

Energy Efficiency and Green Building Implementation Working Group (EE/GB IWG)

Note to IWG members: The five 2009 Action descriptions that follow are concepts developed by small groups following the EE/GB IWG teleconference of June 23, and reflects refinements and placement of the actions into a common template format by the small groups following the IWG teleconference of July 9th. The text for each 2009 Action was compiled with some clarifying edits by the EE/GB IWG facilitators, and represents the small groups' work as of July 20th. The text for each 2009 Action will be updated incorporating feedback from the Climate Action Team and based on continued discussion by the full IWG during our teleconference on August 1st.

Note that in the text below, some passages that appear **in yellow highlight** have not been reviewed by the full membership of the small group that prepared the action write-up (and thus should be considered preliminary), text in **highlights and italics** are notes from or to group members, and most non-highlighted text in *italics* (other than some titles) are generic directions for parts of the action template that are to be completed as the IWG continues its work.

Please note also that in the July 9th teleconference the IWG agreed that the further development of Action #5, “Energy Efficiency for Natural Gas, Propane, and Fuel Oil”, should be placed at a lower priority than other actions, as it was felt that this option was likely to yield more limited emissions reductions than other actions before the IWG, and would in part be addressed by other actions that the IWG is moving forward with.

EE/GB Action 1: Incentives for Higher-Efficiency Building Operations

Initial Direction Provided to Small Group

Develop targeted proposals for tax and other types of incentives that promote the construction, retrofitting, and long-term operation of buildings (both residential and commercial, including the typically underserved small-commercial segment) at substantially higher levels of energy efficiency. IWG members suggested that this action include discussion of innovative financing funds, means of benchmarking building operations at an escalating scale over time, an energy efficiency fund to further support the transition from BAU to high performing buildings, and incentives to upgrade/retrofit existing buildings.

Revised 2009 Action Concept (as produced by small group)

Suggested Revised Title: Energy Efficiency Quality Investment Program (EEQUIP)

2009 Action Description:

The derived public benefit from investments in superior energy efficiency in Washington is a superior quality-built environment for those using and operating buildings, as well a strategic attraction for additional investments in our economy. To this end, development assistance to provide incentives for quality improvements in building energy efficiency, by definition, must also ensure quality improvements in operations, performance, measurement, and the craftsmanship and training that go into quality buildings. In addition to alignment with the goals of Executive Order 07-02 and subsequent statutes, this rationale works to better ensure the transparency, accountability, and success of the program, from the perspective of the direct beneficiary as well as the public at-large.

Legislative action is recommended to establish a tax incentive for buildings (non-residential 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 Community, Trade, and Economic Development Department). The Department will develop a program that provides the tax credit which initially (e.g. 2009-2010 biennium) provides incentives for buildings that meet or exceed a Portfolio Manager score of 80 or demonstrate an annual improvement of energy performance of at least 15% (regardless of baseline year Portfolio Manager score). *[The program should be set up for at least ten years. If changes are necessary between the ten years, the legislation could be changed or dealt with in rulemaking.]* Buildings that continue to meet or exceed the Portfolio Manager score of 80 may claim the tax credit annually. Buildings that meet the 15% improvement target may claim the credit only one time. Thereafter, those buildings must meet the Portfolio Manager score of 80 to claim the credit in other years. The Department will design additional phases of this tax credit program, in consultation with key stakeholders, to become effective after 2010. Additional phase design elements should consider a revenue neutral system that collects fees from underperforming buildings, to provide incentives for the high performing buildings. A tiered incentive program should be considered to allow for great incentives for the very best buildings. The Department will assess the success of the tax

credit in moving an increasingly higher percentage of buildings toward superior energy performance. The Department is encouraged to consider changes to the qualifying Portfolio Manager score or other program measures to increase the effectiveness of this program. Further, this legislation should require all commercial buildings to develop an ENERGY STAR Portfolio Manager benchmark score (or other metric as determined by the Department) on an annual basis and that information be made publicly available (for purposes of tenant lease considerations and prospective buyers at point of sale).

The tax credit described here should be applied to the Public Utility Tax (PUT). The PUT is assessed to electric and natural gas utilities and passed through to energy end use customers. 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. Buildings that meet the level of superior energy performance as described here will receive a full credit of the PUT.

Legislative action is recommended to establish by March 1, 2009, a regulatory proceeding to develop and implement a comprehensive program to achieve greater energy savings in Washington's existing residential building stock. This program shall comprise a complementary portfolio of techniques, applications, and practices including tax incentives for residential occupancies that reduce and maintain energy consumption that meets or exceeds a defined level of energy performance as determined.

Legislative action is recommended to establish a tax incentive for newly constructed buildings (residential and non-residential occupancies) that meet or exceed specific levels of energy performance. Buildings that meet or exceed "four-star" ratings as defined by the Built Green program (or other **verified third-party or independently standardized** indices of performance as defined by the Department) will qualify for a sales tax credit as applied to the cost of building construction. *[Note from a small group member: The Built Green program can not be used as a basis for a tax incentive unless the state sets minimum standards for the program to meet, and there is verification. As it is now, programs vary in degree of stringency from county to county.]* Non-residential buildings that meet or exceed LEED-NC Gold (or other **verified third-party or independently standardized** indices of performance as defined by the Department) will qualify for a sales tax credit applied to the cost of building construction. The Department will work collaboratively with the Department of Revenue and key stakeholders to devise the tax credit to minimize transactional cost. The Department, in consultation with key stakeholders, will devise specific energy performance criteria (e.g. as utilized in the LEED-NC point system) to ensure that qualifying buildings both meet the LEED-NC Gold requirements, but also exhibit superior energy performance characteristics. *[Note from a small-group member: I think more direction is necessary here such as; must achieve at least 5 LEED optimize energy performance points or equivalent]*. Buildings that meet the levels of superior energy performance as described here will receive a sales tax credit equal to 50% of the sales tax as applied to the overall construction of the building.

A segment of the program addressing improvements to energy efficiency in existing residential buildings for owners and tenants, such as a revolving funding mechanism, should be developed, potentially using "LEED for Homes" in conjunction with the Built Green Program (or other **verified third-party or independently standardized indices of performance as defined by the Department**) to gauge qualifications for incentives.

In order to provide policymakers and the public with clear and measurable information about program performance and outcomes, the Department, in collaboration with the Department of Revenue, will make available to the public an annual Quality Investment Progress Report. These annual progress reports shall detail how quality development assistance credits were used to achieve quality energy efficiency for each qualifying project. Information should include, but not be limited to, the location, expenditures, and types of improvements made to achieve or maintain quality standards of energy efficiency and other public returns on quality development assistance, such as job creation, job quality standards, and training quality standards outlined in the statute.

Discussion of these legislative proposals – Details on the tax credit design should be left to rulemaking by the Community, Trade, and Economic Development Department in consultation with the Department of Revenue and key stakeholders. The tax credits will result in reduced revenue to the state's general fund. An analysis of the revenue impact must be completed by the Department of Revenue. These tax credits are scale-able and modifications to the magnitude of the credit should be considered as well as the opportunity to ramp the credits in future bienniums.

Basis for Selection:

These legislative concepts are designed to use an incentive based approach to motivate and accelerate the design, construction, and annual operation of buildings to levels of superior energy performance. They are designed to work with familiar and accessible programs of merit (e.g. LEED, ENERGY STAR, Built Green) that are or may be adapted to verifiable third-party or independent certification and have gained acceptance by commercial and residential buildings market. The reward through tax credits for actual demonstrated energy performance is innovative and critically important to achieving the state's overall greenhouse gas reduction and quality job creation goals, outlined in Executive Order 07-02.

Implementation Approach and Mechanisms:

The implementation approach/mechanism(s) should be identified, along with the following details:

- ***Specific deliverable which the IWG will produce to accomplish implementation of the 2009 Action (e.g. draft legislative text) , along with who will produce it and by when***
 - *Note: the deliverable will likely incorporate the other elements contained in this template and developed by the IWG (e.g. the rationale for selecting the action can inform the preamble for legislation, and the description of the proposition may form the body of the legislation), but will be specific to the implementation approach/mechanism required for each 2009 Action.*
 - *Members of the IWG may choose to draft the deliverable, or state support staff may do the drafting, and members will review.*
 - *The deliverable needs to be in draft by the first week of September, and finalized by the first week of October.*
- ***Brief description of potential barriers to implementation, and how the action has been designed to overcome them (including upfront costs, potential externalities, negative leakage, etc.)***

These tax credit proposals have a revenue impact on the state's general fund. However, the ideas can be scaled to both near term and long term budget realities. It is recommended that the complexities of tax credit program mechanics be left to a rule making process conducted by the Department.

Supporting Information:

Include the following:

- **Description of how this option might interact with a regional or national cap-and-trade, or other economy-wide market-based system for greenhouse gases.**
- **Where quantifiable, IWGs should include the following:**
 - **GHG reduction potential of the action, and underlying assumptions** (if action is amenable to quantification) reported in common units,¹ using consistent approaches to geographic scope and lifecycle analysis²
 - **Costs or cost savings (net present value, cost-effectiveness) of the action** (if action is amenable to quantification), using consistent methods and perspectives³, and reported in consistent units.⁴
- **Distribution of costs and benefits.** Costs and benefits that fall disproportionately on specific groups or actors, should be noted qualitatively, especially where studies or other information are available.
- **Qualitative description of additional external benefits** (e.g. green jobs creation). Unless studies or other information exists, the monetized environmental or social benefits, quality of life improvements, other health benefits, energy security benefits, and macroeconomic impacts from shifting benefits will not be quantified and included.

¹ Net GHG reduction potential in million metric tons carbon dioxide equivalent (MMTCO_{2e}) using IPCC 100 yr global warming potential, reported for 2012, 2020, and cumulatively 2009-2020. Where significant additional GHG reductions or costs occur beyond the project period as a direct result of actions taken during the project period, these will be indicated as appropriate.

² GHG impacts of policy options are estimated regardless of the physical location of emissions reductions. Where significant emissions impacts are likely to occur outside the state, this should be clearly indicated. These emissions reductions are counted towards the achievement of the state's emission goal, since they result from actions taken by the state.

Lifecycle analysis is applied wherever emissions impacts upstream (e.g., production, extraction) or downstream (e.g. waste disposal) from a specific activity constitute a significant fraction of a policy option's emissions impacts and studies are sufficient to enable estimation.

³ The general approach of direct (NPV) cost and cost-effectiveness analysis is used, as widely applied to GHG mitigation policy options. Included are the direct, economic costs from the perspective of the state as whole (e.g. avoided costs of electricity rather than consumer electricity prices). Costs may include capital costs levelized (amortized) where appropriate, operation, maintenance and other labor costs, and fuel and fertilizer costs). This bottom-up approach is relatively transparent and is capable of reflecting the costs (and cost savings) associated with an individual policy option, in contrast to macroeconomic analysis, which aims to capture flows and interactions across all sectors of the economy.

⁴ Net present value (NPV) cost savings for the period 2009-2020 in 2007 constant dollars, using a 5% real discount rate.

Cost-effectiveness - Cost per metric ton of CO₂ equivalent emissions reduced (or removed) in units of \$/MTCO_{2e}. This figure represents the NPV cost divided by the cumulative emission reductions, both over the 2009-2020 period.

- *Implications/ engagement opportunities for individual action/behavior change (e.g. behavior change needed to achieve implementation and/or achieved through implementation)*
- *Implications/engagement opportunities for local and regional governments and private sector*

EE/GB Action 2: Public Building Operation and Building Standards

Initial Direction Provided to Small Group

Develop a proposal that will substantially upgrade the energy efficiency and sustainability of publicly-constructed and -operated buildings by policies that allow better linking of first and operating cost decisions, improve energy standards for construction of public buildings, and use other mechanisms to improve the energy-efficient design and operations of public buildings in an integrate fashion. This option may include elements such as providing case studies as examples to the private sector, and pursuing sustainable building practices more generally.

2009 Action Concepts (as produced by small group)

Suggested Revised Title:

Energy Efficiency in Existing, New and Renovated Public Buildings

2009 Action Description:

Design of the specific program

The overall effort would involve all of the public sector. It includes existing buildings and new construction. It would include state agencies, universities, colleges, school districts and local governments. Education and promotion of the program will need to be critical components to the success of the program. Partnering with US EPA's Energy Star program is also critical and has been initiated. The Energy Star program is poised to help, for the most part, at no cost. Reporting will be through Energy Star and the US Green Building Council. State agencies will report activity to OFM, but for schools, universities, colleges and local governments will report to themselves, the Energy Star Program, the US Green Building Council, and their constituents through a highly publicized web site and/or Energy Star and USGBC. It is this program transparency and activating the caring constituents with information and awareness that will becomes the "stick" the program needs for success.

The program relies upon the well establish Energy Star and US Green Building Council LEED programs for some level of training, third party verification, and reporting that will be accessible to the public. Additional training will also be coordinated by GA, Dept. of Ecology, and WSU Extension – Energy Programs.

Existing Buildings (Revisions to Chapter 39.35)

Section 1) State agencies, colleges, universities and school districts

1. By July 1, 2010 each state agency, college, university and school district shall create an energy benchmark for each conditioned and occupied building over 10,000 square feet using the US EPA's Energy Star Portfolio Manager program.
2. This baseline information will be posted on the Energy Star website or other site as determined by Dept. of Ecology and will be open to public review.

3. For each building with an Energy Star score below 60, state agencies, colleges, universities and school districts shall undertake a preliminary energy audit by July 1, 2011. **Under discussion within the sub-group: require or recommend that the department's energy performance contracting program be used, and this provision might be different for state v. city/county/other public buildings.**
4. If potential cost effective energy savings are identified, an investment grade energy audit must be completed by July 1, 2012.
5. Cost-effective energy conservation measures identified in the investment grade energy audit must be implemented by July 1, 2015.
6. All buildings under this section will be required to maintain an Energy Star score of greater than **75** after October 1, 2016.
7. Recertification must occur every 3 years through the Energy Star program with the revised Energy Star score posted for public review at a site determined by Dept. of Ecology.
8. By October 1, 2016 all buildings over 50,000 SF under this section will be certified to LEED – EB O&M Silver or equivalent system as determined by the department, and will be re-evaluated every 5 years.
9. All buildings between 20,000 SF and 50,000 SF will use LEED – EB O&M as a guide for their operations and will self-certify based on guidelines developed by the department in consultation with a group of appropriate stakeholders.
10. Results of this self-certification will be posted to a web site determined by the Dept. of Ecology. **Items 9 & 10 this section, Self-certification an issue under discussion.**
11. All buildings over 50,000 SF covered by this section must achieve the following standards:
 - a) LEED-EB Optimize Energy Performance – 5 points.
 - b) LEED-EB Water Use Reduction – 1 point.
 - c) LEED-EB Water Efficient Landscaping – 1 point.
 - d) LEED-EB Occupant Recycling – 3 points.
12. Buildings without dedicated metering, such as buildings on a campus, will develop, with assistance from the department, a metering plan and achieve Energy Star target performance levels as a campus. These buildings will take the self-certification path as appropriate for the building sizes.
13. Buildings planned for demolition or major renovation by July 1, 2015 are exempt from the requirement to undertake a preliminary energy audit and subsequent energy audits and energy measure implementation.
14. All leased buildings over 20,000 SF occupied entirely by a state agency, university or school district must achieve the following standards by July 2015: **Verification mechanisms need discussion.**
 - a) LEED-EB Optimize Energy Performance – 5 points (Equals an Energy Star score of 75, post to a web site determined by the Dept. of Ecology).

- b) LEED-EB Water Use Reduction – 1 point.
 - c) LEED-EB Water Efficient Landscaping – 1 point.
 - d) LEED-EB Occupant Recycling – 3 points.
15. Buildings that have lease agreements that predate this statute will be exempt, however, any renegotiation must comply within 15 months of the new lease inception.
16. Public entities under this section are encouraged to make operational refinements to improve the Energy Star score prior to the July 2010 target date and there after. These could include scheduling equipment operation to coincide with occupancy and emphasis on energy efficient occupant behavior.
17. It is recommended that entities under this section that manage over 1,000,000 SF of conditioned building space consider the implementation of a Resource Conservation Management program utilizing dedicated staff. Seek assistance from your serving energy utility(s) for financial support and technical assistance. Technical assistance will also be available through the WSU Extension – Energy Programs.

Section 2) Cities, Counties, and other Public Taxing Authorities

The provisions are the same as above for state agencies, colleges, universities, and school districts, except the timelines are extended, as follows:

- If potential cost effective energy savings are identified, an investment grade energy audit must be completed by July 1, 2014.
- Cost-effective energy conservation measures identified in the investment grade energy audit must be implemented by July 1, 2017.
- All buildings under this section will be required to maintain an Energy Star score of greater than 70 after October 1, 2018.
- By October 1, 2018 all buildings over 50,000 SF under this section will be certified to LEED – EB O&M Silver or equivalent system as determined by the department, and will be re-evaluated every 5 years.

New Construction (Revisions to Chapter 39.35)

Section 1) State agencies, colleges, universities and school districts

1. All occupied and conditioned buildings over 5,000 SF going into design after July 1, 2011 will be required to certify to the LEED NC Gold level **or equivalent as determined by the department**. This also applies to major renovation projects where the project construction budget is over 50% of the assessed value of the building. All affected buildings must achieve the following as prerequisites:
- a) Meet “Architecture 2030” goals for energy performance.
 - b) LEED-NC Water Use Reduction – 2 points.
 - c) LEED-NC Water Efficient Landscaping – 1 point.

- d) LEED-NC Construction Waste Mgt. – 2 points.
- e) A minimum of 0.5% of the MACC must be spent on renewable energy systems as defined under LEED.
- f) LEED-NC Regional Materials – 1 point.

Section 2) Cities, Counties, and other Public Taxing Authorities

1. All occupied and conditioned buildings over 10,000 SF going into design after July 1, 2013 will be required to certify to the LEED NC Gold level **or equivalent as determined by the department**. By July 2011, local governments state-wide shall adopt rules that are at least compliant with this section. Through this process, local governments may require that additional credits be met to ensure that projects are built to maximize indoor environmental health, reduce toxics in the environment, optimize water and energy savings, and encourage economic growth in their region.
2. The LEED NC Gold requirement also applies to major renovation projects where the project construction budget is over 50% of the assessed value of the building. All affected buildings must achieve the following as prerequisites:
 - a) Meet “Architecture 2030” goals for energy performance.
 - b) LEED-NC Water Use Reduction – 2 points.
 - c) LEED-NC Water Efficient Landscaping – 1 point.
 - d) LEED-NC Construction Waste Mgt. – 2 points.
 - e) A minimum of 0.5% of the MACC must be spent on renewable energy systems as defined under LEED.
 - f) LEED-NC Regional Materials – 1 point.

Operations & Maintenance of Public Buildings (new legislation)

- *Utilities Provide Incentives for Resource Conservation Management:* All utilities affected by I-937 shall provide incentives equal to or better than the incentives established by Puget Sound Energy for Resource Conservation Management. These incentives can be tied to benchmarks consistent with those developed by PSE.
- *Utilities to Provide Electronic Utility Data:* All electric and natural gas utilities will provide electronic billing data upon request by the customer that is compatible with the US EPA Energy Star program by July 1, 2012.

Note: need to consider whether the following ideas are needed in addition to existing programs, including a statewide expanded RCM program such as described above, with some more support from WSU and maybe NEEC.

- *Public buildings operations staff outreach and education program:* Ongoing outreach and education programs directed at building operations line staff and supervisors are needed, to ensure they know about best practices for efficient operations, who to contact for ideas and help, and programs (such as Performance Contracting) that can support their

improvements. Regular bulletins with peer case studies of operations and behavior changes that resulted in demonstrated resource savings could constitute the core of these. Advertisements for training, services and products could help pay for it. This could be extended to private audiences as well. (WSU Energy, NEEC)

- Facility and operations staff energy /resource review (link with Energy Star rating): Support for review of current staff capabilities and training levels in resource conservation, facility billing review and related “desk audit,” etc., to determine facility baseline energy use and energy intensity, and prepare for Energy Star rating.
- Technical support services (from WSU Extension Energy Program in concert with GA?): Expert energy analysis staff trained and dedicated to supporting O&M resource saving projects would be available for a walk-thru O&M audit of participating facilities and for limited phone-based consultation on planning, financing, implementation and M&V of O&M projects.
- Operations resource saving improvements program: As envisioned, participants would follow a fairly prescriptive “workbook” program, modeled on the Plan-Do-Check-Act model of gathering information, coming up with ideas for measures, developing and getting support for those measures that appear likely to save resources, implementing the measures, and measuring savings over an extended period of time. Steps / “chapters” would likely include something like the below:
 - Facility Baselines
 - Facility Benchmarking with Energy Star
 - Goal setting
 - Identifying savings opportunities for energy and other resources
 - Savings opportunity/action specific baselines and benchmarks
 - Developing Action Plans
 - Implementation of actions
 - Measurement and verification of savings from actions
- Reporting outcomes: Participants would annually report measurable outcomes from their O&M resource savings projects to a central state database as a requirement of participation.
- Funding: It should be possible to demonstrate that an operations and maintenance program such as the one described is cost-effective on a regional basis, from energy savings. A modest draw on utility taxes could possibly serve to fund the ongoing programs described above. Alternately, the State could offer utilities the choice to contribute to, support or implement such programs as a means to meet I-937 requirements. An evaluation would be needed after a number of years to test cost effectiveness. Once effectiveness of the program were demonstrated, it may be possible to rate-base the program.

Building Materials (Request for statutory authorization)

The Department of Ecology may adopt and implement a standard and product verification program to verify that building materials and other products are sourced, manufactured, and managed in a manner that is consistent with existing state rules, the agency's existing environmental priorities, green building standards, and other existing product/material certification schemes. The program must be voluntary and available to all businesses and manufacturers that do business in the state. The Department of Ecology may develop a logo that businesses and manufacturers may use on their products to demonstrate to consumers that the product complies with the standard. The Department of Ecology may recover costs for this service.

Definitions

“Benchmark” means the energy used by a building recorded monthly for at least one year to establish annual energy use. The units are in KBtu/SF/YR. This parameter, together with building characteristics information, are required inputs for Energy Star's Portfolio Manager. Buildings on a campus served by a central plant or centralized metering can develop a prorated benchmark for the buildings served by the central plant.

“Conditioned and Occupied Building” means a building that is occupied more than 20 hours per week, on average, and meeting the definition of a Conditioned Space in the Washington State Energy Code.

“Cost-effective” energy conservation measures means energy conservation measures that the investment grade audit concludes will generate savings sufficient to finance project loans of not more than ten years.

“Department” means the Department of General Administration.

“Energy Star score” means the score developed using the Energy Star's Portfolio Manager program. It may not be available for all building types. Building types not covered under the Energy Star Portfolio Manager program will only develop a building benchmark. For these building types, pursuit of cost effective energy measure implementation will depend on the benchmark score. Evaluation of the benchmark by the department is recommended. Energy Star is a nationally recognized EPA building energy rating system that is also used by LEED – EB O&M as the energy performance metric.

“Investment grade energy audit” means a detailed audit prepared by an Energy Service Company pre-selected by the department to provide an energy savings proposal that will guarantee of first cost and savings of the energy measures identified. The proposed measures must meet the customer's cost effectiveness criteria or the investment grade audit is free.

“LEED – EB O&M” means Leadership in Energy and Environmental Design – Existing Buildings Operations & Maintenance. This is a green building operations rating system developed by the US Green Building Council.

“MACC” means the maximum allowable construction cost.

“**Preliminary energy audit**” means a quick evaluation by an Energy Service Company of the energy savings potential. This is a free service through the department’s energy savings performance contracting program.

“**Posted for public review**” means that it will be posted on a web site identified by the Dept. of Ecology.

“**Resource Conservation Management program**” means a program focused on tracking and conserving energy and water to save on expenses.

Procedural and administrative provisions and requirements

- It is recommended that this recommendation be implemented through legislative action. An Executive Order would achieve a portion of the emission reductions; however the extent of the impact would be far less. Many existing programs will be utilized by this recommendation. These include the department, Dept. of Ecology, Energy Star, US Green Building Council’s LEED program, NEEC (Northwest Energy Efficiency Council), and electric and gas utility conservation programs.
- Currently the Dept. of General Administration is responsible for tracking and administration for State LEED projects. This would remain in place. For the existing buildings, format for reporting will be established by a stack holder group facilitated by the department (GA). Annual reporting by state agencies will be submitted to OFM. School districts and local governments will be responsible for administration of their own data through a web site identified by Dept. of Ecology.
- Costs for existing buildings below 50,000 SF would be minimal. Energy savings will pay for improvements. Some administration related to energy data collection and interaction with the Energy Star website, and if energy savings potential exists, administration of energy performance contracting contracts with the department would be needed. Often this expertise exists within public organizations and can be absorbed by current staff.
- Cost for existing buildings 50,000 SF and higher to achieve LEED-EB O&M Silver would range from \$10,000 to \$50,000 per building. Economies will be realized with multiple buildings and through a learning curve, subsequent buildings within an organization will cost less. Some costs to achieve LEED-EB O&M Silver could come from the energy performance contracting activities. Cost savings from energy, water and recycling efforts will off-set the costs to achieve LEED-EB O&M Silver over time. Support from utilities may be possible through a reimbursement program.
- Cost for new construction to achieve LEED Gold may only be on the order of \$10,000 for current project that must meet LEED Silver. The added construction cost to entities currently not building to LEED Silver would be 0.5% to 6% of the construction cost.

Basis for Selection:

With the 2005 passage of Chapter 39.35D RCW High-performance public buildings, Washington State stepped forward as a national leader in public sector green building projects. As the mandate has seen implementation, areas that can increase the energy conserving attributes of these buildings have become known. This proposal aims at increasing the strength of the

legislation as it currently exists, ensuring that green public buildings are operated and maintained in such a way as to meet the energy goals of the projects, and set the stage to address issues related to embodied energy as focus shifts to building products.

Because this proposal builds on existing legislation that has seen success, it is primarily a revision to a statute with agency and public momentum. This proposal will ensure that public buildings (new/renovated) prioritize energy efficiency credits offered in green building standards and help to build the market for regionally produced green building materials.

Projected emission reductions:

Emission reductions in existing buildings when buildings reach the Energy Star level of 75 will result in an average reduction in CO₂ emissions of 20% to 25%. This would be further reduced as buildings recertify with Energy Star level of 75, because the overall building energy use will go down thus raising the bar for all buildings. As older buildings are replaced with new efficient buildings, this too will raise the average energy efficiency of the building stock as a whole.

LEED Gold projects for new construction and major renovations CO₂ reductions of 60% would occur by 2010. This would increase because the Optimize Energy credit within LEED would be tied to Architecture 2030 goals which call for Net Zero carbon buildings by 2030.

Overall the number of buildings will increase and so will overall square footage of buildings. It is for this reason that the Architecture 2030 goals be met to achieve the reductions we seek.

Implementation Approach and Mechanisms:

Draft legislation will be prepared for the 2009 Legislative Session by **September 5, 2008**. The legislative text will be completed by a team consisting of: Rachael Jamison (Department of Ecology), Stuart Simpson (Department of General Administration), Ash Awad (McKinstry), David Van Holde (King County), Tony Usibelli (CTED), Becky Kelly (Washington Environmental Council).

Potential Barriers:

The primary critique of the state's existing green building mandate is its lack of additional funding to ensure compliance. By revising the mandate to require a higher level of certification with currently optional credits made mandatory, agencies may have difficulty supporting the legislation due to its potential fiscal impacts and need for additional resources (education/staff/etc.).

Program Costs: Existing programs will be utilized as much as possible, however, it is recommended that a professional level FTE be provided to each of the following agencies: Dept. of Ecology (for local governments), Dept. of General Administration (for State agencies, colleges and universities), and Office of the Superintendent of Public Instruction (for K-12 Schools). This is needed to implement these efforts across all public sector entities.

Supporting Information:

- **Description of how this option might interact with a regional or national cap-and-trade, or other economy-wide market-based system for greenhouse gases.**
- **Where quantifiable, IWGs should include the following:**
 - **GHG reduction potential of the action, and underlying assumptions** (if action is amenable to quantification) reported in common units,⁵ using consistent approaches to geographic scope and lifecycle analysis⁶
 - **Costs or cost savings (net present value, cost-effectiveness) of the action** (if action is amenable to quantification), using consistent methods and perspectives⁷, and reported in consistent units.⁸
- **Distribution of costs and benefits.** Costs and benefits that fall disproportionately on specific groups or actors, should be noted qualitatively, especially where studies or other information are available.
- **Qualitative description of additional external benefits** (e.g. green jobs creation). Unless studies or other information exists, the monetized environmental or social benefits, quality of life improvements, other health benefits, energy security benefits, and macroeconomic impacts from shifting benefits will not be quantified and included.
- **Implications/ engagement opportunities for individual action/behavior change** (e.g. behavior change needed to achieve implementation and/or achieved through implementation)
- **Implications/engagement opportunities for local and regional governments and private sector**

⁵ Net GHG reduction potential in million metric tons carbon dioxide equivalent (MMTCO_{2e}) using IPCC 100 yr global warming potential, reported for 2012, 2020, and cumulatively 2009-2020. Where significant additional GHG reductions or costs occur beyond the project period as a direct result of actions taken during the project period, these will be indicated as appropriate.

⁶ GHG impacts of policy options are estimated regardless of the physical location of emissions reductions. Where significant emissions impacts are likely to occur outside the state, this should be clearly indicated. These emissions reductions are counted towards the achievement of the state's emission goal, since they result from actions taken by the state.

Lifecycle analysis is applied wherever emissions impacts upstream (e.g., production, extraction) or downstream (e.g. waste disposal) from a specific activity constitute a significant fraction of a policy option's emissions impacts and studies are sufficient to enable estimation.

⁷ The general approach of direct (NPV) cost and cost-effectiveness analysis is used, as widely applied to GHG mitigation policy options. Included are the direct, economic costs from the perspective of the state as whole (e.g. avoided costs of electricity rather than consumer electricity prices). Costs may include capital costs levelized (amortized) where appropriate, operation, maintenance and other labor costs, and fuel and fertilizer costs). This bottom-up approach is relatively transparent and is capable of reflecting the costs (and cost savings) associated with an individual policy option, in contrast to macroeconomic analysis, which aims to capture flows and interactions across all sectors of the economy.

⁸ Net present value (NPV) cost savings for the period 2009-2020 in 2007 constant dollars, using a 5% real discount rate.

Cost-effectiveness - Cost per metric ton of CO₂ equivalent emissions reduced (or removed) in units of \$/MTCO_{2e}. This figure represents the NPV cost divided by the cumulative emission reductions, both over the 2009-2020 period.

EE/GB Action 3: State Energy Code Improvements, and Establishment of 2030 Building Goals

Initial Direction Provided to Small Group

Develop a path or detailed plan to significantly upgrade the state's energy code (residential and commercial) in 2009 to the highest levels among state codes (e.g. 30% above current levels), and develop a proposal that will drive Washington toward the construction of low-carbon, zero net energy buildings by 2030. This proposal should include, at a minimum, provisions for education/training, building benchmarking, and certification, but should also address financing of building improvements.

2009 Action Concepts (as produced by small group)

Suggested Revised Title: 2009 State Energy Code Improvements and the Establishment of a the Washington State Continuous Energy Efficiency Improvement Program for Buildings

Part 1

In the 2009 Washington State Building Code adoption cycle, revise the Washington State Energy Code (WSEC) to achieve a 30 percent reduction in new building energy use compared to the 2006 edition of the WSEC. Provide substantial efficiency advances in the code as it applies to remodeling, retrofit and equipment replacement. The Office of the Governor is responsible for articulating the objective to SBCC, and will provide political and administrative support consistent with obtaining the objective. Technical support shall be provided by the Department of Community, Trade, and Economic Development (CTED).

Part 2

Legislative action is recommended to establish a **Continuous Energy Efficiency Improvement Program for Buildings**. It is recommended the legislation include the following five components.

1. Targets for building energy efficiency and carbon reductions for the years 2010-2030
2. Direction to develop and adopt future editions of the WSEC to meet the Targets
3. Action which adds 5 appliance categories to 19.260 RCW ([HB 1062 - 2005-06](#)) and directs the Department of Community Trade and Economic Development to participate in the federal appliance rule making process.
4. Tax incentive for buildings and building/community integrated power systems. (See action item: *Incentives for Superior Energy Performance in New and Existing Buildings*)
5. Establishes funding in support of university and community college public / private partnerships and building industry activities involved in building efficiency research, demonstration and education programs.

Targets for Building Energy Efficiency and Carbon Emissions Reductions: The Washington State Continuous Energy Efficiency Improvement Program for Buildings will include specific targets for median building energy use, by building occupancy class and climate zone. Using the 2003 Commercial Building Energy Consumption Survey (CBECS) as a baseline for commercial construction, and equivalent methodology for residential construction, the legislation will establish targets for reductions in median building energy use intensity (EUI). Target development will follow the schedule developed the Architecture 2030 Challenge. In 2010, the target for new buildings will be 50 percent of the median, with an incremental improvement in new building efficiency reaching net zero by 2030. Existing buildings will be improved over time to achieve a 50 percent reduction in EUI for the sector. Sector improvements may include energy efficiency improvements, implementing innovative sustainable design strategies, generating with on-site renewable power and/or purchasing (20% maximum) renewable energy and/or certified renewable energy credits. The table, **Target Building Sector Median Energy Use Intensity (EUI)**, details the targets.

Target Building Sector Median Energy Use Intensity (EUI)						
1 = 2003 CBEC Median EUI, by Building Occupancy Class and Climate Zone						
Target Year	2009	2010	2015	2020	2025	2030
Existing Building Sector (2009)	1	0.96	0.85	0.74	0.63	0.5
New Building Sector	0.6	0.4	0.3	0.2	0.1	0

Legislative action is recommended that directs the Washington State Building Code Council through their established public process to achieve the energy savings details in the Table **Target Building Sector Median Energy Use Intensity (EUI)**.

Legislative action is recommended that adds 5 appliance categories to 19.260 RCW ([HB 1062 - 2005-06](#)) as noted in the table Proposed Appliance Standards.

Proposed Appliance Standards	
Appliance	Measure
Bottle-type water dispensers	< 1.2 kWh per day
Commercial hot food holding cabinets	40 Watts per cubic foot
Compact audio products	2 watts standby 4 watts standby with an illuminated clock display
Digital disc players and digital disc recorders	3-watt standby
Portable electric spas	Max. allowable standby energy

Legislative action is recommended that adds tax incentives for buildings and building/community integrated power systems. It is recommended that incentive programs follow the format outlined in EE/GB action item 1, *Incentives for Superior Energy Performance in New and Existing Buildings*). Reporting requirements detailed in action item 1 shall be modified to include evaluation of the tax incentive impacts on achieving the Targets detailed in the table, **Target Building Sector Median Energy Use Intensity (EUI)**

Legislative action, including funding, is recommended to support of university and community college public / private partnerships, and building industry activities involved in building efficiency research, demonstration and education programs.

Basis for Selection:

Part 1. *In the 2009 Washington State Building Code adoption cycle, revise the Washington State Energy Code (WSEC) to achieve a 30 percent reduction in new building energy use compared to the 2006 edition of the WSEC.*

There is already recognition both in the state and at the federal level that a 30 percent is the appropriate target for improvement in both the residential and commercial building sectors. This level of efficiency is achievable and is necessary to meet the carbon reduction targets established by the Climate Action Team. Part 1 is being proposed separate from the legislative actions detailed in part 2. This is largely due to timing. It is also done in recognition of the existing State Building Code Council public process. The 2009 code revision cycle will be well underway during the legislative session.

Part 2. Legislative action is recommended to establish a **Continuous Energy Efficiency Improvement Program for Buildings.**

To achieve the proposed targets, it is essential to start early with substantial proposals. It is also important that the strategy be comprehensive and includes new and existing building construction, equipment, appliances as well as community heat and power systems.

In 2030, new buildings constructed in the preceding two decades will account for more than 30 percent of the commercial building floor area and add almost 30 percent to the number of housing units. Over the same 20 year period, it is expected that most buildings will undergo some level of renovation, install new equipment and will add or replace many energy using devices. The effectiveness of the State Energy Code as well as federal and state equipment & appliance standards will play a large role in the future energy use intensity of all buildings. The injection of state and utility incentives will move the existing building sector, as well as promote further innovation in new construction.

The change in the built environment occurs over time. Opportunities to capture the large efficiency improvements at a minimal cost occur only once or twice in the life of a structure. This opportunity occurs during the original design and construction of a building as well as during major renovations. Major building equipment replacements occur in a 15 to 25 year time frame. The development of community scale heat and power system occurs over long planning and implementation periods.

The implementation targets listed suggest a gradual improvement of all building over time. True on average. But for any specific project, it is important to achieve maximum technical potential when the prime opportunities occur. To achieve the energy efficiency targets for all buildings on average, improved energy efficiency standards and programs will need to be deployed early and be rigorous. This includes energy codes, efficiency incentives programs as well as minimum appliance and equipment standards. This is the rationale for immediate implementation of a substantial upgrade to the state energy code, implementation of additional appliance standards as well as the recommendation to add incentive programs. This will deliver the most building energy efficiency and emissions reductions at the lowest cost.

To meet the more aggressive targets in the final years, additional innovation and expertise will be required. Much of the progress in building efficiency in Washington has resulted from following

a technology maturity progression that begins with research and development, moves through market entry and diffusion support efforts and culminates, where appropriate, in the adoption of common practices as minimum code requirements. Washington has been a leader in each of the elements of this progression and can take advantage of the economic development and job creation opportunity presented by additional work in these areas. Supporting university level research, participating in federal research and analysis projects, working with utilities and private sector partners within the state on market diffusion strategies and supporting effective technology transfer efforts should all be part of a comprehensive plan to continue bringing new technologies and efficiency strategies into the marketplace, into common use, and, where appropriate, into code.

Implementation Approach and Mechanisms:

In the 2009 Washington State Building Code revision cycle, revise the Washington State Energy Code (WSEC) to achieve a 30 percent reduction in new building energy use of compared to the 2006 edition of the WSEC. Provide substantial efficiency advances in the code as it applies to remodeling, retrofit and equipment replacement.

Through the 2009 administrative procedures of the Washington State Building Code Council (SBCC), develop and adopt advances to the Washington State Energy Code (WSEC) to achieve a 30 percent improvement in building efficiency compared to the 2006 WSEC. The Office of the Governor is responsible for articulating the objective to SBCC, and will provide political and administrative support consistent with obtaining the objective. Technical support shall be provided by CTED Energy Policy Division and the WSU Extension Energy Program.

- **Brief description of potential barriers to implementation, and how the action has been designed to overcome them**

Supporting Information:

The following report outlines a strategy developed by the US Department of Energy for achieving Net Zero Energy Buildings in the Commercial Sector. It is important to note that not all individual buildings will meet this standard. But in the population of buildings, some will exceed net zero and offset the buildings that do not. This is in part the basis for establishing building sector median targets in the **Continuous Energy Efficiency Improvement Program for Buildings**.

B. Griffith, N. Long, P. Torcellini, and R. Judkoff, *Assessment of the Technical Potential for Achieving Net Zero-Energy Buildings in the Commercial Sector* National Renewable Energy Laboratory, 2007

Include the following:

- ***Description of how this option might interact with a regional or national cap-and-trade, or other economy-wide market-based system for greenhouse gases.***
- ***Where quantifiable, IWGs should include the following:***

- **GHG reduction potential of the action, and underlying assumptions** (if action is amenable to quantification) reported in common units,⁹ using consistent approaches to geographic scope and lifecycle analysis¹⁰
- **Costs or cost savings (net present value, cost-effectiveness) of the action** (if action is amenable to quantification), using consistent methods and perspectives¹¹, and reported in consistent units.¹²
- **Distribution of costs and benefits.** Costs and benefits that fall disproportionately on specific groups or actors, should be noted qualitatively, especially where studies or other information are available.
- **Qualitative description of additional external benefits** (e.g. green jobs creation). Unless studies or other information exists, the monetized environmental or social benefits, quality of life improvements, other health benefits, energy security benefits, and macroeconomic impacts from shifting benefits will not be quantified and included.
- **Implications/ engagement opportunities for individual action/behavior change** (e.g. behavior change needed to achieve implementation and/or achieved through implementation)
- **Implications/engagement opportunities for local and regional governments and private sector**

⁹ Net GHG reduction potential in million metric tons carbon dioxide equivalent (MMTCO_{2e}) using IPCC 100 yr global warming potential, reported for 2012, 2020, and cumulatively 2009-2020. Where significant additional GHG reductions or costs occur beyond the project period as a direct result of actions taken during the project period, these will be indicated as appropriate.

¹⁰ GHG impacts of policy options are estimated regardless of the physical location of emissions reductions. Where significant emissions impacts are likely to occur outside the state, this should be clearly indicated. These emissions reductions are counted towards the achievement of the state's emission goal, since they result from actions taken by the state.

Lifecycle analysis is applied wherever emissions impacts upstream (e.g., production, extraction) or downstream (e.g. waste disposal) from a specific activity constitute a significant fraction of a policy option's emissions impacts and studies are sufficient to enable estimation.

¹¹ The general approach of direct (NPV) cost and cost-effectiveness analysis is used, as widely applied to GHG mitigation policy options. Included are the direct, economic costs from the perspective of the state as whole (e.g. avoided costs of electricity rather than consumer electricity prices). Costs may include capital costs levelized (amortized) where appropriate, operation, maintenance and other labor costs, and fuel and fertilizer costs). This bottom-up approach is relatively transparent and is capable of reflecting the costs (and cost savings) associated with an individual policy option, in contrast to macroeconomic analysis, which aims to capture flows and interactions across all sectors of the economy.

¹² Net present value (NPV) cost savings for the period 2009-2020 in 2007 constant dollars, using a 5% real discount rate.

Cost-effectiveness - Cost per metric ton of CO₂ equivalent emissions reduced (or removed) in units of \$/MTCO_{2e}. This figure represents the NPV cost divided by the cumulative emission reductions, both over the 2009-2020 period.

EE/GB Action 4: CHP and Distributed Energy Development

Initial Direction Provided to Small Group

Develop a plan to better utilize Washington's biomass and other resources in distributed energy systems, with a focus on distributed small-scale (less than 30 MW) combined heat and power systems, but also including, for example, larger industrial CHP systems and district heating systems as applicable.

2009 Action Concepts (as produced by small group)

Suggested Revised Title: Expanded Implementation of Distributed Energy, Combined Heat & Power (CHP) and Renewable Energy

2009 Action Description:

CHP produces both heat/steam and power. The heat/steam can be used for industrial processes or to heat buildings/campuses. The heat/steam can also be used for cooling/freezing such as in the food processing industry by using technologies such as absorption chillers. Waste heat that often goes up the smoke stack can also be used on the "back end" of industrial processes (where heat is ejected from the process after use) to produce power and recover the waste heat. CHP system size can be based on: 1) Following the thermal demand for a facility; 2) Following the power demand for a facility; 3) Following both power and thermal demand, when seasonal variation occurs; and 4) High reliability. Prime opportunities for CHP application include forest products/pulp and paper mills, food processing with year-round operation, dairies, feedlots, wastewater treatment facilities, campus settings with district heating of multiple buildings, industrial process facilities with waste heat, natural gas compressor stations, and facilities with high power reliability, heating and hot water, and cooling requirements such as hospitals and data centers. Cogeneration is an older term for CHP. For additional information see the Northwest CHP Application Center website at <http://www.chpcenternw.org/>.

Program Design

The proposed program would be to provide incentives for and encourage the use of CHP and district heating systems by doing the following:

- Providing tax incentives in concert with the bioenergy tax proposed by CTED. Options for these incentives include:
 - B&O tax credits;
 - Sales tax exemptions on machinery and equipment; and/or
 - Property tax exemptions
- Adoption of output-based emissions regulations; and
- Requiring CTED and the UTC to assess the regulatory barriers to CHP and recommend enabling changes

Definitions

Eligible CHP projects: Combined heat and power systems that involve the recovery of waste heat in the form of useful energy. Combined heat and power systems shall be designed to have a projected thermal efficiency (the energy content of useful heat produced plus the energy content of electricity divided by the energy content of the input fuel) of at least 60 percent [Note that some IWG members favor raising the minimum thermal efficiency for CHP projects to 70 to 75 percent, while others favor using the 60 percent minimum, at least at first, given the substantial energy benefits of CHP over non-CHP heat- or power-generation systems.].

In addition, there is some disagreement [within the IWG] over the definitions of alternative energy/bioenergy with respect to spent liquor (a by-product of the process of making wood pulp). We are not sure if the IWG is the proper forum for this discussion, but wanted to point out that some IWG members feel that spent pulping liquor should be included in all definitions with respect to alternative energy/bioenergy.

Basis for Selection:

Greenhouse gas reduction opportunity – CHP efficiencies range from 60% on the low end to 85% on the high end. This is in stark contrast to standalone fossil energy power plants (principally coal and natural gas) with efficiencies in the range of 30% to 36%. It is the double or triple use of the energy produced when fuel is combusted that gives CHP the extra efficiency boost. This makes CHP (even natural gas-based CHP) a greenhouse gas winner. See the summary of the ES-7 strategy (as prepared during the 2007 Climate Advisory Team process; the ES-7 option suggests expanding deployment of CHP) in the chart on page 47 of Leading the Way on Climate Change: The Challenge of Our Time (available as <http://www.ecy.wa.gov/climatechange/interimreport.htm>). In Washington State, most CHP projects are biopower/opportunity fuels-based. This further intensifies the greenhouse gas emissions benefits of CHP development.

CHP Potential in Washington – A 2004 report done by Energy and Environmental Analysis titled Combined Heat and Power in the Pacific Northwest: Market Assessment showed the technical market potential for CHP to be 7,721 MWc. See page 52 of the study http://www.chpcenternw.org/NwChpDocs/Chp_Market-Assessment_In_PNW_EEA_08_2004.pdf. The use of waste heat to generate power would provide additional CHP opportunities not specified in this report. This same report also analyzed the major environmental benefits of CHP including reduced NO_x, SO_x and CO₂ emissions (see pages 73-75).

Implementation Approach and Mechanisms:

Barriers to Implementation, and Strategies to Overcome Them

No significant CHP capacity has been built in Washington during the past 15 years due to a number of important economic and policy barriers that need to be overcome:

- Dispatchability. Control of the electrical output of a CHP system by utilities can be a concern for the plant owner. To address this barrier, mutually agreeable dispatch protocols should be negotiated between the plant owner and the host utility.
- Interconnection standards and requirements. Interconnection standards can vary by utility, and are sometimes a barrier to CHP development, as are other utility-related policies such as high standby rates, exit fees, etc. Washington State could seek to influence and streamline grid interconnection standards and associated costs, where applicable. Standards are set by FERC and NERC rather than the State.
- High transaction costs associated with CHP projects, and high financing costs because of lender unfamiliarity and perceived risk, and “split incentives” between building owners and tenants. These barriers can be addressed by consistent, long-term, clear incentives supporting CHP and waste energy recovery.

Supporting Information:

Interactions with market-based systems for greenhouse gas emissions reduction

CHP has been recognized in programs such as RGGI, Alberta, and is now being discussed within the WCI cap-and-trade design. The most likely outcome would be for CHP facilities to receive avoided emissions credits in a cap-and-trade program. The CHP facilities could either be awarded allowances or they could receive auction proceeds for their avoided emissions.

GHG reduction potential of the action

By recovering waste heat and reusing it, the equivalent amount of new fossil-based energy will be displaced, resulting in a more energy efficient energy production program and significantly less GHG production per MWh generated.

Analysis done for the 2007 Climate Advisory Team indicated that CHP could result in a reduction of 12.1 million metric tons of greenhouse gas emissions between 2008 and 2020.

Costs or cost savings of the action

Based on the analysis done for the 2007 Climate Advisory Team, the net present value of cost savings between 2008-2020 of CHP implementation would be \$317 million dollars.

Include the following:

- ***Distribution of costs and benefits.*** *Costs and benefits that fall disproportionately on specific groups or actors, should be noted qualitatively, especially where studies or other information are available.*
- ***Qualitative description of additional external benefits*** (e.g. green jobs creation). *Unless studies or other information exists, the monetized environmental or social benefits, quality of life improvements, other health benefits, energy security benefits, and macroeconomic impacts from shifting benefits will not be quantified and included.*

- *Implications/ engagement opportunities for individual action/behavior change (e.g. behavior change needed to achieve implementation and/or achieved through implementation)*
- *Implications/engagement opportunities for local and regional governments and private sector*

EE/GB Action 5: Energy Efficiency for Natural Gas, Propane, and Fuel Oil

Initial Direction Provided to Small Group

Develop one or more model program design that can be used by natural gas, propane, and fuel oil suppliers or others, as appropriate, to capture all cost-effective energy efficiency opportunities for users of those fuels.

2009 Action Concepts (as produced by small group, but not revised after the July 9th EE/GB IWG Call, as the IWG agreed that this action be assigned a lower priority for further development due to having more limited potential for GHG savings than other actions under consideration by the IWG, and because some of the energy efficiency resources potentially tapped by this action will be tapped by other actions under development by the IWG)

Scope:

Do not address propane and fuel oil at this time - mechanisms for addressing this are not in place yet - needs further work.

Options:

1. Use a '937' requirement for gas utilities. Include cost recovery mechanisms. Decoupling/revenue neutrality should be provided.
2. Collect a charge on retail bills that is dedicated to conservation acquisition. (Determining the correct percentage for this could be problematic.) Provide revenue neutrality/decoupling.

Questions to CTED staff from this group:

What are current requirements for gas utilities to acquire cost effective efficiency?

What is the difference between this level of acquisition and the resource that could be achieved with options above.

Are there any carbon cost factors currently included in cost effectiveness calculations for gas utilities?

What impact would a carbon cost factor have on these figures?