays a spectrum of green buildings, showing that as a building's performance increases the building's ecological impact is reduced – this progression is indicated moving from left to right in the diagram.

Figure 1. Shades of Green



Beginning at the left side, typical code-compliant buildings meet government regulations and/or common practices in the local market. It represents the minimum standard for constructing a building.

The next level up is called Better Building Practices. This level complies with a standard that is typically developed by local, regional, or state level governments or the local building industry. This type of standard is generally better than code but not necessarily as rigorous as more recognized third-party standards like the Leadership in Energy and Environmental Design (LEED) standard that is managed by U.S. Green Buildings Council (USGBC).

⁸ Source: SERA Architects

High Performance Buildings are the next category. In Figure 1 these are defined as either LEED Silver or Gold. For example, LEED Gold and Platinum buildings here in the USA are performing 50 percent more energy efficiently than average buildings⁹.

The next level up is called Pursuing Sustainability and is characterized by the concept of Zero Net Energy or creating a building that uses no energy over the course of a year. LEED Platinum and the Living Building Challenge are standards that yield this result. The method for creating a Zero Net building typically involves two steps. The first is creating a building that is 50 to 65 percent more energy efficient than the local code requires. Once this is accomplished the rest of the energy load for a building is met using clean technologies like solar water heating and solar photovoltaic electric generation.

A Restorative Building is a structure that gives back more resources than it consumes. This type of building generates more energy than it uses, produces more clean water than it uses, and recycles/reuses more resources than it consumes. This building is still a vision, but the idea of restorative buildings is very compelling to the early adopters of green building who are currently embracing “net-zero.”

⁹ Turner, Cathy, Frankel, Mark, Energy Performance of LEED® for New Construction Buildings FINAL REPORT March 4, 2008, U.S. Green Building Council.

GREEN BUILDING MARKET TRENDS

According to the *Overview, a construction industry publication*, green nonresidential construction put in place projects worth \$13.4 billion in 2006. By 2008 this number is expected to climb to \$21.2 billion which is 5-10 percent of all project activity. The growth in green construction has created a shift in perception among owners and the architectural and engineering communities. Construction industry stakeholders have embraced the green movement and sustainable design for its energy savings, worker productivity increases and positive public perception.

In 2008, the three largest segments for nonresidential green building construction — office, education and health care — will account for more than 80 percent of total nonresidential green construction in the US. Other segments such as lodging and commercial are also experiencing green construction growth, with a 20 percent gain expected from 2007 to 2008¹⁰.

Recent research indicates that construction industry stakeholders are increasingly recognizing green building capabilities as "good" — and as a necessary part of a firm's best practices. Green building is no longer a niche sector¹¹.

Three general trends are pushing green building to the forefront of the construction industry's consciousness.¹² They are:

- A host of government initiatives. As the largest owner and operator of buildings, the U.S. government has the ability to exert influence over the construction industry and to put in place policies, rules and regulations designed to drive private sector investment in construction toward a predetermined end. In the first five months of 2007, more than 100 green building bills were introduced at the state level. Many states have adopted sustainability requirements for all of their new government-funded construction projects. Governments have also implemented economic incentives in the form of tax rebates and credits, density bonuses and other policies such as expedited permitting and approval for green projects.
- Heightened residential demand. The heightened level of interest in sustainability within the residential construction sector has contributed to green construction's movement into the mainstream. While demand for traditional residential construction is slowing down, the green housing and materials markets are expanding. Homeowners are increasing their investment in sustainable housing due to improved economic paybacks resulting from high energy prices and their growing sensitivity to environmental concerns. According to the *Overview*, the National Association of Home Builders Green Building Conference in April 2007 revealed that green building and remodeling is experiencing a level of demand that exceeds the current supply of qualified firms.

¹⁰ McGraw Hill Construction, 2006 Smart Market Report

¹¹ McGraw Hill Construction, 2006 Smart Market Report

¹² USGBC, Green Building Facts

- Improvements in sustainable materials. Green materials and building products are becoming more popular due to the upward trend in the green construction market. Consumers are becoming more knowledgeable about their health and the environment and are now questioning the volatile organic compounds (VOCs) in their carpet, paint and wood. They are making a conscious effort to identify what building materials are healthier, more energy efficient and economically sensible. As the demand grows for green products and materials, the cost is mitigated. Today, many manufacturers are making green products, which leads to more competition and better pricing. In addition, distribution outlets for green materials are improving.

Green building is growing all around the country. It is not a question of whether developers should invest in green and sustainable buildings but rather how much and how fast they should invest.

According to McGraw-Hill, in 2005 green building comprised 2 percent of the commercial and residential new construction market. The value of the residential component was about \$7.2 billion. By 2010 this number is expected to rise to between 5 to 10 percent. The value of this amount of activity is projected to be between \$19-38 billion. This number does not include residential remodeling which could add substantially to this total.

The green building market is evolving rapidly from a niche-oriented activity championed by cutting edge environmentalists to a new and much more diverse market. Participants in the new market range from small family-owned custom builders to large production builders including those that construct affordable housing¹³.

From a builder's perspective the drivers that stimulate green building include¹⁴:

- Energy cost increases
- Consumer demand
- Superior performance

Barriers include:

- Perceived higher first costs
- Questions about consumer willingness to pay
- Lack of consumer education on green building

A green home built in today's market will most likely have the following attributes:

- Energy efficiency
- Indoor air quality
- Water conservation
- Resource efficiency
- Improved construction processes

¹³ McGraw Hill Construction, 2006 Smart Market Report

¹⁴ McGraw Hill Construction, 2006 Smart Market Report

Given that lot sizes are not increasing, the trend toward green is spilling over to create green subdivisions and green communities. The potential benefits of a green community are quite substantial. In 2005, average residential utility expenditures were \$1,248 per Washington State household¹⁵. Homes built to higher efficiency standards may cut energy cost 30 to 50 percent. Many utilities and some government entities offer incentives to go green.

Another category of benefit for a green home is increased health and comfort. Green homes may have humidity control, reduced exposure to chemicals, better air exchange and filtration for cleaner air. It should be noted that maintaining these systems is necessary to realize the benefits.

Green building is getting traction in the marketplace. A recent nationwide survey conducted by the National Association of State Energy Officials revealed that over 90 percent of states nationwide have some form of green building program being implemented or on the drawing board.

According to the *Local Leaders Report*, published by The American Institute of Architects (AIA), since 2003 the number of cities with green building programs has increased greater than 400 percent. This is due to a concerted effort by local political leaders, officials, architects and others within the design/building industry, and grassroots support.¹⁶

Based on research conducted by the AIA on all American cities with a population greater than 50,000 (661 communities), the report spotlights the growth and effectiveness of green building policies. Ninety-two cities have green building ordinances, or at least 14 percent of all communities, representing a population of approximately 42,374,499 Americans.

Green building has expanded at a quickened clip over the last four years. The 92 cities with programs provide interesting data to explore. The majority of laws have been passed post-2003, with only 17 passed before that year. These pioneering programs include:

Arlington, VA	Gainesville, FL	San Francisco, CA
Austin, TX	Los Angeles, CA	San Jose, CA
Boulder, CO	Madison, WI	Santa Monica, CA
Elizabeth, NJ	Pleasanton, CA	Scottsdale, AZ
Fort Collins, CO	Portland, OR	Seattle, WA
Frisco, TX	San Diego, CA	

The Pacific region is moving quickly to adopt green building and sustainability at a faster rate than any other region of the country¹⁷. Several issues influence this situation, ranging from public support for climate change initiatives to a culture of conservation to rising energy costs.

¹⁵ CTED, Based on 2005 Washington state residential retail gas and electric sales developed by the U.S. Energy Information Administration.

¹⁶ Rainwater, Brooks, *Local Leaders In Sustainability, A Study of Green Building Programs in Our Nation's Communities*, The American Institute of Architects, 2007. http://www.aia.org/adv_localleaders

¹⁷ Rainwater, Brooks, *Local Leaders In Sustainability, A Study of Green Building Programs in Our Nation's Communities*, The American Institute of Architects, 2007.

The six states that are identified as the Pacific region in this study are California, Oregon, Washington, Nevada, Hawaii, and Alaska.

In addition, Arizona has three successful green building programs, in Phoenix, Scottsdale, and Tucson. In addition to LEED, both Tucson and Phoenix have a particular focus on energy and water efficiency.

Green building programs have traditionally focused on government buildings first because this is often the path of least resistance¹⁸. Governments can lead by example and demonstrate the efficacy of green design to the community. As time has passed and programs have multiplied, many cities have expanded their original programs or designed new programs that incorporate commercial and residential green building into their overall plans. This expansion into the private sector is generally accompanied by incentives that can range from assistance by city officials to fast-track permitting to cash rebates offered by the municipality. Although not all private green building requirements include incentives, the majority offer inducements to “go green.” Many private-sector parts of green building programs remain voluntary; however, several cities have begun to mandate green for all buildings.

Since most programs apply to government buildings it is no surprise that 79 percent of communities designed their program to apply to government buildings. It is also noteworthy that 49 percent of respondents indicated that their programs apply to commercial, 39 percent single-family, and 38 percent indicated that their green building program applied to multifamily construction.¹⁹

In the commercial sector the Leadership in Energy and Environmental Design (LEED) Green Building Rating Program dominates the green building niche²⁰. LEED is a national consensus-based, market-driven building rating system designed to accelerate the development and implementation of green building practices. It is a leading-edge system for designing, constructing, and certifying the world’s greenest buildings. LEED is divided into five categories including siting, water conservation, energy, materials, and indoor environmental quality, plus an innovation and design category.

Using LEED’s scoring system each category contains a specific number of credits; each credit carries one or more possible points. A project that earns enough points (26) can become “LEED Certified.” More points lead to higher ratings — Silver (33), Gold (39), and Platinum (52 or more). Some categories have prerequisites that must be met or points cannot be earned in that category.

LEED is successful because it takes a complex, multifaceted problem — sustainable design and development — and creates a design solution by providing clearly established rules and intricate

¹⁸ Building Momentum, 2002 USGBC Roundtable for Senate Environment and Public Works Committee

¹⁹ Rainwater, Brooks, Local Leaders In Sustainability, A Study of Green Building Programs in Our Nation’s Communities, The American Institute of Architects, 2007.

²⁰ Rainwater, Brooks, Local Leaders In Sustainability, A Study of Green Building Programs in Our Nation’s Communities, The American Institute of Architects, 2007.

strategies that provide a pathway for higher ratings up to the Platinum level. A key LEED strength is a branded metric that establishes a means of comparison in the real estate marketplace. LEED is designed to reflect the best practices of the top 25 percent of new buildings. This allows owners of LEED-rated buildings to state that their properties are environmentally superior to at least 75 percent of the contemporary buildings in the market. The LEED brand has become a marketing distinction for a number of certified projects, especially those with Gold or Platinum ratings.

Another well known program offered in the commercial sector is the “Designed to Earn the Energy Star” program²¹. Design projects that receive an Energy Star rating of 75 or higher are eligible for Designed to Earn the Energy Star designation. Projects that are rated to be 50 percent or more efficient than an average building meet Architecture 2030 and AIA goals. All eligible designs must be at least 95 percent complete with construction documents. Buildings that have generated utility bills are not eligible for Designed to Earn the ENERGY STAR and can apply for the Energy Star Building label.

The final program noted here is called Green Globes²² which is an interactive, online green building assessment and design protocol. The program involves self certification and is easy to perform and understand. If a Green Globes certification is desired then an independent third-party verifier must confirm the initial design assessment. The verifier works with the design team to assess the buildings Green Globes Score. Buildings that receive a certified assessment score above 55 percent are given a rating of three to five globes.

A Green Globes assessment is comprised of about 150 questions that are written in lay terms. Once complete, Green Globes automatically and instantly issues an assessment report along with recommendations for design improvements and resources for making the improvements. At \$250 per self-assessment, Green Globes may be less expensive than other rating systems.

Green building programs are not static. LEED 2009 is in the advanced stage of development. LEED 2009 is designed to provide a standard that achieves greater energy savings and carbon reductions than the current edition. In the fall of 2008, Green Globes 2008P was open for public review. The American Society of Heating, Refrigerating and Air-Conditioning Engineers are developing the new green building standard, 189.1. Residential programs are modified periodically to adjust to changes in the local energy code, or in response to changes in utility incentive programs.

²¹ Achieving Designed to Earn the Energy Star, EPA, http://www.energystar.gov/index.cfm?c=new_bldg_design.new_bldg_design_guidance

²² The Practical Rating System, <http://www.greenglobes.com/>

GREEN BUILDING IN WASHINGTON STATE

Green building activities in Washington State mirror the national trends listed above.

Government has taken the lead in Washington State. In 2005 Washington State Legislature passed Engrossed Substitute Senate Bill 5509, making changes to chapter 28B.10 RCW, 39.04 RCW, 28B.10 RCW, and Title 39 RCW. This law requires that construction projects funded in the capital budget must be designed, built and certified to high performance “green building” standards. The primary green building programs in use for state capitol projects are LEED, for large institutional projects, Washington Sustainable Schools for K-12 education, and the Evergreen Building Standard for Housing Trust Fund projects. In addition, numerous green building construction projects carried out by county and municipal government in the state.

The private sector in Washington is also active. Both LEED and Green Globe programs are being followed by the private sector in Washington. The U.S. Green Buildings Council list of LEED registered projects includes several hundred private projects in Washington State. The Cascadia Region U.S. Green Building Council chapter list over 1,000 members, mostly professionals in the regions building industry.

The residential construction industry in Washington began organizing green building programs before many others. For the home construction industry in Washington the most widely adopted program is Built Green²³. Built Green Washington is a cooperative of the state’s regional green home building programs. Using Built Green the general strategies for green building include:

- Site development to preserve natural water flow;
- Construction site waste reduction; and
- Designing buildings and using equipment and materials that support good indoor air quality and the efficient use of natural resources and energy.

Fifteen Built Green programs operate in Washington, each one somewhat unique and oriented to the market being served by the host builders. Built Green is administrated by various Master Builders Associations of Washington state counties. Built Green offers builders the ability to certify their construction projects for green building compliance. With the Built Green program, the builder, architects or other planners identify features for reaching this certification before building and build to certain standards for inclusion and recognition as a Built Green property. Current programs are depicted in Figure 2 below.

Figure 2. Built Green Programs in Washington – see <http://www.builtgreenwashington.org/programs.php> for a current list.

Counties	Program Name	Website
Chelan, Douglas, and Okanogan	North Central Home Builder's Association	www.nchba.cc
Clallam	BUILT GREEN of Clallam County	www.npba.info/built%20green.html

²³ Built Green Washington, <http://www.builtgreenwashington.org/>

Clark	Building Industry Association of Clark County	www.biaofclarkcounty.org
Cowlitz, Wahkiakum, Skamania, and northern Clark	Lower Columbia Contractors Association	www.contractorsassoc.net/index.php
Island and Skagit	SICBA Built Green	www.sicba.org
Jefferson	Built Green of Jefferson County	www.jeffcobuiltgreen.com
King & Snohomish	Built Green of King and Snohomish Counties	www.builtgreen.net
Kitsap	Kitsap Built Green	www.kitsapHBA.com
Pierce	Tacoma-Pierce County Built Green	www.mbapierce.com
San Juan	San Juan Builders Association	none
Spokane, Grant, Whitman, Ferry, Lincoln, Pend Oreille, and Stevens	Inland Northwest Built Green	www.certifiedbuiltgreen.org
Thurston, Lewis, Mason, Grays Harbor, and Pacific	Olympia Master Builders - Built Green	www.builtgreenomb.org
Walla Walla, Benton, Franklin, Columbia, Garfield, and part of Grant	Built Green Tri-Cities & Walla Walla	www.hbatc.com
Whatcom	Built Green Whatcom	www.biawc.com/builtgreen
Yakima, Kittitas and Klickitat	Central Washington Built Green Program	www.cwhba.org

In Washington State there are also examples of financial support for green building.

Utilities in Washington provide incentives that often include rebates for energy efficient construction, efficient appliances and lighting. A comprehensive listing may be accessed at the Database of State Incentives for Renewable and Energy Efficiency web site.²⁴ These will likely increase as state utilities begin to implement the Energy Independence Act. Initiative 937 requires large electric utilities to acquire all cost effective efficiency measures.

Local government also provides incentives. An example, the King County/Seattle Built Green incentive provides funding for single-family residential and community development projects to help offset the cost of certifying and designing innovative green projects throughout Seattle and King County. Eligible single-family homes may receive up to \$5,000, while multi-family and community development projects may receive up to \$20,000. King County also has a grant program for commercial buildings.

²⁴ Washington Homeowner Incentives for Renewables and Efficiency, Database of State Incentives for Renewable and Energy Efficiency, <http://www.dsireusa.org>

ECONOMIC IMPACTS OF GREEN BUILDING ²⁵

Most tax credit based incentives have a negative impact on state general fund resources. They represent revenue foregone by the State of Washington. For this reason it is worth noting that ECONorthwest, a Portland, Oregon, based consulting firm, has estimated the economic effects of Oregon's Business Energy Tax Credit (BETC) and Residential Energy Tax Credit (RETC) programs on green building activities in Oregon.

These effects include impacts on employment, output, and wages as well as tax revenue in Oregon that resulted from 2006 tax credits and the subsequent spending on measures and labor. It should be noted that Oregon's tax credit program includes many activities besides projects aimed at incenting residential and commercial green building. However, it is reasonable that on a pro rata basis the benefits that accrue to the overall program would also accrue to the portion of the program that applies to green building. In their work ECONorthwest isolated the economic impacts of energy efficiency improvements (i.e., energy savings) that were realized in 2006 in order to estimate the benefits to the economy that accumulate in future years.

For its analysis, ECONorthwest compared all impacts against a Base Case scenario in which the BETC and RETC programs do not exist and the tax credit funds are assumed to be spent on other Oregon government programs following historical spending patterns. The difference in economic impacts between the tax credit program spending and the Base Case scenario is the *net impact* of the tax credit programs.

For example, if an impact of five new jobs is reported, this means that BETC and RETC programs resulted in five more jobs than would have occurred had the money been spent on other government programs and activities. The combined spending on the BETC and RETC programs for 2006 totaled \$73.8 million for tax credits and program administration. That is, \$73.8 million in tax credits and program administration costs were obligated for projects completed in 2006. The effect of these tax credits combined with spending by businesses and residences taking advantage of these tax credits had the following net impacts on the Oregon economy in 2006:

- Output in Oregon's economy increased by \$142.7 million
- 1,240 new jobs were created in Oregon
- Oregon wages increased by \$18.6 million
- Tax revenues for state and local government increased by \$10 million
- Oregon commercial and residential energy costs decreased by \$48 million

These net impacts reflect the benefits *over and above* what might have been achieved if the RETC and BETC did not exist and the tax credit dollars were used to fund other government activities.

In addition to the first year spending impacts, the energy savings achieved by the measures covered by these tax credits will continue in subsequent years after the tax credit is paid out. This

²⁵ Economic Impacts of Oregon Energy Tax Credit Programs in 2006, ECONorthwest, Portland, Oregon

substantially increases the benefits of these purchases as most of the measures covered by these programs have an expected useful equipment life of 15 years or more. As energy cost savings are achieved each year, businesses are able to produce at lower costs and increase output. Based on annual energy savings of \$46 million achieved from the BETC program activity in 2006, the continued energy savings in future years due to the expected equipment life of 15 years or more has the following annual economic impacts:

- Increase in Oregon's economic output by \$93 million
- Continued net impact of 889 new jobs
- Additional state and local tax revenues of \$10 million

There is reason to believe that similar positive impacts would occur in Washington if a similar program is offered.

INCENTIVE EXAMPLES: WHAT STATE AND LOCAL GOVERNMENTS ARE DOING

As a precursor to our discussion of proposed tax incentives, Figure 3 depicts a number of the green building incentive programs available around the country. This list, provided by the US EPA, is representative of programs around the country but does not necessarily include every program available.

Figure 3. Examples of Green Building Programs

Source	Description, Intended Audience
The Local Government Commission Financing and Project Assistance for Energy Efficiency in Buildings	<p>The Local Government Commission (LGC) is a nonprofit, nonpartisan, membership organization that provides inspiration, technical assistance, and networking to community leaders who are working to create healthy, walk-able, and resource-efficient communities.</p> <p>For: Government, Consumers, Industry, Nonprofits</p>
California Energy Commission California's Emerging Renewables Rebate Program	<p>The Emerging Renewables Program provides rebates to consumers who install qualifying renewable energy systems. Through this program, the Energy Commission provides funding to offset the cost of purchasing and installing new renewable energy systems using emerging renewable technologies.</p> <p>For: Consumers, Industry, Nonprofits</p>
California Energy Commission Energy Efficiency Financing Program	<p>The Energy Efficiency Financing Program provides financing for schools, hospitals and local governments through low-interest loans for feasibility studies and the installation of energy-saving measures.</p> <p>For: Government, Industry, Nonprofits.</p>
Maryland Energy Administration Green Building Tax Credit	<p>Maryland provides a tax credit for the construction of green building. The credit is worth up to 8 percent of the total cost of the building. Buildings must be located in a priority funding area and be at least 20,000 square feet.</p> <p>For: Industry, Nonprofits</p>
Massachusetts Technology Collaborative Renewable Energy Trust	<p>The Renewable Energy Trust provides financial assistance to individuals, businesses, public entities and communities in Massachusetts, for green building and renewable and clean energy projects.</p> <p>For: Consumers, Industry, Nonprofits</p>
New Jersey Department of Community Affairs' Office of Smart Growth Smart Future Planning Grant Program	<p>The Smart Future Planning Grant program provides grants to municipalities, counties and non-profit agencies to help plan for the future. The program focuses on seven key categories, including green building.</p> <p>For: Government, Nonprofits</p>
New Resource Bank Solar Home Equity Financing (California only)	<p>New Resource Bank offers California homeowners Solar Home Equity Loans or Line of Credits to finance solar power projects.</p> <p>For: Consumers</p>

Source	Description, Intended Audience
<p>New York State Department of Environmental Conservation</p> <p>Green Building Tax Credit</p>	<p>The Department manages and administers the Green Building Tax Credit program that provides tax credits to owners and tenants of green buildings which increase energy efficiency, improve indoor air quality, and reduce the environmental impacts of large commercial and residential buildings in New York.</p> <p>For: Consumers, Industry, Nonprofits</p>
<p>Oregon Department of Energy – Conservation Division</p> <p>Green Building Tax Credit</p>	<p>ODOE manages and administers the statewide Business Energy Tax Credit (BETC) program. Providing tax credits to developers for constructing Sustainable Buildings is an integral part of the program. BETC provides tax credits to developers, owners and tenants of green buildings which increase energy efficiency, improve indoor air quality, and reduce the environmental impacts of large commercial and residential buildings in Oregon.</p> <p>For: Consumers, Industry, Nonprofits</p>
<p>Arlington , VA : Department of Environmental Services</p> <p>Green Building Incentive Program</p>	<p>The Green Building Incentive program allows developers to request a slightly larger building than would normally be allowed by County Code if the project receives official LEED certification from the USGBC at one of the four LEED award levels.</p> <p>For: Industry</p>
<p>Austin , TX</p> <p>Energy's Green Building Program</p>	<p>List of hyperlinks to City rebate programs and loan information for residential, commercial and multi family green buildings.</p> <p>For: Consumers, Industry, Nonprofits</p>
<p>King County, WA</p> <p>Green Building Incentives and Grants</p>	<p>King County's Green Building Grants provide funding to projects built in King County that meet stringent criteria for resource conservation. In addition, King County provides incentives for residential projects that are seeking BuiltGreen™ certification.</p> <p>For: Government, Industry, Nonprofits</p>
<p>Portland, OR</p> <p>Green Investment Fund (GIF)</p>	<p>The Green Investment Fund, a yearly grant which is supported by the City of Portland and Energy Trust of Oregon, invests in innovative approaches to waste reduction, water conservation, on-site storm water management and reuse, energy conservation and on-site renewable energy generation. The total fund and maximum amount available for any one project in the current round is \$425,000. Industrial, multi-family residential, commercial, and mixed-use projects within Portland city limits are eligible and public and private organizations may apply.</p> <p>For: Government, Consumers, Industry, Nonprofits</p>
<p>Seattle, WA</p> <p>City Light's Energy Smart Services</p>	<p>Seattle City Light's Energy Smart Services offers financial incentives to help organizations reduce electricity use and save money. Incentive amounts can range as high as 70 percent of the installation cost, and are based on energy savings.</p> <p>For: Government, Industry, Nonprofits</p>

Of the programs noted above some might be singled out for special attention as models for Washington to consider. These include the State of Oregon’s Business Energy Tax Credit

(BETC) to promote sustainable development and the State of New Mexico's performance based incentive program for residential and commercial green buildings.

TAX INCENTIVE CONCEPTS FOR WASHINGTON STATE

Based on the experience of other tax credit programs several considerations should be factored in to designing Washington's tax incentives. These include:

- Generally avoid providing an incentive for an activity that is required by law (e.g., no credits for measures required by the building code). There may be limited exceptions to this rule based on the need to help with the phase in of new requirements or to encourage upgrades to existing buildings.
- As much as possible, limit eligible project costs to the incremental amount associated with the clean technology measures (incremental cost is the cost above a reasonable minimum expected to construct a similar facility without energy efficient features),
- Design incentives to minimize fiscal (administrative overhead) costs,
- To the extent possible design incentives so that revenue impacts do not occur all in just one year, but are spread out over time,
- Focus incentives on measures that are at least 10 percent more efficient than standard practice in the marketplace,
- Consider imposing an overall program cost cap and a per project eligible cost cap.
- Plan incentives that will result in a change in the market, or will establish practices that can be eventually moved into code.

As noted in the introduction, a number of the tax incentive ideas were developed by the state Climate Action Team working group on Energy Efficiency and Green Building (EE/GB). In this report we have taken advantage of this work, and have included a number of the CAT concepts.

This report also draws on the experience of other state and local programs developed to encourage green building. This includes Oregon's Business Energy Tax Credit (BETC) and Residential Energy Tax Credit (RETC), New York's Green Building Tax Credit and others. These concepts have been modified to fit in the Washington State tax system.

In many cases, specific performance criteria are presented in the tax incentive concepts. This is typically done by quoting an existing rating program such as LEED, Energy Star or Built Green. These programs will need to be evaluated compared to the current state and local codes to assure they offer a desired level of improvement over the baseline building practice. It is usually suggest that this be done through a rule making process.

Sales Tax Based Programs

The State of Washington offers numerous retail sales tax and use tax exemptions. The following describes several designs for sales tax exemption or sales tax refunds for green building activities. The three proposals include:

- 1 - Sales Tax Exception for Clean Technology Purchases
- 2 - Sales Tax Refund for Non Residential New Construction
- 3 - Sales Tax Refund for Existing and New Residential Buildings

The sales tax in Washington State is a tax on consumption that is a percentage increase added on to the price of goods or services that are purchased. Washington has a 6.5 percent statewide sales tax. Individual counties, municipalities and regional transit authorities can also collect a sales tax, which vary from 0.5 percent to 2.5 percent. The lowest combined sales tax (statewide and municipality) in Washington is 7 percent in most of Klickitat and Skamania Counties, while the highest combined sales tax in Washington is 9.5 percent tax on prepared food and beverages in King County.²⁶

1 - Sales Tax Exception for Clean Technology Purchases

For specific green building products, a full exemption from the Washington sales tax is one option. If adopted, the exception would be granted to consumers who purchase designated residential and commercial clean technologies. Businesses making retail sales in Washington would not collect sales tax from their customers. Green building exemptions would be included in the gross income amount on the excise tax return and subtracted as a deduction.

Under RCW 82.08.835, the state provides a sales tax exception for Solar Water Heat, and Photovoltaics, Landfill Gas, Wind, Biomass, Fuel Cells systems with a generating capacity of at least 200 watts. This tax exemption expires July 2009.

To facilitate implementation of this option CTED could develop compliance standards for qualifying clean technologies. The products chosen and duration of the tax exception would be limited by fiscal allocations defined by the Legislature. Tax exceptions would be focused on transforming markets for specific products with the intent of creating a sustained market for the product once the tax exception is removed.

It should be noted that providing automatic sales tax relief on every purchase may result in a high level of free ridership. All customers for a product will receive the tax benefit, whether their purchase was motivated by the tax credit or not.

Tax exemptions for clean technologies could include the best products in the following categories:

- Lighting and Appliances
- Heating and Air Conditioning equipment

²⁶ http://dor.wa.gov/Docs/forms/Excstx/LocSalUseTx/LocalSlisUseFlyer_Quarterly.pdf

- Heat pumps
- Heat recovery ventilation
- Furnace and boilers
- Air ducts
- Combination space and water heating systems
- Water heaters
- Solar water heating
- Solar Photovoltaic
- Windows
- Insulation
- Flooring and floor covering
- Caulk and adhesive

Revenue Impact:

Revenue impact will be highly dependant on the product chosen. Two examples follow, one for high efficiency furnaces, the other for solar water heating equipment.

In a population of gas heated homes, about 7 percent of the furnaces will be replaced each year. An Oregon Energy Trust evaluation²⁷ determined that about 3 percent of homes heated with gas will replace their furnace with a high efficiency unit, qualifying for the Oregon tax credit. In Washington 3 percent of gas heated homes result in a revenue impact of \$3,205,800.

WA Residential Gas Customers	1,370,000
High Efficiency Furnace Sales per year (3%)	41,100
Furnace Cost	\$1,200
Sales Tax Rebate (6.5%)	\$78
Total State Impact	\$3,205,800

The existing program for Solar Water Heating estimated solar water heater sales to be 50 per year with a fiscal impact of just \$13,000 per year.

Solar Water Heater Cost	\$4,000
Sales Tax Rebate (6.5%)	\$260
Units	50
Total State Impact	\$13,000

2 - Sales Tax Refund for Non Residential New Construction

The EE/GB outlined the legislative option to establish a sales tax incentive for buildings (non-residential occupancies) that meet or exceed a specific level of superior energy performance. The level of energy performance would be defined as equal to or better than the energy performance

²⁷ Demand Research, Incentives for Gas Furnaces in Oregon: Interaction between Energy Trust and the Residential Energy Tax Credit, November 2006

of buildings that achieve an ENERGY STAR Target Finder score of 90. The Department could establish through rulemaking procedures any necessary state specific adaptations to the ENERGY STAR Target Finder benchmark as well as all qualifying rating systems that offer energy performance requirements that meet or exceed this level of energy efficiency. All projects that meet this requirement would be eligible for a sales tax refund of 0.75 percent of the project's documented cost of construction, up to a maximum refund per square foot of floor space in the project applying for refund. The Department would establish rules for documenting qualification for this tax credit, for the maximum refund level per unit floor area, and for verification of qualifying cost of construction. Project owners would receive the incentive in the form of a sales tax refund.

Revenue Impact:

The EE/GB estimated the revenue effect for the 2009-2010 biennium. \$80,000,000 of construction costs are estimated to qualify for the refund, rising to nearly \$250,000,000 by 2012. This would translate to a tax refund of \$400,000 in the 2009-2010 biennium. It is estimated that very few projects would be completed in 2009, so the majority of this tax refund would occur in 2010. By 2012, the estimated tax refund would be about \$1.1 million annually.

To further limit the revenue impacts, the authors suggested that a cap be placed on the value of construction eligible for the tax refund. Typical commercial construction average is \$250/square foot. A cap on the eligible refund of \$250/square foot would limit the state refund, and prevent disproportional rebates for gold plated buildings.

3 - Sales Tax Refund for Existing and New Residential Buildings

This proposal was also originally developed by the EE/GB. This proposal outlines a partial remittance refund for sales tax paid on residential projects. To receive the refund, the builder would be required to meet the ENERGY STAR Northwest energy efficiency performance criteria or equivalent to be developed by CTED.

This recommendation is to establish a partial sales tax refund for qualifying costs incurred by residential property owners for energy efficient new construction remodels and/or retrofits if as a result of that work the property reaches an established threshold of superior energy performance. The threshold level of energy performance to qualify for this tax credit will be equal to or better than that of an ENERGY STAR Northwest rated home. It is recommended that CTED, through a rulemaking process, establish specific levels of energy performance pursuant to this benchmark, certify any home rating system that meets or exceeds this threshold level of energy performance, as well as define qualifying expenses for energy efficiency retrofit and renovation projects. The sales tax for these projects would be paid pursuant to RCW 82.08.020. If the project met the threshold requirement, the property owner would be eligible to claim a partial refund for sales tax paid on the project of no more than 20 percent of the total tax paid capped at \$5,000.

Revenue Impact:

The EE/GB estimated the revenue impact on the state is estimated to be \$3.5 - \$7.5 million per year.

Public Utility Tax (PUT) Credit

The EE/GB also developed a building performance based tax credit that would refund the building occupants' Public Utility Tax (PUT). To qualify the building must meet specific energy end use criteria. To continue to receive the PUT credit, the building would have to continue to report good performance year to year, or in some cases show an improvement in energy performance. This method could be applied to both new construction and existing structures.

A popular building efficiency ranking tool has been implemented by US Environmental Protection Agency called Energy Star Portfolio Manager. This is the reference standard suggested in the following proposals. This is a building performance method developed that compare the proposed project to a population of buildings of similar occupancy, located in a similar climate. The proposed project is then ranked based on the buildings position in the population of buildings. A score of 90 is assigned to the proposed project if it uses less energy than 90 percent of the buildings in the class.

According to WAC 458-20-179 all Washington State utilities pay a tax based on their gross receipts. For natural gas and electricity the tax is 3.8 percent.

The EE/GB workgroup recommended establishing a tax incentive for buildings (nonresidential occupancies) that meet or exceed a defined level of energy performance as determined by the ENERGY STAR Portfolio Manager program (or a comparable verified third party or independent system of standardized accounting and benchmarking as determined by the CTED). The CTED will develop a program that provides the tax credit that initially provides incentives for buildings that meet or exceed a Portfolio Manager score of 75 or demonstrate an annual improvement of energy performance of at least 15 percent (regardless of baseline year Portfolio Manager score). Buildings that continue to meet or exceed the Portfolio Manager threshold score may claim the tax credit annually. Buildings that meet the 15 percent improvement target may claim the credit only one time. Thereafter, those buildings must meet the Portfolio Manager threshold score to claim the credit in other years.

There are three mechanisms for qualification for the PUT credit. All three mechanisms begin with establishing a baseline score using the previous calendar year of energy use data,

1. If the score is 90 or above and that score is maintained or improved in the subsequent calendar year, the PUT credit for year 2 (year after baseline) is available for refund. The PUT refund is available for subsequent years if the score is maintained at 90 or above.
2. For buildings whose baseline year score is between 75 and 89, those buildings must demonstrate 5 points of improvement in year 2 to qualify for a PUT tax refund for year 2 (Note any building that exceeds a score of 90 in the second year will qualify for the process described above). If the 2nd year Portfolio Manager score is maintained or improved in subsequent years, the PUT refund will continue to be available.

3. For buildings whose baseline year score is below 75, those buildings must achieve a minimum score of 75 in any subsequent year to qualify for a PUT refund. If a score of 75 or above is maintained, the PUT refund will continue to be available. After 3 years, the baseline score in mechanism #2 moves to a range of 80 to 89. All other features remain the same for the following 3 years. After 3 years, the baseline scores for mechanism #3 moves to 80. After 6 years, the baseline score for all buildings to qualify for a PUT credit will be 90. A score of 90 or above must be maintained in subsequent years to continue to receive the PUT credit.

Verification of Portfolio Manager benchmark scores will in all cases be done through the U.S. EPA ENERGY STAR validation process. Relying on this process reduces administrative cost and burden to the state.

The tax credit described here should be applied to the PUT. PUT is assessed to electric and natural gas utilities and passed through to energy end use customers. Buildings that meet the level of superior energy performance as described here will receive a full credit of the PUT provided that the serving utility to that building has agreed to participate with the State in this program. Utility participation requires the electricity or natural gas utility agreement to a 50 percent “cost share” with the State for the value of the tax credit. Buildings that are served by electric and/or natural gas utilities that decline to participate in this agreement will not be eligible for the tax credit. Utilities that do participate in this tax credit program will be allowed to claim a reasonable amount of energy savings from the customer project and use those savings to meet the goals of the Energy Independence Act (I-937). The Department will establish a mechanism in consultation with the state’s public and private utilities and in collaboration with the Department of Revenue to minimize the transactional cost of applying this credit to qualifying buildings.

Revenue Impact:

The EE/GB estimated that up to 28 million square feet of commercial property will qualify for a PUT refund in the second year of the 2009-2010 biennium (given the need for a baseline year, there will be no credits in 2009). The anticipated PUT refund with this level of participation is approximately \$750,000.

5 - Transferable Energy Tax Credit (TETC)

This proposal provides for a transferrable tax credit incentive that encourages green building. Commercial building developers and residential builders who construct high performance buildings are eligible for the credit. The credit will be linked with the PUT and will focus on providing an incentive to offset the costs of building green. This credit is not sales tax or business and occupation tax based and has not been implemented before in Washington State. If general fund revenue impacts are a major impediment the credit can be focused on a particular market segment like public buildings or the Legislature can designate a specific budget cap which cannot be exceeded.

A TETC allows an energy project owner to transfer a tax credit to an energy project partner (Washington gas or electric utility) in return for a lump-sum, up-front, cash payment. After the

utility provides the payment it claims a tax credit against its own tax liability to recoup the investment. This payment is made upon completion of the project. TETC is available to non-profit organizations, schools, governmental agencies, tribes, other public entities and businesses without tax liability. The credit shall be 50 percent of eligible project costs taken over five years, 10 percent each year. Credits can carry forward for up to 5 years.

Under TETC, a Washington public utility will pay the project owner a lump-sum; up-front cash payment calculated using the pass-through rate noted below. The pass-through rate takes into account the value of the money over time and other factors. The Washington State Department of Revenue and the CTED will set the pass-through rate. The pass-through rate used is the rate in effect at the time the Pass-through Agreement is received by the State of Washington.

Section 5a and 5b below provide examples of the application of the TETC to green building.

5a - High Performance Home Tax Credit²⁸

Under this option Washington homebuilders and residential developers who construct homes that include renewable resource and high performance features are eligible for a Tradable Energy Tax Credit or TETC. The credit shall be 50 percent of the maximum eligible project costs not to exceed a specified amount per dwelling. The tax credit is fungible by having a public utility make a cash payment for the incentive cost of the project. The utility then claims a tax credit over five years against state taxes owed to recoup their investment.

To support the program, a standards setting process would need to be implemented by the state. The home building standard would need to consider the existing code baseline standards for energy and environmental qualities and then specify an advancement in line with the incentive provided. The program would also need to include a process to modify the incentive targets in the event the energy codes or environmental standards are updated. An example definition of a high performance home is included here in Appendix 2.

5b – Commercial Buildings Transferable Energy Tax Credit²⁹

Under this option commercial new construction projects are eligible for a 50 percent tax credit if they achieve a minimum rating based on U.S. Green Building Council's LEED program, or an alternate program judged by CTED to meet the state goals. CTED would need to develop incentives that match the LEED rating structures. LEED includes a number of rankings, silver, gold and platinum, LEED also includes a number of programs, LEED-NC, (new construction), LEED-CS (core and shell), LEED-CI, (commercial interiors). CTED would need to assess the value of each of these programs benefits and assign appropriate state incentives. Example standards for this option are included in Appendix 1. These standards are based partially the structure developed for the Oregon Business Energy Tax Credits.

²⁸ State of Oregon, High Performance Home Credit.

²⁹ Base on the State of Oregon, Business Energy Tax Credit BETC for LEED Certified Buildings, Administrative rules 330-090-0105,

6 - Local Improvement District (LID) for Green Building

A Local Improvement District (LID) is a financing mechanism used for improvements that will benefit property owners in a particular district. LIDs are created with the backing of a municipal government. A precursor for this type of financing is that a study is done in the defined district to assess the benefits each property owner will receive as a result of the proposed improvements. The study is subject to strict criteria and statutes that specify that the assessment per parcel cannot exceed the special benefit of the improvement to that parcel (defined as the fair market value before and after the LID). Examples of these assessments:

SLU Streetcar: A special benefits study was done on each of the homes and buildings along the streetcar line and assessments were determined based on the improved transit in and increased access to the area.

Viaduct: The City considered funding a portion of undergrounding the viaduct via LID and did an assessment of benefits for businesses/buildings based on improved views, etc. Needless to say, this LID financing has not happened yet.

The LID financing process is implemented similar to a bond sale, and property tax assessments are used to pay back the principal and interest over the term of the bonds. Included in the bond sale is a guaranty fund, which will be used to pay debt service if assessments don't cover costs. If the guaranty fund runs out, the sponsoring City pledges to pay debt service from its general fund. The security required for a LID can cause political problems. A City may have to raise taxes to cover debt service, which would mean that taxpayers citywide would be paying for improvements that benefit only specific property owners.

The EE/GB developed a detailed proposal that proposes the implementation of a Green Building LID. We present it here in its entirety.

First, the EE/GB noted that the Legislature would be required to amend the statute (RCW 35.43.040) that govern the general authority of cities and towns to establish Local Improvement Districts (LID) and to levy and collect special assessments on property specially benefited by energy efficiency upgrades in existing buildings and/or qualifying district energy projects. Amendment would allow cities and towns to establish Energy Efficiency Investment Districts (EEID) that can access capital via assessment revenue bond sales to enable large energy efficiency investments in existing buildings or the development of district energy projects. Bonds will be repaid over time based on property-specific assessments that capture the special benefits of the upgrades. This proposal would allow cities and towns to use the LID concept to access capital for city-wide energy efficiency upgrades in existing single family, multifamily and commercial buildings.

Since LIDs are widely used throughout Washington, city and town administrators are familiar with the process and equipped to manage an LID financing.

In practice, this type of financing would likely occur with one or series of LID financings managed by a city. Normally, an LID requires 60 percent approval of property owners in the

district, but because upgrades will be done to specific properties, the approach for an EEID will use a “checkerboard” strategy. The boundaries of the EEID will encompass the entire city and there will be an initial “opt-in” period, where property owners can choose to join the district and access capital for upgrades through the program.

Once property owners have joined, the special district is defined. This special district is allowed to certify assessments to the tax assessor for inclusion on the tax rolls, such that the assessment becomes an increment on the property’s tax bill. For LIDs, these incremental property tax payments are tax deductible.

In the proposed EEID, the new assessment is a monthly or annual payment that pays back, over a predetermined term, the full value of the energy remodel elements added during the upgrades, plus interest. This cost is assessed only against individual properties as they participate in the program. If the property owner sells, the buyer can choose to pay off the assessment at the time of purchase, to eliminate any outstanding liens on the property.

An important benefit of this structure is that the proposed EEID financing concept ties repayment of the investment to the property’s owners and subsequent owners. This means that the beneficiaries of the investments financed by the program are paying for the benefits. (An alternative financing mechanism may involve municipal utility revenue bonds or city general obligation bonds.) While these mechanisms would access similarly-priced capital, they would also be repaid with revenue streams (rates or taxes, respectively) derived from all ratepayers or citizens in a district.

This LID concept is viewed as one of a series of innovative financing approaches that are necessary to fully realize the energy efficiency potential of existing buildings. Combining this LID approach with other capital generating mechanisms from public, private, and/or utility sources is likely needed to achieve the state’s greenhouse gas reduction goals.

Participation of Low Income Property Owners: Since the financing in this program does not result in a new mortgage on the property and qualification does not depend on income, every building owner, including all low-income building owners, should be able to participate. Recommendation: Add energy conservation/energy efficiency measures and district energy projects as qualifying local improvements in RCW 35.43.040. For example, add a section 19 energy efficiency, energy conservation measures, and district energy projects. Assessments may be levied only on property that will be specially benefited by such improvements. The development of legislation supporting this concept will need to address any legal constraints regarding transfer of lid payments from one property owner to another and the transfer of public financing to individual property owners.

Revenue Impact:

The EE/GB estimated the revenue effect for this program as follows. This concept has no revenue impact at the state level. It allows cities and towns to establish local improvement districts (LIDs) or utility local improvement districts (ULIDs) as a mechanism to help finance energy efficiency and energy conservation measures in existing buildings.

RECOMMENDATION

Because of a tight revenue forecast in 2009 for Washington State, CTED recommends that the Legislature consider the energy efficiency and green building proposals that are likely to emerge from the executive branch climate proposal. With respect to the various policy options examined in this report we believe the following five approaches merit further consideration.

- 1 - Sales Tax Remittance for Clean Technology Purchases
- 2 - Sales Tax Refund for Non Residential New
- 4 - Public Utility Credit
- 5 - Transferable Energy Tax Credit
- 6 – Property Tax Based Incentive

Each of these approaches uses a different mechanism to encourage sustainable and green construction and we believe there should be a field test of each with rigorous monitoring and verification to determine which approach is the most effective at stimulating green building and producing cost effective results in the form of reduced energy use and green house gas emissions.

APPENDIX 1: EXAMPLE SUSTAINABLE BUILDING FACILITIES CRITERIA – COMMERCIAL

The following is an example of a commercial building energy tax credit developed for Oregon. The rebates are based on information from Oregon Department of Energy Staff, Charlie Stevens.

- (1) To be eligible for a tax credit, sustainable building facilities must achieve a minimum rating of "Gold" using the U.S. Green Building Council's LEED-NC™, LEED-CS™, or LEED-CI™ rating facility in place as of the project registration date. Projects receiving a "Platinum" rating will be awarded proportionally larger tax credits, as calculated by CTED; or a facility must be rated and certified by a program approved by CTED that provides comparable performance on environmental measures and equivalent or better energy performance as documented by whole building energy modeling, is commissioned and is verified by an independent third party.
- (2) In addition a facility must:
 - (a) In achieving its LEED™ rating, earn at least two points under Energy & Atmosphere Credit 1 (Optimize Energy Performance).
 - (b) In achieving its LEED™ rating, the facility must earn at least one point under Energy & Atmosphere Credit 3 (Additional Commissioning).
 - (c) Each LEED-NC™ or LEED-CS™ facility must calculate and report the building's annual solar income in Btu (not the site income). The calculation must account for the contribution from each face (orientation with surfaces exposed to direct sunlight) and must take into account any existing or reasonably expected shading (by other buildings or vegetation, e.g.) of these surfaces.
- (3) Calculations may ignore such things as rooftop or wall-mounted mechanical facility components.
- (4) Eligible cost will be calculated in accordance with the following table:

Building Area	Gold	Platinum
LEED-NC™		
First 10,000 sq.ft.	\$13.57/sq.ft.	\$17.86/sq.ft.
Next 40,000sq.ft.	\$5.71/sq.ft.	\$9.29/sq.ft.
>50,000 sq. ft.	\$2.86/sq.ft.	\$5.71/sq.ft.
LEED-CS™		
First 10,000 sq.ft.	\$9.50/sq.ft.	\$12.50/sq.ft.
Next 40,000 sq.ft.	\$4.00/sq.ft.	\$6.50/sq.ft.
>50,000 sq.ft.	\$2.00/sq.ft.	\$4.00/sq.ft.
LEED-CI™		
First 10,000 sq.ft.	\$4.07/sq.ft.	\$5.36/sq.ft.
Next 40,000 sq.ft.	\$1.71/sq.ft.	\$2.79/sq.ft.
>50,000 sq. ft.	\$0.86/sq.ft.	\$1.71/sq.ft.

APPENDIX 2: EXAMPLE OF A HIGH PERFORMANCE HOME STANDARD

(1) A dwelling unit constructed by a licensed builder under the Washington State Energy Code with its own space conditioning and water heating facilities. Dwelling must be intended for sale to an end use homebuyer.

(2) To be eligible for a tax credit, a High Performance Home facility must be certified through the ENERGY STAR® Homes Northwest program, which includes builder technical assistance, independent home inspection and program quality assurance. A third party inspector certified by CTED or their designee is required to submit homes for certification. See www.northwestenergystar.com for more information and a list of certified home verifiers in Washington.

(3) A qualifying facility must incorporate all of the following elements that are in addition or an exception to ENERGY STAR® Homes Northwest requirements:

(a) Building shell must be constructed to meet the following minimum standards.

- Ceilings: U-0.030 (e.g. R-49 attic)
- Walls: above grade U-0.050 (e.g. R-21 cavity insulation plus R-3 continuous foam insulation, insulated concrete form, Structural Insulated Panels)
- Walls: below grade U-0.060 (e.g. R-21 cavity insulation)
- Floors: above grade U-0.025 (e.g. R-38 batt/blanket insulation between floor joists 16" o.c. over vented crawl), Floors: on grade, [slab edge] perimeter R-15 min. 2 feet vertical or combined vertical/horizontal – heated slab also requires R-10 foam board under slab.
- Windows and glass doors: U-0.32 (weighted average).
- Glazing area: glazing to floor area ratio 15 percent. (including windows, skylights, and glass
- Doors considered as glazing in the code.
- Shell tightness: 5.0 ACH50 Pa confirmed by blower door test

(b) HVAC system and air ducts shall be incorporated into conditioned space, or eliminate forced-air ductwork.

(c) Space conditioning equipment shall meet one of the following requirements:

- Two-stage gas or propane furnace, minimum AFUE 0.92,
- Gas or propane boiler, minimum AFUE 0.88

- Central AC SEER \geq 14 (if installed)
- Ducted heat pump HSPF 8.5, air source, and ground source COP 3.0
- Ductless mini-split heat pump with inverter drive, no incorporated electric backup heat, sized and installed as per ENERGY STAR® Homes Northwest specifications

(d) A Renewable Energy Facility shall provide on-site energy savings or generation of not less than 1kWh/yr per square foot of conditioned floor space.

(e) Water heating systems shall meet ENERGY STAR® Homes Northwest specifications (e.g., gas: 0.61 EF for tanks \leq 60 gallons, 0.60 for tanks $>$ 60 gallons; electric: 0.93 EF for tanks \leq 70 gallons, 0.92 for tanks $>$ 70 gallons), including secondary water heating equipment that backs up solar domestic water heating facilities.

(4) A High Performance Home facility shall include at least **one** of the following measures:

(a) Obtain certification through a Green Building program recognized by the WA CTED

(b) Meet ENERGY STAR Homes Northwest Builder Option Package #2 ventilation specifications through the use of a heat or energy recovery ventilator, except that the sensible recovery efficiency shall be $>$ 50 percent at 32°F and the EUI shall be $<$ 1.5 Watts/cam.

(c) Use a gas or propane water heater with a minimum EF of 0.80 for primary water heating. The water heater may not also be used for space heating or as the backup to a solar water heating facility to be considered a qualifying measure under this section.

(5) Applicant may propose a package of alternate shell or HVAC measures that are equivalent to these requirements. Shell measures may be increased to offset HVAC efficiency; however HVAC measures may not be used to reduce minimum shell requirements.

(a) Shell measures shall be a combination of assemblies that together have a total U x A no higher than a base case home described in section (3a), above. Trade-offs will be evaluated according to a thermal trade-off procedure described in equations 1 and 3 in the Washington State Energy Code, Chapter 5

(b) Mechanical facilities will be evaluated for comparable annual energy use.

(6) If the home achieves certification through ENERGY STAR® Homes Northwest as meeting the above specifications in addition to having a renewable energy system, the home may qualify as a High Performance Home with an available tax credit to the builder of up to \$15,000 (up to \$6,000 for the shell and up to \$9,000 for the renewable energy system(s)).

Homebuilder-Installed Renewable Energy Facility

(1) The amount of the tax credit for homebuilder-installed renewable energy facilities shall be up to \$9,000. Eligible renewable energy facilities must meet the following criteria:

(a) Photovoltaic - Eligible installations have a Total Solar Resource Fraction of at least 75 percent. Installations must be verified by a Tax Credit Certified Solar PV Technician. This verification must cover performance, longevity, and proper documentation of the facility design, operation and maintenance. Installers must provide a warranty covering all parts and labor for two years. The credit amount is based on \$3 per watt of installed capacity.

(b) Solar Domestic Water Heating - Solar thermal domestic water heating installations must have a Total Solar Resource Fraction (TSRF) of at least 75 percent and be designed to provide no less than 25 percent but not more than 70 percent of the annual domestic water heating load.

Installations must be OG-300 certified. Installations must be verified by a Tax Credit Certified Solar Thermal Technician. This verification must cover performance, longevity, and proper documentation of the facility design, operation and maintenance. Installers must provide a warranty covering all parts and labor of the facility for two years. The credit amount is equal to \$0.60 per kWh saved.

(c) Active Solar Space Heating - Active solar space heating installations must demonstrate a whole building annual energy savings of at least 15 percent to be eligible. Installations that combine space heating and domestic water heating are allowed providing that the solar storage tank is not heated by a backup heat source (e.g. gas or electric water heater). Only 50 percent of 10 the domestic water heating savings shall be counted toward the requirement for 15 percent annual heating and cooling load reduction. Installations must be verified by a Tax Credit Certified Solar Technician. This verification must cover performance, longevity, and proper documentation of the facility design, operation and maintenance. Installers must provide a warranty covering all parts and labor of the facility for two years. The credit amount is equal to \$0.60 per kWh saved.

(d) Passive Solar - Passive solar design strategies must demonstrate a whole building annual energy savings of at least 20 percent to be eligible. This can be achieved by either meeting the prescriptive requirements for a passive solar home or demonstrated with whole building energy modeling and certified by a professional engineer. The credit amount is equal to \$600 per home plus \$0.60 per square foot of heated floor space.

(e) Ground Source Heat Pumps - Ground source heat pumps must have a coefficient of performance (COP) of 3.5 or greater. The savings is based on the incremental savings over the energy savings provided by the ground source heat pump with a COP of 3.0. The credit amount is equal to \$0.60 per kWh saved.

(f) Other Renewable Energy Resource Facilities - Other renewable energy resource facilities (e.g. wind turbines, fuel cells) will be evaluated on a case-by-case basis and the credit amount will be equal to \$0.60 per kWh saved. Facilities must be connected to home's main service panel and installers must provide a warranty covering all parts and labor of the facility for two years.

APPENDIX 3: HOUSE BILL 3120 (Session 2008)

Sponsored By House Finance (originally sponsored by Representatives Rolfes, Morrell, Liias, and Williams)

AN ACT Relating to a sales and use tax exemption for environmentally certified residential and commercial construction; and creating a new section.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

NEW SECTION.

Sec. 1. (1)(a) The legislature finds that green building, also called "sustainable" or "high-performance" building, has significant environmental benefits. Buildings consume thirty-six percent of the energy used in the United States, more than factories and automobiles, and they generate thirty percent of the nation's greenhouse gas emissions. The construction of commercial, residential, public, or institutional buildings using energy-efficient techniques and environmentally sustainable products also connects to the state's climate change goals.

(b) The legislature further finds that standards for green building provide an effective framework for green building practices. Some techniques have been shown to reduce building energy costs by twenty to fifty percent and water usage by at least fifty percent outdoors and thirty percent indoors. It is in the interest of the state to encourage the best green building practices through targeted incentives and policies.

(c) The legislature intends to establish a connection between green construction and the need for local governments to adopt "green" land use provisions, permitting standards, and building codes that allow green building, in order to achieve the most effective climate change policies.

(2) The department of community, trade, and economic development shall conduct a study to determine the potential feasibility and effectiveness of providing tax incentives to encourage green building in commercial, residential, and public buildings. The department of revenue shall provide any tax-related data necessary for the department of community, trade, and economic development to perform the study.

(3) In conducting the study, the department of community, trade, and economic development shall:

(a) Identify existing tax incentives with the primary purpose of encouraging green building;

(b) Propose tax incentives that would encourage green building, with special emphasis on sales and use tax exemptions on green building construction activities and business and occupation tax incentives for contractors or architects that build or design green buildings;

- (c) Provide an estimate on the fiscal cost for each tax incentive identified under (b) of this subsection;
 - (d) Provide an estimate of cost savings and emission reductions for the estimated number of buildings that would qualify for a tax incentive identified under (b) of this subsection;
 - (e) Recommend other tax and programmatic policy changes that would encourage green building;
 - (f) Evaluate whether tax incentives should target communities that encourage green building; and
 - (g) Evaluate current trends in green building and whether tax incentives would support these trends.
- (4) The department of community, trade, and economic development may include any other information in the study that it deems necessary for the legislative evaluation of potential tax incentives to encourage green building.
- (5) By December 1, 2008, the department of community, trade, and economic development shall report its findings and recommendations to the appropriate committees of the legislature.

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