

## Reducing Carbon in the Built Environment (Energy Efficiency and Green Building) Implementation Working Group

### Note to Members of the Reducing Carbon in the Built Environment (Energy Efficiency and Green Buildings) Implementation Working Group (EE/GB IWG):

Based on the goals set out in the Draft Scope of Work for the EE/GB IWG, this Group has been tasked with designing “legislative, executive, and other actions capable of achieving significant emission reductions in Washington’s built environment, both directly through reduced use of fossil fuel based energy as well as indirectly by reducing the use of GHG-intensive products.” Five options were identified, based on the results of the first phase of the Climate Advisory Team (CAT) process, as a starting point for the IWG’s deliberations. These were:

- **Targeted Incentives and Instruments to Encourage Green Building Practices and Energy Efficiency Improvements in New and Existing Buildings**
- **Regulatory and Educational Initiatives for Green Building Practices and Energy Efficiency Improvement in New and Existing Buildings**
- **Energy Efficiency Programs, Funds, or Goals for Natural Gas, Propane, and Fuel Oil**
- **Lost Opportunity Strategies**
- **Land Use**

Note that the last of these options, Land Use, is recognized to be largely in the purview of other IWGs working in parallel with the EE/GB IWG, so while this IWG will track ongoing work in the legislature and in other IWGs on this issue, the EE/GB IWG will likely not work on it directly.

During the in-person meeting of the EE/GB IWG, held in Seattle on June 3, 2008, IWG members offered a number of suggestions related to these options, and **ultimately suggested that the options be reorganized** as follows:

- **Tax Incentives and Financing to Encourage Green Building Practices and Energy Efficiency Improvements in New and Existing Buildings**
- **Tools to Improve the Energy Efficiency of Building Operations**
- **Energy Efficiency Programs, Funds, or Goals for Natural Gas, Propane, and Fuel Oil**
- **Codes, Standards, and Policies for Energy Efficiency**
- **Expanded Implementation of Distributed Energy, Combined Heat and Power (CHP) and Renewable Energy**

The remainder of this document provides a provisional reorganization of text from the earlier version of these Options Descriptions (5-29-08). Suggestions provided by IWG members during the June 3 Meeting have been placed, again provisionally, within the reorganized options, and are indicated **in yellow highlights**. Some ideas did not seem to fit readily into the new categories,

and are listed for the IWG's future reference and thought/discussion in a section at the end of this document. As a reminder, non-highlighted text is summary text drawn from the 2007 work of the Residential, Commercial and Industrial Technical Working Group (RCI TWG) of the CAT process that may be of relevance for each option, but may ultimately be built upon or replaced as the IWG continues its deliberations. Text from the Draft EE/GB Scope of Work continues to appear in *italics*.

During the June 3 meeting, IWG members requested a short memo describing current and projected greenhouse gas emissions in Washington, using graphical "metrics" from last years CAT process, and summarizing the projected impacts of RCI options on emissions. This memo will be developed by the EE/GB facilitation team, and provided for the upcoming IWG phone conference on June 23rd.

Also during the June 3 meeting, members noted the need to think about making incentives and financing options available for all RCI sectors, allow for leading edge, emergent strategies, and consider jobs aspects of all ideas to be forwarded to the CAT.

## EE/GB-1. Tax Incentives and Financing to Encourage Green Building Practices and Energy Efficiency Improvements in New and Existing Buildings

### Goals for Option Design

*This task will likely involve crafting legislation to create a business energy tax credit, or other targeted financial incentives and instruments to encourage energy efficiency in the development, design, and construction of new and existing energy-using building and building systems. The group should focus on identifying those incentives which are most likely to significantly influence energy efficiency and “green” actions. To the maximum extent possible, work undertaken as part of HB 3120, Incentives for Green Buildings, will be tied to this effort.*

### Option Summary

[From RCI-2] Targeted financial incentives and instruments, through two primary vehicles 1) business energy tax credits and 2) private/public efficiency funds, can be used as means of encouraging energy efficiency improvements that will affect the development, design, and building of both new and existing energy-using systems in the RCI sectors. This option is designed to offer financial mechanisms to support and encourage energy-efficiency improvements in both entire buildings and in stand-alone energy systems, and in both existing and new construction. As such, it serves as a key means of implementation of programs to improve energy efficiency in new and existing buildings. **Mechanisms need to be designed that are available to small businesses and for small buildings.**

**Business Energy Tax Credits** can provide incentives for businesses to invest in energy efficiency and/or customer-sited renewable energy systems. Washington lacks an income tax, but has business and occupations taxes (B&O taxes), typically on gross receipts, that apply to a number of different categories of businesses, and has a retail sales tax that affects most purchases made by businesses. Business energy tax credit would be applied to these types of taxes. Offering tax incentives for both new construction and retrofit projects to exceed energy codes would be a goal. Specific types of tax credits for energy-efficiency/renewable energy applications in Washington might include:

- **Energy Performance Contracting Sales Tax Exemption:** Provide an exemption from retail sales taxes (~6.5%) for those projects electing energy savings performance contracting services.
- **Superior Energy Efficiency Sales Tax Exemption:** Provide exemption from a portion of sales taxes to projects that produce buildings and other infrastructure (including, for example industrial process equipment) that have superior energy performance. This exemption would be applied both for improvements to new or existing buildings or processes, and could be applied, for example, to sales of qualifying energy efficiency services, construction materials, and high-efficiency equipment. **Sales tax exemptions could apply to purchase and labor costs for green materials that go into buildings. Tax exemptions as opposed to tax credits are easier to administer, due to expertise needed to**

verify tax credits. Also, having sales tax exemptions as an portfolio option, as some companies that might otherwise qualify for B&O credits are not subject to B&O taxes, nor are developers.

- Provide incentives to improve home efficiency upon sale—perhaps through the reduction of transaction fees, and perhaps through sales tax reductions.
- **Clean Technology Businesses B&O Credit:** Provide a B&O tax credit for businesses that deliver energy-efficiency-related services.

The overarching intent of these tax credits would be to yield a nearly neutral revenue position for the State while reducing the use of fossil fuels and their climate change impact. Tax credits applied to energy efficiency or renewable energy projects will generate additional government revenues through increased local market activity and job creation, and through re-spending of energy cost savings.

**Public/Private Efficiency Funds** would provide zero- or low- interest loans for energy efficiency applications in both retrofit and new construction, as well as in non-building projects such as improvements in the efficiency of industrial processes. These loans would be used to fund the remaining portions of energy efficiency projects that are not addressed by utility rebates or business energy tax credits. Zero- or no-interest loans offer project developers and their professional service providers the opportunity to construct substantially more energy efficient projects within their budgets. Loans repayments can be made from of shared savings via energy performance contracting or through other mechanisms; public and private building or other energy-using infrastructure projects may use different repayment models.

Programs of both tax credits (on sales tax and B&O taxes) and efficiency funds/loans will need to be designed carefully to make sure that the proper incentives and signals are being provided to the markets for energy-efficiency goods and services. For example, in some building markets, such as where buildings are built by developers and then sold, sales taxes exemptions, which have a direct impact on the cost of developing buildings, may be more effective than efficiency funds or low-interest loans<sup>1</sup>.

*[General note from 6/3 meeting applying to this option: “Need to come to distinction between incentives/tax breaks and codes—may make more sense to focus on codes for construction, incentives for operations. Sales tax wavier may not be enough”]*

## Goals and Timing

[To be determined]

## Implementation Mechanisms

<sup>1</sup> The document, [Tax Credits for Energy Efficiency and Green Buildings: Opportunities for State Action](http://www.aceee.org/pubs/e021full.pdf), by Elizabeth Brown, Patrick Quinlan, Harvey Sachs, and Daniel Williams of the American Council for an Energy Efficient Economy (2002), provides a summary of some of the approaches that can be used to establish incentives for energy efficiency, and the advantages and drawbacks of each. This document is available as <http://www.aceee.org/pubs/e021full.pdf>.

[From RCI-2] Specific implementation mechanisms for **business tax credits** could include:

- **Energy Performance Contracting Sales Tax Exemption:** Provide an exemption from retail sales taxes (~6.5%) for those projects electing energy savings performance contracting services (RCW 39.35a) carried out on public buildings in the state, including schools, universities, community colleges, and state and local government buildings and energy savings performance contracting services in private buildings meeting the intent of RCW 39.35a. This exemption may also apply to non-building energy-efficiency projects. In a retrofit project the system energy use is clearly defined and therefore the tax credits should apply to the overall project for those projects improving energy efficiency by a minimum of 20% over the existing energy performance of a building or process.
- **Superior Energy Efficiency Sales Tax Exemption:** Sales tax incentives in the form of credits or rebates could be offered to developers for buildings whose performance substantially exceed the energy code (for example, by 20% to 30%). Since even state and local governments, as well as schools and hospitals, pay sales tax on construction costs, such an incentive would have wide application. Sales tax incentives could also be developed to provide incentives for businesses installing industrial process equipment (for which there are no applicable codes) to invest in superior energy-efficient improvements. On new construction in public and private buildings, or improvements in industrial energy-using equipment (for example), tax credits would be targeted at reducing the differential between the project costs for energy code rated systems (systems meeting or only modestly exceeding the level of energy performance required by codes) versus those systems that exceed the collective energy efficiency of the building or process by 20% over that of the energy code in effect at the time, to 1% of the total project construction costs for those projects that exceed the collective energy efficiency by 50% over that of the energy code in effect at the time, and to 2% of the total project construction costs for those projects that are net-zero buildings, meaning that they consume no more energy than they produce. Guidelines and exemptions that provide similar incentives for non-building improvements may be developed along similar lines.
- **Clean Technology Businesses B&O Credit:** To compel job creation and the growth of clean technology businesses, a B&O tax credit will be provided to those businesses that deliver energy efficiency related services, to include professional services, construction services, and highly efficient products. This B&O credit will be applied to those business revenues associated with those projects and systems that also qualify for the retail sales tax credit. There is a need to attract green businesses to Washington.
- **Strategies Related to Washington's Low Electricity Costs:** One of the existing attractions to businesses siting in Washington are low electricity costs, so there is a need to focus on energy cost issue by combining incentives and credits with performance contracting and intermediate investment vehicles to develop the energy efficiency industry to a point where it is large enough to deliver economies of scale. Though the Northwest has a history of successful implementation of energy-efficiency, it is difficult to make energy-efficiency cost-effective at current rates—subsidized by federal government investments in hydroelectric facilities, in decades past—making market signal slow. It is recognized, however, that avoided energy costs will rise once

Renewable Portfolio Standard requirements are fully reflected in avoided costs. Public/private entities can be developed to finance energy efficiency retrofits, with financing repaid with a portion of savings so that overall energy bills is lower than they would have been. There is a need to set performance incentives right for utilities, and a need to make sure that tax incentives are targeted, and are for projects that go substantially beyond code.

- **Manufacturing and industrial consumption** remains a significant part of total energy use in Washington, and incentives to reduce energy use should be provided to industries as well as the commercial and residential sector.

For **public/private efficiency funds**, low or no-interest loans would be used to fund the remaining portion of a project that is not addressed by utility rebates or a business energy tax credit. It is expected that this funding option would cover 30 to 70% of a total project costs. In new construction (or for new process equipment purchases), this fund would only be applicable to the differential between the project costs for energy code-rated systems versus those systems that exceed the collective energy efficiency of the building by 20% over that of the energy code in effect at the time. Public/public or public/private partnerships with backing from cities would be useful tool for financing building energy improvement, and a statement of government support for building energy efficiency. Alternatively, energy efficiency funds could be handled by a public development authority—as in a study in 2004 on a Portland neighborhood—with low-interest bonds paid off through energy efficiency savings. The ESCO approach is a good strategy, but it is likely not sufficient to provide incentives for the production of “net zero” buildings. Performance contracting for non-public entities is a good approach, but 3<sup>rd</sup>-party expertise is needed to bring in financing and run projects. Existing weatherization programs are popular, but are difficult to administer; better delivery mechanisms are needed. Financing approaches are needed to drive energy efficiency above and beyond utility incentives and tax incentives.

The State of Washington Treasurer’s program does have both a COP and LOCAL loan program that provides tax-exempt financing to municipal and state entities. And many commercial financial institutions provide a variety of equipment and system tax-exempt and commercial grade lease-back options. Tax exempt interest, even at 4%, over a 10 year loan term reduces the possible energy efficiency project scope by up to 30%. Nearly 50% of the project scope is eliminated if commercial rates of 7.5% are used to finance energy efficiency projects. Therefore, a no-interest loan program would yield significantly more energy-efficiency project scope since public and private organizations that choose to secure outside financing will be able to direct more funds at projects improving energy efficiency versus interest charges.

For public entities, the loan obligation could be guaranteed to be paid out of the annual energy savings through an energy savings performance contracting (ESPC) model. Legislation already exists that enables an ESPC delivery in existing building, and a minor modification to RCW 39.35a would allow for the use of ESPC in new construction projects and systems. There is precedent for the national and international adoption of the ESPC model. For instance, through the Clinton Climate Initiative Energy Efficiency Building Retrofit Program (C40) an international effort is in motion to leverage ESPC programs with public/private funding to complete \$5 billion in energy efficiency work internationally. For private entities the loan

obligation could also be paid out of the annual energy savings through direct owner payment, micro-utility, a public/private resource management association (RMA,) a condominium association, or the energy savings performance contracting (ESPC) model.

There are different potential models for the organizations that would coordinate public/private efficiency funds, including government agencies and not-for-profit independent organizations. As noted above, these fund/loan programs—as well as the tax credit options included here, will need to be carefully designed so as to assure that their effect on the markets for energy-efficient products and services in the sectors that the programs are designed for have the desired impacts on the actors in those sectors and the markets they are designed to spur<sup>2</sup>.

**Funds for different types of energy-efficiency improvement incentives could be derived from the proceeds of Cap and Trade allowance auctions.**

[From RCI-3]

- Create a tax incentive for new energy-efficient commercial and residential buildings, as well as new master-planned communities, using the Oregon incentives as a model. To maximize effectiveness, tax incentives should target cutting-edge, very high-efficiency technologies or practices that customers might not find otherwise. The incentives should be large enough to affect decision-making, while reporting requirements should be just stringent enough to make fraud insignificant. **An aggressive incentive program is to drive the front (aggressive) end of market—70% savings/net zero buildings. Note that this is also a job creation strategy<sup>3</sup>. There is a need to apply economic development incentives for a “green” economy.**
- Support and provide incentives for programs that recognize embodied energy and operational energy in the building process.
- Provide tax credits for construction of a green building or rehabilitation of an existing structure to green building standards.
- **Much of the energy is wasted in buildings is lost in the existing housing stock. This problem needs to be addressed, and the upgrading of building energy codes can't be relied upon to produce the necessary savings in this sector.**
- The state could provide incentives that encourage and promote the use of climate friendly products in both commercial and residential buildings and building materials. Promote the utilization of products harvested, manufactured and shipped within Washington State as a means to lessen the greenhouse gas emissions associated with the harvesting of natural resources, product manufacturing and the shipping of products to market.
- Increase and extend the tax credit for PV, biomass and wind that are mandated in SR 5101 to meet the standards of other states.

[From RCI-4]

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<sup>2</sup> A reference relevant to financing for building energy efficiency is **SEIZING THE OPPORTUNITY (FOR CLIMATE, JOBS, AND EQUITY) IN BUILDING ENERGY EFFICIENCY**, by Joel Rogers (December, 2007), available as <http://www.cows.org/pdf/rp-seizing-07.pdf> [IWG members, please confirm that this is the John Rogers paper you referred to]

<sup>3</sup> A CTED-funded study on the “green jobs” market is currently underway.

- Provide state tax incentives for building owners- public and private - to invest in cost effective energy conservation and measures. Encourage state agencies to utilize appropriate rating systems to promote the construction and design of energy-efficient buildings. Provide incentives for use of these systems statewide for construction in the private sector.
- Provide mechanisms within incentive programs to provide feedback to building occupants on building energy performance, as well as to the building design team. Such a mechanism could include an arrangement to reserve provision of all or part of an incentive for building energy efficiency until after savings are verified. This may include putting metering in place to verify savings, and deciding upon a baseline from which building performance is to be measured. Energy Star ratings for buildings may be candidates for baselines.
- Encourage utilities to develop and offer (or continue to offer) "green power" programs that utility customers can voluntarily subscribe to.

### Related Policies/Programs in Place

[Summarized from RCI-2]

#### Washington

In 2005, the Washington legislature enacted the Renewable Energy System Cost Recovery (RCW 82.16.110) and Tax on Manufactures or Wholesalers of Solar Energy Systems.

#### Other States

A business energy tax credit (BETC) scheme similar to the one being successfully implemented in Oregon ([http://www.oregon.gov/ENERGY/CONS/docs/EcoNW\\_Study.pdf](http://www.oregon.gov/ENERGY/CONS/docs/EcoNW_Study.pdf)) would serve as a good model for Washington State. In Oregon, the tax credit is 35 percent of the eligible project costs - the incremental cost of the system or equipment that is beyond standard practice. Trade, business or rental property owners who pay taxes for a business site in Oregon are eligible for the tax credit. A project owner also can be an Oregon non-profit organization, tribe or public entity that partners with an Oregon business or resident who has an Oregon tax liability. The tax credit can cover all costs directly related to the project, including equipment cost, engineering and design fees, materials, supplies and installation costs. Tax credits can apply to retrofits, new buildings, co-generation projects, and renewable resource projects.

Models in other states include the Cambridge Energy Alliance in Massachusetts (independent non-profit that will assist residents, businesses and institutions and provides technical expertise, low-interest loans that will be repaid out of documented energy savings), the Clinton Climate Initiative Energy Efficiency Retrofit program, and the Toronto Atmospheric Fund.

### GHG Reductions, and Other Direct and Indirect Costs and Benefits of Option

A lack of reliable data on building energy use will be a challenge to be overcome in quantifying this option and other EE/GB options.

[To be determined—will likely include quantitative and qualitative costs and benefits]

**Text for Legislative or Executive Action**

[Draft text produced could be included here, or this section could just provide updates on the process of producing text for legislative or executive action.]

## EE/GB-2. Tools to Improve the Energy Efficiency of Building Operations

### Goals for Option Design

*[New option/theme that identifies the importance of improving the operations, as well as design, of buildings, and tools/education to do so.]*

### Option Summary

[From RCI-4] Existing buildings will continue to consume the bulk of the energy used in the residential and commercial sectors in Washington for many years. This option would promote and provide incentives for the improvement of the resource (including energy, water, and other resources) efficiency of the existing building stock. Key to reducing energy use and GHG emissions in existing buildings are building operations, maintenance, and occupant behavior (for example, via total resource management systems). This option is designed to facilitate substantial improvements in the efficiency of existing buildings in Washington through a combination of measures related to building design, code enforcement, energy performance review, and improvements in building operations.

*[General note from 6/3 meeting applying to this option: “Need to come to distinction between incentives/tax breaks and codes—may make more sense to focus on codes for construction, incentives for operations. Sales tax wavier may not be enough”]*

### Goals and Timing

[To be determined]

### Implementation Mechanisms

[Summarized from RCI-3]

#### General incentives and promotion:

- Support and provide incentives for programs that recognize embodied energy and operational energy in the building process.
- Incentives need to be structured so as to assure that buildings built to a high standard of energy-efficiency operate in an energy-efficient manner. One approach is the think of incentives being paid over time, rather than as a lump-sum before a building becomes operational. An option may be to develop a “Feebate” system whereby developers pay into a fund, and if a building turns out to meet its energy-efficiency targets, money would be returned to the developer, otherwise the funds would not be returned *[IWG members—please confirm that this was your meaning]*

- Schools (and other public buildings) need to be able to use funds saved in operations as a result of energy-efficiency programs and investments for other purposes, rather than losing those moneys from their overall budgets.
- Incentives are needed to encourage existing buildings to meet third-party-verified energy efficiency standards. This may in part involve using a efficiency ratings system (assigning a rating to buildings that potential tenants/buyers can access) to provide building owners with a marketing incentive to implement energy efficiency improvements in operation and building systems.
- Building energy efficiency initiatives should look at operating budgets as well as construction budgets in order to bridge the gap between design/build and operation/maintenance considerations.

#### Requirements for State Buildings:

- Require pre-design and programmatic studies for State of Washington-funded buildings and master plans to include resource systems analysis for energy, water, waste, recycling, transportation, and greenhouse gas emissions. Provide funding for that effort.
- Sustainably designed, built, and certified new or major renovation of public buildings should require a focus on sustainable operation in order to demonstrate the importance of sustainable operational practices in new facilities. It is truly how the facilities operate that yields the GHG savings, not only how they are built. The sustainable operation of a new facility should include, yet not be limited to, the ongoing staff training, use of documented best practices for all facility and property management activities, building re-commissioning every other year, and an ongoing measurement and verification process to track all energy usage and assess the expected and actual performance of building energy systems. Adopting third-party-verified green building certification system goals would provide for a standard approach and protocol for this post- construction focus on operations.
- Note that California has an executive order to meet LEED Silver EB by 2015 for public sector buildings *[IWG members, please clarify—is this for existing as well as new buildings?]*.

#### Consideration of life-cycle emissions:

- Consideration of concepts of embodied energy in building materials, and of the “renewability” and ability to recycle building materials<sup>4</sup>
- Include embodied energy/carbon footprint/life cycle assessment information for building materials in green building and operations standards. Ultimately, it may be desirable to move to a more unified system for assessment of life-cycle emissions and energy use that is simple and cost-effective for designers, developers, builders, owners and operators to apply.
- Develop and support a business assistance program to help identify and achieve GHG goals and life-cycle cost analysis of buildings and building components.

<sup>4</sup> See, for example, CORRIM (Consortium for Research on Renewable Industrial Materials), Life Cycle Environmental Performance of Renewable Building Materials in the Context of Residential Construction, available from [http://www.corrim.org/reports/2005/final\\_report/index.htm](http://www.corrim.org/reports/2005/final_report/index.htm).

[Summarized from RCI-4]

**Promote retro-commissioning and BOC in all facilities of large portfolio organizations:**

- Through state legislation, require benchmarking and commissioning whenever buildings are sold, financed or refinanced.
- Require, and fund, bi-annual re-commissioning of all state-funded buildings to ensure maximum operational efficiency.
- Provide incentives for building operator certification.

**Related Policies/Programs in Place**

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**GHG Reductions, and Other Direct and Indirect Costs and Benefits of Option**

[To be determined—will likely include quantitative and qualitative costs and benefits]

**Text for Legislative or Executive Action**

[Draft text produced could be included here, or this section could just provide updates on the process of producing text for legislative or executive action.]

## EE/GB-3. Energy Efficiency Programs, Funds, or Goals for Natural Gas, Propane, and Fuel Oil

### Goals for Option Design

*This task involves developing an initiative to address the non-electric side of the energy efficiency savings, and could, for instance, involve drafting legislation that adapts successful policies in electric energy efficiency to non-electric fuels.*

### Option Summary

[From RCI-1]

This policy is designed to use a number of different funding and incentive mechanisms to increase the investment in natural gas, propane (or liquefied petroleum gas—LPG), and fuel oil demand-side management programs. These DSM activities shall be designed to work in tandem with other strategies recommended by the CAT that also encourage energy efficiency gains in the residential, commercial and industrial sectors.

In order to implement DSM programs for natural gas and LPG/fuel-oil consumers, a number of funding and incentive mechanisms could be considered, analogs of many of which are in place for electric-sector DSM programs (including the recently enacted I-937<sup>5</sup>), while other mechanisms are being considered by the CAT for this and other policy options.<sup>6</sup> Candidate mechanisms for increasing the efficiency with which these fuels are used in the Residential, Commercial, and Industrial sectors include revising existing statutes to enable investments in energy efficiency, potentially including not only investments that are now cost-effective on the basis of fuel costs alone, but also eligible programs that are cost-effective when the value of avoided GHG emissions are considered.

### Goals and Timing

[To be determined]

### Implementation Mechanisms

[Summarized from RCI-1]

<sup>5</sup> Initiative 937, “The Energy Independence Act”, “... requires large utilities to obtain fifteen percent of their electricity from new renewable resources such as solar and wind by 2020 and undertake cost-effective energy conservation.” Text of the initiative can be found at <http://www.secstate.wa.gov/elections/initiatives/text/i937.pdf>.

<sup>6</sup> This option does not explicitly address electricity, since it is addressed through I-937. Nonetheless, many of the suggestions below and in subsequent RCI options on policy and program implementation mechanisms, including mechanisms for financing of energy efficiency improvements, also apply to programs that save electricity, and can help to ensure the goals of I-937 are met.

- I-937-like requirements for gas utilities to acquire all cost-effective energy efficiency; Initiative 937 requires that “Each qualifying [electric] utility shall pursue all available conservation that is cost-effective, reliable, and feasible.”
- For propane and fuel oil consumers, which are served largely by local distributors (and thus are part of a fundamentally different market than gas consumers) a surcharge and/or incentive fund could be established to fund DSM activities.
- Requirements, surcharges and/or funds to provide incentives for natural gas customers not purchasing gas from utilities (including large-volume industrial customers, for example) to also acquire all cost-effective energy efficiency.
- A program such as Oregon’s Business Energy Tax Credits system could be a useful tool to make more efficient use of natural gas, propane, and fuel oil.
- A program of low-cost loans for efficiency improvements and to encourage performance contracting, as well as other financial options such as reinvestment funds should be considered to support energy efficiency investments.
- Programs and incentives for natural gas and LPG/fuel oil efficiency improvement should be available and provide significant opportunities for efficiency improvement in all customer classes, with special emphasis on, for example, low-income customers.

Additional potential implementation mechanisms and considerations for this option include the following:

#### **Considerations in Program Design**

- Analysis of DSM potential should be prepared to assist in directing the legislative and regulatory processes to set targets and fund programs.
- High-volume transportation gas customers (those directly served by pipeline, rather than by utilities) should be required and provided with incentives to install efficiency measures.
- Implementation/administration of efficiency programs may be carried out, as appropriate, by utility (including municipal utilities and cooperatives), state agency, or third-party actors.
- Energy end-use surveys should be used to help determine efficiency potential and target DSM activities.

#### **Program Options**

- Subsidized energy audits for homeowners, businesses, and industries; consumer education; focus on specific market segments that are often under-served by DSM programs (low income residential, small and medium businesses); energy efficiency reinvestment funds to provide capital for efficiency improvements in specific sectors; incentives for specific technologies; incentives for customer-sited renewable electricity and heat including solar photovoltaic (PV), passive solar space heat, and solar water heat (SWH); incentives to convert fossil fuel based heating systems to biomass based heating systems, while also increasing the overall system efficiency.

**Related Policies/Programs in Place**

[Summarized from RCI-1]

**Integrated Resource Planning**

In 2006, the Washington Legislature passed the Electric Utility Planning Act (ESHB 1010), requiring each consumer-owned or investor-owned electric utility, with more than 25,000 customers, to develop or update an integrated resource plan by September 2008.

The Northwest Power and Conservation Council (NPCC) 5<sup>th</sup> Plan calls for reduction of 2,800 MW in electricity consumption through conservation in the next 20 years (through 2025) in the Northwest.

**GHG Reductions, and Other Direct and Indirect Costs and Benefits of Option**

[To be determined—will likely include quantitative and qualitative costs and benefits]

**Text for Legislative or Executive Action**

[Draft text produced could be included here, or this section could just provide updates on the process of producing text for legislative or executive action.]

## EE/GB-4. Codes, Standards, and Policies for Energy Efficiency

### Goals for Option Design

*This task will involve developing enabling legislation or taking administrative action to promote advances in both the design and operation of buildings and appliances/equipment through building code and efficiency standard enhancement (for the 2009 revision cycle), point-of-sale (or rental or finance) requirements (for benchmarking, commissioning, performance standards, audits, upgrades, and/or labeling), and/or tools and support for considering life-cycle impacts. Other policies to promote energy efficiency in buildings and appliances/equipment that go beyond codes and standards are also a part of this mandate.*

### Option Summary

[From RCI-3] Energy used in residential, commercial, and industrial buildings contributed roughly 20% of Washington’s GHG emissions in 2005. As such, it is recommended that goals be set to encourage all new construction, both residential and commercial, to meet significantly higher energy efficiency standards in the near future. Efficiency standards should take into account all the energy required in the entire building process, including the amount of energy needed to make building materials along with the performance of the building through its use. This combination of building performance and embodied energy will produce a metric for life-cycle GHG emissions that designers and builders can look to improve upon.

This policy provides codes, standards, and policies to induce the owners and developers of new and existing buildings in each of the RCI sectors to improve the efficiency with which energy and other resources are used in those buildings, along with provisions for raising targets periodically and providing resources to building industry professionals to help achieve the desired building performance. This policy can include elements to encourage the improvement and review of energy use goals over time, and to encourage flexibility in contracting arrangements to encourage integrated energy- and resource efficient design and construction. Several design standards exist that can be drawn upon to promote improved design and community planning, including, but not limited to, LEED<sup>7</sup>, Architecture 2030<sup>8</sup>, National Association of Home Builders (NAHB) Green Home Building Guidelines<sup>9</sup>, Built Green<sup>10</sup>, Energy Star Homes Northwest and Green Globes<sup>11</sup>. Hereafter, this group of standards and certification systems, and/or new standards and certification systems that may be developed in the future, are collectively referred to as “**third-party-verified green building certification**”

<sup>7</sup> See, for example, <http://www.usgbc.org>.

<sup>8</sup> <http://www.architecture2030.org/home.html>

<sup>9</sup> <http://www.nahbrc.org/greenguidelines/>

<sup>10</sup> Built Green is a Washington-based program that includes green building guidelines and certification. Built Green works closely with the National Association of Home Builders on the latter’s programs. See, for example, <http://www.builtgreen.net/checklists.html>.

<sup>11</sup> <http://www.greenglobes.com/fitup/Non-Flash/index.htm>

**systems**” to denote that a number of candidate systems may be applicable to a given policy, but that whatever system is used should provide a consistent, independently adjudicated yardstick of energy efficiency performance. This policy could also include consideration of the concepts of embodied energy and “renewability” of building materials.

[From RCI-4] Existing buildings will continue to consume the bulk of the energy used in the residential and commercial sectors in Washington for many years. Improving the efficiency of the use of energy, water, and other resources in the existing building stock can be addressed by encouraging more energy-efficient building operations, maintenance, and occupant behavior (see EE/GB-2), but can also be addressed through other measures, such as requirements for upgrading the energy efficiency of buildings at the time of resale

[From RCI-10] This option is also designed to advance policies and programs that result in improved life-cycle benefits of new lighting, equipment, appliances and consumer electronic products, that is, through increasing energy efficiency while also increasing product recycling and reuse and avoiding the generation of solid waste and the production and emissions of toxic materials.

In addition to encouraging the incorporation of building materials that result in reduced life-cycle greenhouse gas emissions, this option would include the development of protocols for quantifying the resulting emissions reductions.

*[General note from 6/3 meeting applying to this option: “Need to come to distinction between incentives/tax breaks and codes—may make more sense to focus on codes for construction, incentives for operations. Sales tax wavier may not be enough”]*

### Goals and Timing

[To be determined]

### Implementation Mechanisms

[Summarized from RCI-3]

#### Requirements for State Buildings:

- Adopt Architecture2030 goals<sup>12</sup>, as adopted by the US Conference of Mayors, as the basis for reductions in fossil fuel use and energy efficiency performance for all buildings receiving state funding effective 2008. The Federal government has adopted Architecture2030 for public sector buildings by 2030. This may be a good strategy for the public sector in Washington, and a good “leading edge” example for private industries and construction. It is recognized that demand reduction of this magnitude will sometimes need to include non-technical strategies, such as cooling with outdoor air and passive cooling, daylighting, etc, as well as technology-driven strategies<sup>13</sup>.

<sup>12</sup> See [http://www.architecture2030.org/2030\\_challenge/index.html](http://www.architecture2030.org/2030_challenge/index.html); a footnote in RCI-3 includes a summary of the goals of the program.

<sup>13</sup> For example, some studies have shown that buildings equipped with building automation system exhibit both the highest and lowest energy intensities, underscoring the importance of integrated design and proper operation of building systems.

- Reinforce existing state law requiring state agencies to applicable rating systems that address greenhouse gas emissions associated with building construction and operation to promote the construction and design of energy-efficient buildings and energy-efficient remodels, require the use of increasingly stringent goals over time, and provide funding to achieve those goals. Tie State of Washington energy performance and fossil fuel use reduction goals for State of Washington buildings to the Architecture2030 goals. This will help to reduce greenhouse gas emissions, serve as a leadership example to the private sector, and promote the state's emerging clean technology industry.
- Require pre-design and programmatic studies for State of Washington-funded buildings and master plans to include resource systems analysis for energy, water, waste, recycling, transportation, and greenhouse gas emissions. Provide funding for that effort.
- Sustainably designed, built, and certified new or major renovation of public buildings should require a focus on sustainable operation in order to demonstrate the importance of sustainable operational practices in new facilities. It is truly how the facilities operate that yields the GHG savings, not only how they are built. The sustainable operation of a new facility should include, yet not be limited to, the ongoing staff training, use of documented best practices for all facility and property management activities, building re-commissioning every other year, and an ongoing measurement and verification process to track all energy usage and assess the expected and actual performance of building energy systems. Adopting third-party-verified green building certification system goals would provide for a standard approach and protocol for this post-construction focus on operations.
- Chapter 39.35D RCW [*CHECK AND CONFIRM REFERENCE*] (Sustainable buildings green building requirement for public buildings) will help with developing a green buildings education component for contractors, but the law needs to be revised to trickle down to the county-level, city level, and ultimately to the private sector. The law should be revised so that by 2015 every new project [*IWG members—do you mean all new projects, public or private, or just all public projects?*] will be built to a green standard, with a requirement of additional credits with more climate impacts.

#### **Building Code Enhancement:**

- To ensure that the state achieves the projected energy savings and greenhouse gas reductions reflected in the CAT Inventory and Forecast, the state should evaluate and monitor energy code enforcement, and should provide funding for training and/or technical assistance for local government officials who are responsible for energy code implementation. In addition, the State Building Code Council should, as part of its regular revision cycle, include the value of carbon in the benefit cost analysis of code changes being considered, utilizing for example, the Northwest Power Planning Council's risk assessment methodology for valuing carbon.
- Building code officials should be provided with the ability/time/training to enforce building energy code enhancements. The training aspect [*IWG members—do you mean "is", or "should be"*] a part of tax incentive study bill.

- Recognizing that local building code officials don't have much time to look at energy issues, providing [IWG members—do you mean “obligating” here?] commissioning will help building owners/occupants be assured of the energy-efficient performance of buildings.
- As a point of reference, it may be useful to compare Washington and California building codes, recognizing that peak energy needs are different in the different states, which affects code requirements. In general, Washington is now thought to be about on par with [current?] IECC codes for the residential sector, while for the commercial sector, [current?] ASHRAE codes are a bit better than those in force in Washington.

#### Consideration of life-cycle emissions:

- Consideration of concepts of embodied energy in building materials, and of the “renewability” and ability to recycle building materials<sup>14</sup>. The experience to date is that embodied energy accounts for about 15% of life-cycle greenhouse gas emissions in residential dwellings, and is equivalent to 1-1.5 years of operations in commercial buildings. The Cascadia Region Green Building Council's “Pharos” material selection tool<sup>15</sup> is an example of a tool for assessing embodied energy. The more general impacts on ecosystem destruction related to materials selections should also be evaluated.
- Include embodied energy/carbon footprint/life cycle assessment information for building materials in green building standards. Ultimately, it may be desirable to move to a more unified system for assessment of life-cycle emissions and energy use that is simple and cost-effective for designers, developers and builders to apply.
- Develop product labeling for the state of Washington, providing information on embodied energy and carbon. (A precedent in Washington is the program of labeling for certification of organic foods.)
- Develop and support a business assistance program to help identify and achieve GHG goals and life-cycle cost analysis of buildings and building components.
- Promote measures to reduce urban “heat island” effects through integrated strategies, including green roofs, white roofs, urban forestry, natural drainage systems, and streetscape plantings.
- Promote the state's local renewable forest products industry as a good choice in producing building products for reducing climate change impacts, relative to fossil fuel-based materials, as well as promoting the minimization of long-distance materials transportation through use of local forest industry products.

#### For tools and standards:

- Set up a clearinghouse for information on and access to software tools to calculate the impacts of energy efficiency and solar technologies for buildings, including tools for use by local governments in evaluating community design options. Encourage cooperation between

<sup>14</sup> See, for example, CORRIM (Consortium for Research on Renewable Industrial Materials), Life Cycle Environmental Performance of Renewable Building Materials in the Context of Residential Construction, available from [http://www.corrim.org/reports/2005/final\\_report/index.htm](http://www.corrim.org/reports/2005/final_report/index.htm).

<sup>15</sup> See, for example, <http://www.pharoslens.net/>.

local governments on community planning issues, with the ultimate goal of promoting high participation by governments across the region.

- Encourage, through promotions and incentives, private standards for green building and sustainable forest management (such as SFI, CSA, PEFC, FSC), as well as green building product certification for other building materials, such as Greenseal.
- Set a cap on consumption of energy per unit area of floor space for new buildings, and consider mechanisms to discourage the construction of residential dwellings that are larger than needed.<sup>16</sup>

[Summarized from RCI-4]

**Promote commissioning and BOC in all facilities of large portfolio organizations:**

- Through state legislation, require benchmarking and commissioning whenever buildings are sold, financed or refinanced.
- Task CTED and or DOE to work with utilities and help coordinate and promote utility energy conservation incentive programs aimed at existing facilities; consider legislation adding gas utilities to the requirements of I-937 (i.e., if they have more than 25,000 retail customers, they would be required to achieve all cost effective energy conservation within similar timeframes as required by I-937).
- Voluntary lighting upgrades supported by state technical assistance.

**Requirements for upgrading the energy efficiency of buildings at the time of resale**

- Establish minimum energy performance standards, energy rating systems, and/or cap energy budgets at the time of sale.
- Establish (or facilitate by opening up legal pathway) point of sale and point of rental requirements for energy efficiency audits and upgrades, including labeling of the energy efficiency of buildings being rented or sold.
- Provide assistance to non-profit organizations, charities and affordable housing to allow those properties to access energy conservation incentive programs (e.g., utility programs) and to meet the same energy performance standards.
- Secure commitment of state and local government entities to undertake energy efficiency upgrades and operational changes in government-owned and -operated facilities as a first step in moving the market.

[Summarized from RCI-10]

**Appliance/Equipment/Lighting Efficiency and Product Environmental Impact Improvements**

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<sup>16</sup> It is recognized that defining “larger than needed” in this context will not be straightforward. The goal of this implementation mechanism is to discourage the construction of single family homes that are very large, but may have relatively few occupants, as such homes can have large total space conditioning, lighting, and other energy use, and energy use per occupant, even if they meet guidelines on energy use per unit floor area.

- Appliance/equipment/lighting efficiency standards can be implemented at the state level for appliances and other devices not covered by federal standards, or where higher-than-federal standard efficiency requirements are appropriate<sup>17</sup>. Task CTED with adopting California's efficiency standard for televisions. Require, through state legislation, TV manufacturers/distributors to rate the energy use of TV units sold, and to display rating results at point of sale. Develop and implement minimum efficiency standards for televisions in "active mode"<sup>18</sup>, digital TV adapters and other consumer electronic goods, working with US DOE or other parties. Task CTED with analyzing the potential to apply efficiency standards to include lighting products, including minimum lumen/watt standards being discussed in California. Task CTED with reporting to the governor and legislature on the level of wholesale and retail compliance with the state's appliance efficiency standards.
- Consideration of potential shifts in the use of toxic materials (such as mercury in fluorescent lamps) that could inhibit consumer demand for efficient devices and create costly disposal issues. For example, efficiency standards policies could be linked to manufacturer "takeback" requirements, toxics reduction standards, or incentives for development and use of non-toxic technologies. Require (through state legislation) manufacturers to reduce the levels of toxins in lighting products, such as mercury in fluorescents, consistent with requirements already in place in the European Union. Require (through state legislation) manufacturers to have an effective system in place for collecting and recycling end-of-life bulbs that contain hazardous materials that is easy and convenient for the consumer<sup>19</sup>. This can be done by including the cost of collection and recycling in the purchase price of the product and by working with retailers, recyclers, utilities, local governments and others to provide convenient collection opportunities. Manufacturer-designed and -financed systems would ensure the most efficient and effective collection programs. Phase out incandescent lighting and set a date for a ban on them (with appropriate exemptions such as surgeries).
- Consideration of "waste-to-fuel" issues in product and packaging design, with the goal of reducing the life-cycle greenhouse gas (and other) emissions "footprint" of products and their packaging.
- Substantially increase the use of green electronic products and reduce solid waste by promoting EPEAT™ (*The Electronic Product Environmental Assessment Tool—see, for example, <http://www.epeat.net/>*) through a consortium of state, local government and business procurement entities.
- Provide incentives for manufacturers to improvement the energy efficiency of products, the efficiency with which products can be produced, and the degree to which products can be recycled.

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<sup>17</sup> In recent years, Arizona, Oregon, and Washington, among other states, adopted state standards for several appliances; this led to the inclusion of standards for these appliances in the 2005 federal Energy bill.

<sup>18</sup> See NRDC estimates of potential savings from television improvements (see, for example, <http://www.nrdc.org/air/energy/energyeff/tv.pdf>, and more detailed note in RCI-10).

<sup>19</sup> For example, transitioning from incandescent lighting to CFLs in the residential sector offers enormous energy savings potential, but the fact that there is no comprehensive and effective system in place for recycling or disposing of old CFLs to avoid mercury contamination creates a barrier to achieving the full potential of CFLs.

- Consider the impact of the standards and requirements included in this option on lower-income groups, and consider ways to mitigate those impacts.
- With state, utility and private sector financial support, invest in research and development initiatives or incentive programs to accelerate the use of LED (light-emitting diode) and other least toxic, highly-efficient lighting technologies in all sectors.
- Require (through state legislation) the preferential procurement of EnergyStar™ products if available (equipment, appliance or technology) if state funds are involved (e.g., state purchasing contracts, state grants or loans, etc.)
- Create state tax incentives to increase sales and use of EnergyStar™ appliances and equipment.
- To achieve economies of scale and market efficiency, many of the most promising mitigation options would be most effective if planned and developed regionally, through, for example, the Western Climate Initiative. That said, however, it is important for Washington and other individual states to press forward with new appliance/equipment/lighting efficiency standards, and with related standards for the environmental impacts of products, as doing so will accelerate the move toward higher regional and national standards, and will play a key role in educating consumers.

### **Related Policies/Programs in Place**

[Summarized from RCI-3]

- Executive Order 05-01, directs the adoption of green building practices in the construction of new or renovated existing state buildings (>25,000 ft<sup>2</sup>), as well as mandates a 10% reduction in State Agency energy purchases from 2003 levels by September 1, 2009 and LEED silver standards for WA public buildings.
- High-Performance Public Buildings bill (Chapter 39.35D RCW), requires all new state-funded facilities over 5,000 sq. ft. to meet green building standards. The Department of Community, Trade, and Economic Development is required to adopt sustainable building standards by July 1, 2008. The legislature prioritized the use of locally extracted and manufactured products in all state building projects.
- Several local governments offer LEED Incentive Programs. There are several tax incentives available in Washington State for solar and renewable energy products, which can be incorporated into green buildings.
- CTED's Smart Growth Strategy for the 21<sup>st</sup> Century (<http://smartgrowth.wa.gov>)
- July 2007 Snohomish County Executive Order to reduce the County's greenhouse gas emissions to 20% below 2000 levels by 2020.
- Several individual communities are now working to calculate their own GHG emissions using a variety of currently available software packages.

[Summarized from RCI-4]

- Many of the state's utilities (notably, Puget Sound Energy, Seattle City Light, Avista and SnoPUD) offer financial incentives to pay part of the cost of retrofitting commercial, institutional and residential buildings to make them more energy efficient.
- Initiative 937 requires electric utilities (who have more than 25,000 retail customers) to acquire all cost effective energy conservation. Much of that conservation will come from retrofits in existing homes and facilities.
- Many local governments such as Seattle and King County require their new and remodeled facilities to be at least Silver LEED.
- Generally, renovated commercial and residential buildings must meet applicable sections of the energy code if the renovation work involves a relevant section of the code (e.g., if there is a building addition, walls and windows must meet code.)

The state's Housing Trust program will be implementing its Evergreen Sustainable Building Standard in 2008.

Several local governments in the U.S. have established residential energy conservation ordinances that institute minimum energy efficiency time of sale requirements for residential properties.<sup>20 21</sup>

[Summarized from RCI-10]

- In 2005 the Washington Legislature adopted minimum efficiency standards for 12 products (RCW 19.260.040). State standards for four of these products were eliminated in 2006 legislation after stricter federal standards were established for those products. 2006 legislation established minimum efficiency standards for 8 types of commercial appliances, heating/cooling and lighting equipment sold within the State.
- CTED is authorized by statute to update and recommend standards not covered by federal standards under the following conditions: if the alternative products are being produced, are cost effective, have equal or improved utility, and if the standards already exist in at least two states.
- **Electronic Product Recycling Program:** The Washington State Legislature passed legislation in 2006 requiring the manufacturers of televisions, computers, laptops and monitors to establish and finance a system throughout the state for the collection and recycling of those products by January 1, 2009.
- **Washington State Environmentally Preferable Purchasing Policies:** The State of Washington has a broad legislative and policy mandate for environmentally preferable purchasing activities by state agencies, including Executive Order 02-03, Sustainable Practices by State Agencies, Executive Order 05-01, Establishing Sustainability and Efficiency Goals for State Operations, Executive Order 04-01, Persistent Toxic Chemicals,

<sup>20</sup> A tabular summary of several Residential Energy Conservation (and similar) ordinances is available as [http://ci.boulder.co.us/files/appendix\\_a\\_reco\\_programs.pdf](http://ci.boulder.co.us/files/appendix_a_reco_programs.pdf).

<sup>21</sup> Savings in the Berkeley program are as reported by the C40 Large Cities Climate Summit in "Berkeley's Building Standards Mandate Increases Efficiency and Pays Back Household in Two Years" ([http://www.nycclimatesummit.com/casestudies/building/bldg\\_berkeley.html](http://www.nycclimatesummit.com/casestudies/building/bldg_berkeley.html)) A summary of the specifications of the Berkeley program is available at <http://www.ci.berkeley.ca.us/sustainable/residents/resSidebar/reco.html>.

RCW 43.19, the General Administration's enabling legislation, provides a broad legislative basis for state purchases of recycled content and energy saving products. It also provides the flexibility to allow GA to award state contracts based on environmental considerations. RCW 43.19A includes goals requirements to increase the purchase and use of recycled content products. RCW 43.19.530A requires a chain of custody record that documents to whom the products were initially delivered through to the end use manufacturer, Chapter 70.95M RCW The Mercury Education Reduction Act (MERA), mandates priority and preference to the purchase of equipment, supplies, and other products that contain no mercury-added compounds or components.

[Summarized from RCI-3]

Ecology's Solid Waste and Financial Assistance Program is actively involved in promoting Green Building (GB) by training architects, builders, and lenders on Green Building and working with governments, communities, schools, commercial and residential sectors on GB initiatives. Some of the activities include:

- Working with some counties to adopt GB in Solid Waste Plans.
- Maintaining the Website developed at Ecology.

[From RCI-8]

#### Carbon Labeling

- The UK is implementing a program of carbon labeling through the UK Climate Trust. The methodology for determining the carbon footprint of each product can be found here: [http://www.carbontrust.co.uk/NR/rdonlyres/6DEA1490-254B-434F-B2B2-21D93F0B0C98/0/Methodology\\_summary.pdf](http://www.carbontrust.co.uk/NR/rdonlyres/6DEA1490-254B-434F-B2B2-21D93F0B0C98/0/Methodology_summary.pdf). The development of carbon labeling programs for various products is also underway in Oregon and Connecticut, including labeling programs for automobiles.

#### **GHG Reductions, and Other Direct and Indirect Costs and Benefits of Option**

[To be determined—will likely include quantitative and qualitative costs and benefits]

#### **Text for Legislative or Executive Action**

[Draft text produced could be included here, or this section could just provide updates on the process of producing text for legislative or executive action.]

## EE/WG-5. Expanded Implementation of Distributed Energy, Combined Heat and Power (CHP) and Renewable Energy

### Goals for Option Design

*The IWG would investigate whether there are other strategies not covered above, if not put into place soon, could “lock-in” higher emitting infrastructure, and thus could significantly reduce opportunities for, or increase the costs of large GHG reductions in the future. This might include such areas as policies/incentive for combined heat and power (CHP), distributed energy, and renewable energy.*

### Option Summary

[From ES-7]

Combined heat and power (CHP) and thermal energy recovery and distribution can reduce GHG emissions by increasing the overall efficiency of fuel use, by reducing energy losses (where facilities are located near heat and power demands). These emissions benefits can be particularly significant where CHP and thermal facilities utilize low GHG fuels and feedstocks (e.g. biomass resources such as organic pulping byproducts). There are opportunities to recover thermal energy from CHP, industrial or municipal waste heat or renewable energy sources. District energy systems provide a key infrastructure for conveying this “recycled” energy from the sources to energy consumers. Policies can be adopted to encourage cost-effective CHP and waste heat recovery (“recycling”) by ensuring that the full cost of the alternative central-station generation technology generation is compared to the cost of generating electricity at a CHP site (with the cost of heat sales to the thermal energy consumer covering any additional capital and operating expenses of the CHP project).

### Goals and Timing

[To be determined]

### Implementation Mechanisms

- Promote availability of existing state and utility incentives for distributed generation.
- Provide incentives for implementation of combined heat and power [IWG members—does the text below convey your meaning here?].

[Summarized from ES-7]

**Incentives to encourage, new CHP facilities, as well to expand and/or repower existing facilities.** No significant CHP system has been built in Washington in the last 15 years, in part

due to the costs of CHP systems being higher than current avoided costs. In order to provide incentives to reduce GHG emissions through CHP, the state should specifically consider establishing CHP tax credits under existing B&O tax system or from other sources to provide investment incentives. These incentives should be equally accessible to public as well as private power suppliers. Oregon's Business Energy Tax Credit (BETC) program provides a useful example for the State to consider.

**Other potential financial incentives to implement CHP programs include** tax credits can be sold to third parties, enabling public utilities to take advantage of the program as well; siting Incentive Programs; low-cost bonding or loan guarantee programs; tax credits for investment in CHP; amended procedures for streamlined permitting of CHP and thermal energy recovery facilities, without compromising other environmental goals.

**Financial incentives to implement district energy thermal distribution infrastructure, waste heat recovery and renewable thermal energy systems** through a variety of programs including: property owner incentives to join waste heat based district heating systems; low-cost bonding or loan guarantee programs; tax credits for investment in thermal energy projects, and/or for production of recycled energy; incentives for buildings to connect to district energy systems established to use or convert to renewable energy or recover waste energy; incentives to upgrade existing steam district energy systems to hot water district energy distribution to enhance system performance and improve efficiencies; and encouragement of **public/private partnerships for thermal energy transmission and distribution infrastructure installation (establishment of district heating/cooling systems).**

**Pro-active information/education/outreach communications** are needed to address the importance of removing barriers to optimizing existing and CHP generation and district energy development. We need to overcome real or perceived barriers about such important issues as avoided cost barriers, regulatory barriers, lack of integrated community energy planning, and lack of financial sector misunderstanding of these systems.

#### Related Policies/Programs in Place

[From ES-7]

- PURPA, 1978, [Existing] B & O Taxes, Business Energy Tax Credits (BETC) in Oregon.
- The Washington UTC has an interconnection standards process underway with provisions for comments
- Senate Bill 6001 includes language (Section 5 (6)) to recognize the output of cogeneration, which could be modified for other policy design elements.
- Senate Bill 6631 – Thermal Energy Companies – Exemption from Utilities and Transportation Commission Authority.
- House Bill 114 – Regulation of District Heating Systems and Services

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#### GHG Reductions, and Other Direct and Indirect Costs and Benefits of Option

[To be determined—will likely include quantitative and qualitative costs and benefits]

**Text for Legislative or Executive Action**

[Draft text produced could be included here, or this section could just provide updates on the process of producing text for legislative or executive action.]

**Options Elements Included in Previous Document or Mentioned During EE/GB IWG Meeting But Not Clearly Fitting into Option Themes Above**

- Encourage utilities to develop and offer (or continue to offer) "green power" programs that utility customers can voluntarily subscribe to.
- Decoupling of utility rates from revenues should be pursued.
- A new Ecotope report was mentioned during discussions on 6/3 [*IWG members—please identify the topic of the report, and its relevance to the IWG work*]
- I-937 requirements [for implementation of energy efficiency programs by electric utilities] have problematic aspects—for example, in that the value of carbon is not included in the definition of cost-effectiveness. Current emissions reduction goals call for the application of measures that may cost more than the threshold value that current cost-effectiveness economics would allow. Also, limitations to I-937 due to the interpretation of what “achievable” means in an energy-efficiency context, so there is a need to look at strategies that are cost-effective but are not captured under I-937, and which fall into the cost gap between currently cost-effective and cost-effective with the addition of (not yet monetized) carbon costs.
- The value of Washington’s hydro power [as a renewable resource to sell to other regions that will have more difficulty meeting renewable generation targets, and are willing to pay higher wholesale power prices to meet those targets] is just starting to be recognized. Sales of excess hydro power will provide—cash flow into utilities, which could be used to fund additional efficiency investments in Washington.

**“Smart Grid” and related ideas [*IWG members: how did you intend that these ideas be implemented?*]**

- Provide consumers with real-time information on their energy consumption: provide incentives for in-home displays (concept of an energy “dashboard” or “speedometer”) of energy use, energy costs, carbon consumption, water use, etc., and include context, e.g., how are you doing compared to your neighbors. Couple with information on products/services available for investment.
- There is a need to include intelligence with buildings—to help to meet grid optimization goals—respond to grid and feed energy back into the grid.
- Integration of transportation (E-vehicles) with buildings, including provisions for 240V plugs in garages to charge plug-in vehicles.